



EMPLOYMENT, EDUCATION AND  
ENTREPRENEURSHIP  
October 25, 2024, Belgrade, Serbia





## Conference Proceedings

CIP - Каталогизacija y publikaciji  
Народна библиотека Србије, Београд

330.1(082)  
37(082)  
331(082)

INTERNATIONAL Scientific Conference Employment, Education and Entrepreneurship (13 ; 2024 ; Beograd)  
Conference proceedings / 13th International Scientific Conference Employment, Education and Entrepreneurship, October 25, 2024 Belgrade ; [organize Faculty of Business Economics and Entrepreneurship ... [et al.] ; editors Vlado Radić, Marisennayya Senapathy, Brahma Mohsen]. - Belgrade : Faculty of Business Economics and Entrepreneurship, 2024 (Valjevo : Valjevoprint). - 948 str. ; 30 cm

Tiraž 100. - Str. 23-25: Preface / editors. - Bibliografija uz svaki rad.

ISBN 978-86-6069-225-4

а) Економија -- Зборници б) Образовање -- Зборници в) Запошљавање -- Зборници

COBISS.SR-ID 159370249



## Conference Proceedings

### THEMATIC PROCEEDINGS

**Publisher:**

Faculty of Business Economics and Entrepreneurship, Belgrade, Serbia

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**Jointly organize**

**Thirteenth International Scientific Conference**

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### SHORT SUMMARY OF THE CONFERENCE

The Faculty of Business Economics and Entrepreneurship hosted another International Scientific Conference called "Employment, Education and Entrepreneurship" for the thirteenth time. The conference was held on October 25 in Belgrade, and this event was organized by professors and experts from the country, region, and other countries of the world.

The conference was opened by prof. dr Vlado Radić, who briefly pointed out the activities from the first conference until today, especially emphasizing the continuity of the event. He also pointed out that this year 85 papers from as many as 33 countries were accepted. Then he addressed prof. dr Dušan Cogoljević, founder and owner of the Faculty of Business Economics and Entrepreneurship, who originated the idea of holding the conference. He emphasized the importance of the conference, as well as the great response of scientific workers during all these years. Director of the Faculty of Business Economics and Entrepreneurship, prof. dr Zoran Radulović, emphasized that it is important to grow every day and wished for peace to prevail in the world. Prof. dr Mirjana Radović Marković, president of the scientific committee, then addressed the attendees, who emphasized the importance of following current events and world trends when it comes to science and pointed out that there is a close connection between employment, education and entrepreneurship. She noted that today's entrepreneurship is focused on new technologies, digitization, start-ups and new business modalities, which on the other hand leads to creative disruption. She pointed out that the labor market is rapidly changing, that some professions are slowly disappearing while new ones are being formed. She emphasized that we must not neglect education reform in accordance with the times we live in and reflected.

On behalf of the Ministry of Education, Snežana Ružić from the higher education sector addressed the audience and emphasized that the "Employment, Education and Entrepreneurship" conference is a significant event in the field of science and research and that it has the full support of the Ministry of Education. She had the honor of officially opening the conference.

After the introductory part, certificates were awarded to prominent experts who contributed to the success of the conference with their efforts and initiative (prof. dr Brahmi Mohsen from Tunisia and prof. dr Marisennayya Senapatry from Ethiopia).

After the opening remarks and the opening of the Conference, an award ceremony was held. The Faculty of Business Economics and Entrepreneurship awarded honorary professorships to colleagues from China – Prof. dr. Ouyang Yao and Prof. Dr. Li Yun, vice-president and dean of Hunan Normal University and professor from Turkey and president of the Mesopotamian Academy of Sciences and Arts (BEN-MAAS), based in Istanbul. Recognitions for annual contribution to the EEE2025 Conference were also given to professors from Ethiopia Dr Senapatry and from Tunisia Dr Brahmi.

At the end of this solemn part of the conference, the president of the Mesopotamian Academy of Sciences and Arts awarded the member of the Academy (BEN-MAAS) Prof. Dr Radović-Marković Mirjana for her leadership role and management of the department for Gender issues. At the same time, was awarded the founder of the Faculty of Business Economics and Entrepreneurship Prof. Dr Dušan Cogoljević for his jubilee birthday.

According to the defined agenda, the conference had a plenary part, a roundtable and three sessions. A total of 35 papers were presented (live and online). The presented papers were positively received by the participants, after which a discussion was held.



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### PREFACE

Employment is a relationship that is closely linked to human resources. Human resources, being the most critical aspect in determining the functionality of the employment system, plays a pivotal role. Employment means that workers or labourers receive pay or compensation in any form, according to the rules. The term of employment consists of people willing and able to work and do labour activities for themselves or others. Employment comprises citizens who have worked or are now working and are seeking a job while engaging in other activities, such as caring for the house. Employment boosts the economy of the country. However, it's the role of high-quality human resources that genuinely shape the workforce standards and, ultimately, the country's economy. Their contribution cannot be overstated.

#### **Influence of Education on Digital Marketing**

In the modern digital age, the role of education in influencing digital marketing is significant in the corporate world; it's urgent. All companies or enterprises need to establish a solid online presence. With more customers than ever turning to the Internet for information and collecting quotations, orders with the help of digital marketing strategies are flexible, not just crucial. They are the need of the hour. These strategies attract customers or market stakeholders and help enterprises stay competitive in the digital landscape, ensuring their relevance and reach in the digital age. A solid online presence is a luxury and a necessity for marketing centres in today's digital world. Digital marketing has revolutionized the marketing sector by bridging the gap between companies or firms and customers in a radical way. This transition shift has not only generated growth rates of the enterprises but also exaggerated to attract global customers. To understand how digital marketing services have become a critical part of the business sector, check out some future-head challenges. It might be due to a need for marketing vision or better digital marketing strategies.

#### **Website Development**

The main success of digital marketing is due to the fabulous website of the company or organization, which plays a crucial role in creating a solid online presence for any entity. A good website is vital for digital marketing because it's the prospective stakeholders' first point of contact. A well-designed website can attract customers and persuade them mentally and psychologically to buy the commodities due to its extraordinary features. A seamless and informative user experience can also help build trust and credibility. Advanced technologies electronically influence the modern digital world in many terms and functions.

#### **Digital Entrepreneurship**

Digital technologies have revolutionized our lives and work and created numerous new income opportunities for Micro, Medium and Small Entrepreneurs (MMSE). Digital entrepreneurship is the most significant type of entrepreneurship in today's world. It's not just about business, it's about driving personal prosperity, financial and social development, and productivity. Entrepreneurship inspires individual entrepreneurial attitudes, facilitating opportunity exploitation and value creation. Entrepreneurial initiatives occur mainly through new business ventures launched by individual entrepreneurs or entrepreneurial teams identifying and pursuing business opportunities. The role of digital technologies in this process cannot be overstated, as they have opened up a world of possibilities and created a more optimistic outlook for the future.

In many cases, these entrepreneurial endeavours occur in the corporate environment and are organized by innovative employees who share the same entrepreneurial spirit with entrepreneurs, also known as intrapreneurs. Both entrepreneurship and intrapreneurship are critical for economic and social development and heavily rely on human capital developed through formal education and training. The entrepreneurs' experience and education are closely related to the success of digital startups, and a solid educational background increases the probability of reaching entrepreneurial milestones. Furthermore, there are positive insights linking education





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with human capital and entrepreneurial outcomes confirmed by meta-analytic research, justifying the heavy investments in entrepreneurship education from Governments, Universities, and private organizations.

### Entrepreneurship Education

Entrepreneurship education also plays a significant role in providing the required knowledge to identify opportunities and exercise the cognitive mechanisms for opportunity evaluation through the available information. The transformation of entrepreneurial processes by utilizing emerging digital technologies offered competitive advantages to those investing in IT capabilities and created new opportunities for entrepreneurs through easy access to the global markets. Although information has become more accessible to more significant numbers of stakeholders through digital communication technology utilization, the scene of possible competitors has also widened compared to brick-and-mortar entrepreneurship. The increased competition intensified the demand for human capital regarding capabilities and made it a significant driver for digital innovation and entry into digital entrepreneurship.

### Digital Technology Transformation

Digital Entrepreneurship conceptually emanates from the transformative power of digital technology. It acts as a facilitator, a mediator, the product itself, and finally, as the ubiquitous component of every entrepreneurial attempt. Traditional business models have been considerably transformed by digital technology, and new digital ones have been created. This relatively new phenomenon has shown accelerated dynamics of evolution in recent years, showing progress from theoretical and technological points of view. Digital Entrepreneurship dominated the entrepreneurial landscape, especially during the restrictions and social distancing of the recent pandemic, due to the acceleration in digital technology adoption, which entrained rapid and groundbreaking changes in the entrepreneurial scheme. As more disruptive digital technologies intrude into business models, a complex combination of innovation, leadership, and management skills is required, which has severe implications for Digital Entrepreneurship. Realize that the body of knowledge develops rapidly, in a relatively uncontrolled and fragmented fashion, and few papers cope with the Digital Entrepreneurship educational perspective, leaving a considerable void in the literature regarding the consecutive adoption of disruptive new digital technologies in business and how it should be addressed from an academic viewpoint. Despite the rapid developments in entrepreneurship education, the interdisciplinary growth of digital entrepreneurship as a research field often needs to improve instructional designs regarding required knowledge and skills.

Moreover, the effect of entrepreneurship education and training tends to be overestimated by mainstream studies, gasping to catch up with the latest developments. An opportunistic rivalry of studies presenting many success stories in traditional entrepreneurship frequently overestimates the impact of entrepreneurship education without sound empirical evidence. The lack of theoretical frameworks analyzing digital entrepreneurship education conceptual dimensions hinders the evolution of original research on the theoretical and practical implications of the new emerging technologies engaged in digital entrepreneurship. Lastly, the need for empirical research in digital entrepreneurship education is not just crucial, it's urgent. It must be organized productively, raising difficulties in evaluating and disseminating the results in policy and practice. The inability to assess the empirical results of educational interventions based on the new emerging technologies would create a non-factual image of the research field, with diverse consequences for practice.

Dr. M. Senapathy, Assoc. Prof.  
Department of Rural Development and Agricultural Extension  
College of Agriculture, Wolaita Sodo University  
Ethiopia, East Africa.



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### OVERVIEW OF THE PLENARY PART

The plenary part of the conference was marked by presentations by four experts of different generations, who contributed to the conference through quantitative research on topics that were part of this year's agenda. The first presenter was Prof. Dr. Ouyang Yao, Director of the Center for Large Economies, Hunan Normal University, China. In an extremely interesting paper entitled **OPENNESS, BUSINESS ENVIRONMENT, AND ENTREPRENEURIAL PERFORMANCE IN LARGE ECONOMIES: EVIDENCE FROM CHINA**, Prof. Ouyang singled out the role of the state in strengthening the development of entrepreneurship. According to his opinion, to achieve national and urban economic prosperity, it is necessary to build an open economic system and a vast domestic market, enjoy the benefits of globalization, and stimulate entrepreneurship and innovation. Unlike the work that focused on China and the importance of its opening to the world and integration into global economic flows, the next presentation by Prof. Dr. Yildirim focused on **CHALLENGES IN TERMS OF EMPLOYMENT, EDUCATION AND ENTREPRENEURSHIP IN SERBIA, BALKANS AND EUROPE**. His presentation gave a long-term vision of the development of Serbia and the region as well as the EU, which should be based on investments in new projects, whether they come from institutional or private investors. Emphasis should be placed on the prosperity of future generations. That was a very clear message, which resulted from his presentation, which had a historical character and reminded of the cooperation between France and Serbia. Sebastian Stepień from Poznań University of Economics and Business, Poland et al. did the paper on **CHALLENGES OF SUSTAINABLE DEVELOPMENT AND COMPETITIVENESS OF AGRICULTURE**. The work deals with the comparative analysis of sustainable development of agriculture on the example of two countries – Serbia and Poland. Analyzing the situation in Serbia and Poland, numerous weaknesses and limitations were observed in terms of improving competitiveness and the process of sustainable development of agriculture, but at the same time a large number of resource potentials and development opportunities, which should be used more efficiently. And what can be highlighted as a common denominator in a large number of countries, including the example of Serbia and Poland, is that in practice the competitiveness and sustainability of agriculture is achieved by coordinating a large number of activities, policies and strategies in the domain of not only agricultural activities, but also rural development, ecology, environmental protection, etc. The fourth presentation was done by Hakan Kirbaş on **INVESTIGATING THE EFFECTS OF MACROECONOMIC INDICATORS ON STOCK RETURN: AN ANALYSIS ON BORSA ISTANBUL 100 INDEX**. This study aimed to examine the correlation between macroeconomic variables, such as interest rate, inflation and exchange rate with stock returns. According to the findings obtained in the study; there is a cointegration relationship between the dependent variable stock return in the main model and the independent variable interest rate, inflation and exchange rate. The study found a positive statistically significant relationship between inflation and stock returns in the long term, which parallels the results obtained by Issahaku, Ustarz and Domanban (2013); Fisher (1930). On the other hand, the interest rate showed a negative statistical relationship with stock returns in the long term. Similar results were shown by the research of Amarasingha (2015); Al-Abdallah and Aljarayesh (2017); Tiriyaki, Erdogan and Ceylan (2017), Ahmad, Maochun and Sattar (2019); Ikmal and Putra (2020); Kusumaningtias, Vidagdo and Nurjannah (2021). In the study, there were no causal relationships at the 1% and 5% significance levels of the interest rate, inflation and exchange rates to stock returns. But at the level of 10% as in previous studies in the literature Dricaki et al. (2005), Issahaku et al. (2013) and Amarasinghe (2015) there were causal relationships from interest rate and inflation to stock returns. The results show the exact impact of selected macroeconomic variables on stock returns, so potential investors can evaluate their decisions by looking at the interest rate, inflation and exchange rate. However, if investors use these



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macroeconomic variables to predict the future performance of stock returns, macroeconomic variables provide little information and stock return variation. Therefore, future studies it will have to include more macroeconomic indicators of integrated socio-economic and political factors into the model to better explain changes in stock returns.

Moderator of the plenary part, Acad. Mirjana Radović-Marković, Ph.D. concluded at the end of this part that although the selected papers differ from each other in terms of topics, they have common points, given that it is difficult to single out sustainable development, agriculture, entrepreneurship and investments and consider them outside of the global context. Considering these fields within a global context allows for more comprehensive and effective strategies that can address both local and international challenges. Namely, economic policies and trends in one country can have ripple effects worldwide.

Acad. Mirjana Radović-Marković, PhD



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### REVIEW OF THE ROUND TABLE

Sustainable development implies such a development of society that satisfies human needs with available resources, without endangering natural systems and the environment, thus ensuring the long-term existence of human society and its environment. When analyzing the strategic planning of sustainable development of a local self-government unit, five important components must be taken into account: social, cultural, spatial, economic and management. Of the mentioned elements, two are key, namely: management structure and economic sustainability. Without a clear system management structure, citizens can hardly feel belonging to the system and their role in making important decisions in their place of residence. Also, a poorly developed economy cannot contribute to a healthy spatial environment, stable social policy or comprehensive cultural development. When it comes to the importance of strategic planning for economic development, local communities must have a clear insight into the current situation, as well as an idea of the situation they want to achieve. Great help in these activities of local communities can be provided by scientific research and educational institutions (institutes and faculties). In cooperation with them, local communities can successfully assess the current situation and the key challenges that enable sustainable development. On the other hand, institutes and faculties can provide local communities with a quality definition of the role and importance of sustainable development for the challenges they face. In this context, institutes and faculties continuously improve the quality of research, analysis, studies and projects, education and training of personnel in order to better include economics, management and law in the sustainable development of local communities. Therefore, in order to achieve sustainable development of local self-government, there must be a will and a strategy must be developed with full, clearly identified responsibility for the possible impacts of its implementation on future generations. The sustainable development strategy of the local self-government unit defines the necessary (desired) needs that it would satisfy if it moved in the direction of their realization. For the above reasons, strategies for economic development based on knowledge and sustainable development of local communities should provide clear guidelines for the future development of the economy, society and environment. Based on the identified strengths and weaknesses of the local community, as well as chances and threats from the environment, the sustainable development strategy is a kind of guide that directs the actions and efforts of all participants in increasing the competitiveness of the economy and improving the quality of life and work of the residents of the local community. Viewed from the point of view of scientific research and educational activities of institutes and faculties that are carried out at the level of local communities in Serbia, the sustainable development strategy is a document that is the result of systematic work and research cooperation. team, the department for the economy, social activities and local economic development and numerous stakeholders for the development of the economy, society and environment of the local community. By adopting a sustainable development strategy, local communities receive the basis for applying for financial resources from the state budget, EU funds and other donor programs, for the implementation of various projects in the field of economic, social and ecological development of Serbia. The Sustainable Development Strategy also provides the basis for the development of inter-local, regional, inter-regional and cross-border cooperation, as well as for the establishment of local action groups and public-private partnerships. During the round table, there were several discussants, who pointed out certain specificities related to local communities. The undivided opinion of the conference participants is that the development of local communities has its own specificities that should be comprehensively planned, pointing out problems and harmonizing needs, all for the benefit of citizens living in local governments.

Jonel Subić, PhD, moderator



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# OPENNESS, BUSINESS ENVIRONMENT AND ENTREPRENEURIAL PERFORMANCE IN LARGE ECONOMIES: EVIDENCE FROM CHINA

Ouyang Yao<sup>1</sup>  
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DOI: 10.5937/EEE24001Y  
JEL: F6, F63, F64:  
Plenary Lecture

### ABSTRACT

*As political boundaries, countries and cities as administrative boundaries may restrict the flow of goods and factors. Economic openness is to weaken the economic boundaries of countries and cities and promote the flow of goods and factors. As a super-large economy, China has actively promoted both opening-up to the outside world and domestic opening-up, integrating into the international economic circulation system and building a unified domestic market, creating a high-quality business environment for enterprises. The improvement of the environment has enhanced entrepreneurial performance and promoted technological innovation of small enterprises and urban economic prosperity. The research shows that there is an inherent and necessary connection between the degree of openness, business environment, and entrepreneurial performance. Economic openness and business environment promote the formation of a high-quality entrepreneurial environment, which in turn affects entrepreneurial performance and economic development performance. Namely, various changes in the business environment have greatly affected the "business dynamism".*

### KEYWORDS

*large economy, economic openness, business environment, entrepreneurial performance*

## INTRODUCTION

From a global perspective, the world is divided into different countries; from a national perspective, a country is divided into different cities. As a political boundary, a country inevitably restricts the flow of goods and factors between countries. Similarly, as an administrative boundary, a city also restricts the flow of goods and factors between cities. The so-called "economic openness" is actually to reduce or weaken the intensity of national and urban boundaries that hinder the flow of goods and factors. Compared to weakening the economic boundaries between countries, which is relatively difficult, weakening the economic boundaries between cities is relatively easier.

A super-large country like China, with a land area of 9.6 million square kilometers and 655 cities, has the potential for significant economic growth due to its large population and vast territory. This can drive the expansion of consumer demand through increased population and income levels, and form a broad global

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market, supporting the specialization of key industries. However, if such a large number of cities, as administrative regions, form barriers that hinder the free flow of goods and factors, they may turn the super-large market of a super-large country into a number of small markets divided by numerous administrative boundaries, thus greatly weakening the advantages of market scale and economic development.

Since the implementation of the reform and opening-up policy in the 1980s, China has always regarded economic openness as one of its fundamental national conditions. It has continuously increased the intensity of economic openness, expanded the scope of economic openness, and improved the level of economic openness. It has made significant achievements in utilizing the global market, making China a major player or even the leading player in the production and sales of some important industries and products. Since the 21st century, China has begun to attach importance to domestic economic openness, formulating measures to break down local protectionism, remove barriers to the free flow of goods and factors between cities, and strive to build a unified national market that is fair, competitive, and orderly, thereby ensuring smooth domestic economic circulation. China's practical experience has shown that there is an inherent and necessary connection between the degree of openness, business environment, and entrepreneurial performance (Radović-Marković, Ouyang, Md. Shajahan, 2024). Economic openness promotes the improvement of the business environment, creates a fair entrepreneurial environment for enterprises, and thus affects entrepreneurial performance and economic development performance.

## CHINA'S DEGREE OF ECONOMIC OPENNESS: DOMESTIC AND INTERNATIONAL OPENING UP AND THE UNIFIED NATIONAL MARKET

China started to open up its economy to the outside world in 1983 and has gone through three stages: the first stage was from 1983 to 2000, mainly focusing on the opening-up of coastal cities and economic development zones, and the development of an outward-oriented economy; the second stage was from 2001 to 2012, when China joined the World Trade Organization and fully integrated into the world economy within the WTO framework; the third stage, from 2013 to the present, has focused on promoting institutional opening-up, achieving institutional and planning alignment with the country through the construction of free trade zones.

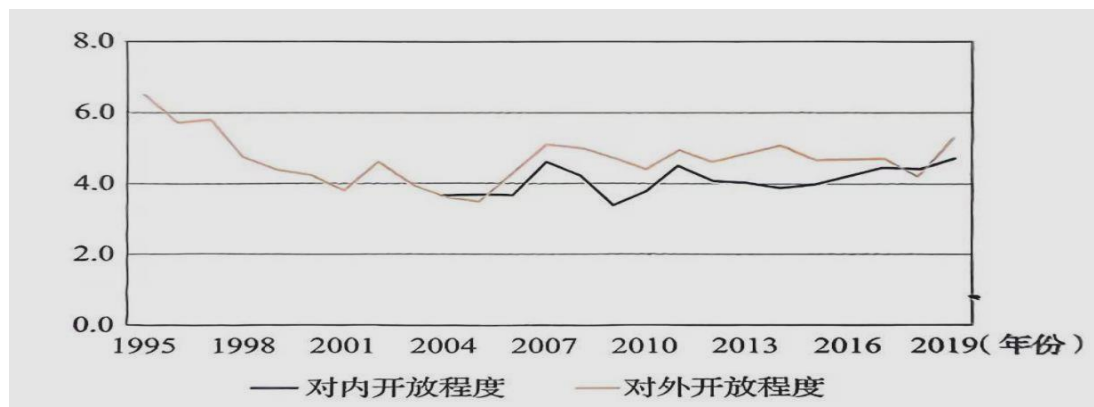


Figure 1. Trends in China's Domestic and International Openness (1995-2022)

Source: IMD WORLD competitiveness yearbook



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Table 1. Composite Ranking of Economic Openness among Major Economies

Domestic Market Openness			International Market Openness		
Ranking	Country	Score	Ranking	Country	Score
1	Hong Kong, China	9.06	1	Austria	9.08
2	Netherlands	8.79	2	Hong Kong, China	9.06
3	Singapore	8.62	4	Sweden	8.89
6	Germany	8.47	8	United Kingdom	8.54
7	United States	8.43	10	United States	7.66
19	France	7.38	29	France	7.16
34	Japan	6.78	45	Japan	6.00
38	Mainland China	4.68	59	Mainland China	5.27

From Figure 1 and Table 1, we can observe the overall situation and trend of China's opening up to the outside world. Although the degree of China's external economic openness has experienced ups and downs since 2001, the overall trend has been upward. In terms of the ranking of the degree of opening up in 2019, Hong Kong, China and Mainland China ranked second and 59th globally, respectively. Regarding China's mainland domestic openness, the overall trend since 2001 has been gradually upward.

In March 2023, to promote China's domestic economic opening up, the central government issued the "Opinions on Accelerating the Construction of a Unified National Market," proposing six policy measures: (1) establishing a unified system for property rights protection, market access, fair competition, and social credit; (2) accelerating the construction of a modern distribution network, market information interaction channels, and market trading platforms; (3) establishing and improving a nationwide unified land market, labor market, capital market, energy market, carbon emissions market, and water rights trading market; (4) building a unified market for goods and services, as well as quality system standards and measurement systems; (5) improving fair and unified market supervision rules, law enforcement procedures, and regulatory services; and (6) preventing the abuse of administrative power to exclude and restrict market competition, such as local protectionism and regional barriers. The promotion and implementation of these policy measures have achieved good results, driving an increase in the degree of openness in various regions and industries within the country.

## CHINA'S BUSINESS ENVIRONMENT: OVERALL EVALUATION AND POLICY SUPPORT SYSTEM

Economic openness is a fundamental prerequisite for improving the business environment (Radović-Marković, Ouyang, Md. Shajahan, 2024). A closed society lacks fair competition, which in turn suppresses the innovation and entrepreneurial vitality of entrepreneurs. In 2001, the World Bank proposed a set of indicators to assess the business environment for the private sector in various countries, mainly including: procedures, time, and cost of starting a business, obtaining a tax permit, obtaining electricity, registering property, obtaining credit, employing workers, enforcing contracts, and resolving insolvency; the time and cost of cross-border trade, as well as the total tax and contribution rate. Governments and policymakers in many countries pay special attention to these important indicators. While actively promoting economic openness, the Chinese government is committed to improving its domestic business environment and encouraging investment and business development by all types of



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market entities. According to data released by the World Bank, China's overall ranking in the business environment has improved rapidly, rising from 96th in 2013 to 31st in 2022.

Table 2. China's Overall Global Ease of Doing Business Ranking in the Last 10 Years

Year	2013.	2014.	2015.	2016.	2017.	2018.	2019.	2020.	2021.	2022.
Ranking	96	96	90	84	78	78	46	31	31	31

Source: World bank (*Doing Business 2022*), <http://www.doingbusiness.org>.

A World Bank thematic report in 2020 noted, "Over the past decade, China has improved on all Doing Business indicators. Due to strong reforms in the business environment, China has not only been recognized by the public as the most important reformer among large economies but has also become one of the ten fastest-growing economies in the world." The reasons for China's successful reforms primarily stem from six driving factors:

- 1) high-level leadership's emphasis on the reform agenda;
- 2) policy experiments conducted at the local level;
- 3) domestic and international knowledge exchange;
- 4) the enforceability and accountability of the reform agenda;
- 5) active participation of the private sector; and
- 6) the widespread application of e-government services.

Small and medium-sized enterprises (SMEs) are the main body of social entrepreneurship. Creating an entrepreneurial environment that promotes the development of SMEs is of particular significance and plays a positive role in improving the business environment. Since the 21st century, the Chinese government has paid special attention to the development of SMEs. The "Small and Medium-sized Enterprise Promotion Law of the People's Republic of China" passed in 2002 proposed a policy framework to support the development of SMEs, including policy provisions to protect the legitimate rights and interests of SMEs, fiscal and financial policies to promote the development of SMEs, and policy measures to encourage innovation and entrepreneurship among SMEs. In 2022, government agencies organized a third-party evaluation of the development environment for SMEs, and the results showed that:

- 1) a fair and competitive market legal environment has been created through deepening reforms;
- 2) an inclusive financial ecosystem has been constructed through credit structure adjustments;
- 3) an ecological environment for the industrialization of new technologies has been built through path optimization; and
- 4) the implementation of various preferential policies has been guaranteed through service optimization.

Table 3. Top-Ranked Cities in SME Development Environment Assessment

No.	City	Index	No.	City	Index	No.	City	Index
1.	Shenzhen	79.62	6.	Hangzhou	67.31	11.	Tianjin	57.19
2.	Shanghai	76.64	7.	Xiamen	65.29	12.	Wuhan	55.53





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3.	Nanjing	71.11	8.	Ningbo	58.89	13.	Hefei	55.19
4.	Guangzhou	70.96	9.	Changsha	57.95	14.	Chengdu	51.99
5.	Beijing	70.60	10.	Qingdao	57.50	15.	Xian	51.82

Source: 2022 Annual Assessment Report on the Development Environment for Small and Medium-sized Enterprises, available at [miit.gov.cn](http://miit.gov.cn)

## ENTREPRENEURIAL PERFORMANCE OF CHINESE ENTERPRISES: TECHNOLOGICAL INNOVATION OF SMALL ENTERPRISES AND ECONOMIC PROSPERITY

China's economic opening up has fostered an improved business environment, not only attracted a large amount of foreign investment but also stimulating innovation and entrepreneurship among local enterprises (Radović-Marković, 2024). Domestic economic opening up has promoted the formation of a unified large market, and China's ultra-large-scale market has constituted a new advantage for China's economic development. Relying on this advantage of a large-scale domestic market, it has both enhanced the incentive for Chinese enterprises to innovate technologically and strengthened the driving force for sustainable economic development, thereby promoting the development and economic prosperity of Chinese cities.

Economic prosperity is first manifested in the rapid development of small and medium-sized enterprises. In 2022, China registered an average of 23,800 new enterprises per day, and by the end of 2022, the number of SMEs exceeded 52 million. In particular, the technological development capabilities of SMEs have been continuously enhanced, and a number of high-tech and high-efficiency enterprises have emerged. In recent years, the Chinese government has been committed to cultivating "specialized, sophisticated, distinctive, and novel" small giant enterprises, namely small enterprises that specialize in their main business, pursue excellence, create distinctive products, and build innovative advantages, forming a full-cycle and comprehensive support system. Relying on their advantages of specialization, differentiation, sophistication, and innovation, these enterprises have achieved considerable economic benefits. By the end of 2021, the total annual operating revenue of these enterprises reached 3.7 trillion yuan, and the total annual profit exceeded 380 billion yuan, with a profit margin on operating revenue exceeding 10%.

Table 4. Top 15 Cities by Number of Key "Small Giant" Enterprises

No.	City	Number of Key "Small Giant" Enterprises	Regional GDP in 2021. (billion yuan)	Number of High-tech Enterprises in 2021.	R&D Intensity in 2020.
1	Beijing	138	40269.6	2.76万	6.44
2	Shanghai	123	43214.8	1.7万	4.17
3	Ningbo	71	14594.0	3919	2.85
4	Shenzhen	65	30664.8	2万	5.46
5	Chongqing	62	27894.8	4065	2.11
6	Tianjin	53	15695.0	9000	3.44



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7	Chengdu	47	19917.0	7821	3.11
8	Qingdao	47	14136.5	5554	/
9	Xi'an	39	10688.3	7140	5.05
10	Changsha	38	13270.7	5200	2.8

*Source: Compiled based on the newly released list of key "small giant" enterprises by the Ministry of Industry and Information Technology*

Relying on a high-quality business environment, the Chinese government has established high-tech and economic and technological development zones in various large and medium-sized cities, developing high-tech industrial clusters, which has driven the high-quality development of urban economies. By the end of 2019, the 169 national high-tech industrial development zones in China had a total output value of 12.1 trillion yuan, accounting for 12.3% of the nation's GDP; enterprises in the high-tech zones held a total of 858,000 invention patents, including 790,000 domestic invention patents, accounting for 30.3% of the national total.

Table 5. Top 15 Most Economically Developed Cities in China (2022)

Ranking	City	Total GDP (in 100 million yuan)	GDP per Capita (in 10,000 yuan)	Ranking	City	Total GDP (in 100 million yuan)	GDP per Capita (in 10,000 yuan)
1.	Shanghai	44245	17.773145	9.	Hangzhou	18839	15.436742
2.	Beijing	41119	18.78781	10.	Nanjing	16940	17.976527
3.	Shenzhen	32465	18.360895	11.	Tianjin	16365	11.919155
4.	Guangzhou	29282	15.566755	12.	Ningbo	15755	16.528709
5.	Chongqing	29094	9.056695	13.	Qingdao	15186	14.805932
6.	Suzhou	23718	18.460748	14.	Wuxi	14803	19.79143
7.	Chengdu	20767	9.799453	15.	Changsha	14120	13.790005
8.	Wuhan	19902	13.922001				

*Source: Data compiled from the China Statistical Yearbook 2023.*

Table 6. Top 15 Cities Ranked by Openness, Business Environment

	Openness	Business Environment	Economic Performance
1.	Shanghai	Shanghai	Shanghai
2.	Beijing	Beijing	Beijing
3.	Shenzhen	Shenzhen	Shenzhen
4.	Xiamen	Hangzhou	Guangzhou
5.	Dalian	Suzhou	Chongqing
6.	Tianjin	Hefei	Suzhou
7.	Qingdao	Guangzhou	Chengdu
8.	Ningbo	Ningbo	Wuhan
9.	Guangzhou	Nanjing	Hangzhou
10.	Hangzhou	Changsha	Nanjing
11.	Chongqing	Wu'an	Tianjin



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12.	Chengdu	Xiamen	Ningbo
13.	Xi'an	Chengdu	Qingdao
14.	Nanjing	Chongqing	Wuxi
15.	Wu' an	Wuxi	Changsha

Source : (1) Data source: People's Forum Evaluation Center : [www.rmlt.com.cn](http://www.rmlt.com.cn) ; (2) Data source: China Business Environment Report 2023, National Development and Reform Commission : [www.gov.cn](http://www.gov.cn) ; (3) Data source: China Statistical Yearbook 2023, China Statistics Press, 2023.

As shown in Table 6, among the top 15 cities in China in terms of urban openness, business environment, and economic performance, 11 cities rank among the top 15 in all three indicators, namely Shanghai, Beijing, Shenzhen, Xiamen, Ningbo, Guangzhou, Hangzhou, Chongqing, Chengdu, Nanjing, and Wuhan. Three cities rank among the top 15 in both business environment and economic performance, namely Suzhou, Wuxi, and Changsha; and one city, Qingdao, ranks among the top 15 in both openness and economic performance. It can be seen that there is a highly consistent correlation between a city's openness, business environment, and economic performance.

## CONCLUSION

Three conclusions and implications can be drawn from this: (1) Economic openness is a crucial indicator of the business environment. A closed socioeconomic system cannot foster a superior business environment, nor can it lead to national and urban economic prosperity. (2) The business environment is the fundamental guarantee for investment and business development, and it is also a driving force for stimulating entrepreneurship. The government's role should primarily focus on creating a high-quality environment for entrepreneurs. (3) To achieve national and urban economic prosperity, it is necessary to build an open economic system and a vast domestic market, enjoy the benefits of globalization, and stimulate entrepreneurship and innovation.

## REFERENCES

China Business Environment Report 2023. National Development and Reform Commission: Available at [www.gov.cn](http://www.gov.cn) [Accessed 25st July 2024].

China Statistical Yearbook (2023). China Statistics Press. Available at: National Bureau of Statistics of China >> Yearbook ([stats.gov.cn](http://stats.gov.cn)) [Accessed 1st May 2024].

World bank (Doing Business 2022), Available at: <http://www.doingbusiness.org>. [Accessed 20st May 2024].

Ministry of Industry and Information Technology. (2022) Annual Report on the Development Environment Assessment of SMEs. Available at:

[https://www.miit.gov.cn/xwdt/gxdt/sjdt/art/2023/art\\_e0b3a6eb45e343c492c80907de731283.html](https://www.miit.gov.cn/xwdt/gxdt/sjdt/art/2023/art_e0b3a6eb45e343c492c80907de731283.html) [Accessed 21st May 2024].

Ministry of Industry and Information Technology. (2022) Guidelines for the Digital Transformation of SMEs. Available at: [chrome-](https://www.miit.gov.cn/xwdt/gxdt/sjdt/art/2023/art_e0b3a6eb45e343c492c80907de731283.html)



## Conference Proceedings

extension://bnjoienjhclcabnkbhfhndecoipmcdg/background/jgpdf/layout/index.html?file=https://www.gov.cn/zhengce/zhengceku/2022-11/09/5725642/files/71a18505f65e401fa242dca9e263839c.pdf [Accessed 21st May 2024].

People's Forum Evaluation Center. Available at: [www.rmlt.com.cn](http://www.rmlt.com.cn) [Accessed 25st July 2024].

Radović Marković, M., Đukanović, B. (2022). *Macroeconomics of Western Balkans in the Context of the Global Work and Business Environment*, Charlotte, US: Information Age Publishing (IAP), Inc., United States

Radović-Marković, M. (2024). *Critical Issues in Entrepreneurship, Education and Economic Development in China, Bangladesh, and Japan: Current Trends*. Third International Scientific Conference: "Challenges of Modern Economy and Society Through the Prism of Green Economy and Sustainable Development" – CESGED2024. Available at: [Critical-issues-in-entrepreneurship-education-and-economic-development-in-china-bangladesh-and-japan-current-trends.pdf](#) [Accessed 20st July 2024].

Radović-Marković, M., Ouyang, Y., Md. Shajahan K. (2024). *Globalization and Entrepreneurship: Cases from China, Japan and Bangladesh*, Routledge, forthcoming.



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# CHINA'S ROLE FOR INVESTMENTS AND SUPPORT ENTREPRENEURSHIP IN SELECTED BRI COUNTRIES IN ASIA

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DOI: 10.5937/EEE24002R  
JEL: E50, E51, L26  
Plenary Lecture

### ABSTRACT

*China's Belt and Road Initiative (BRI) has become a significant driver of investment and support for entrepreneurship in selected countries across Asia. The research method used in the work is based on a review of the literature, statistical data, as well as on the obtained first results of own research related to the project on the impact of globalization on large countries. The goal is to point out the achieved results, but also to give recommendations in which segments this cooperation can be improved. In the paper, the authors not only analyze the positive impact of the Belt and Road initiative, but also mention certain negative aspects. Also, at the end of the paper, the authors pay special attention to measures to strengthen this initiative between China and other countries.*

### KEYWORDS

*Belt and Road initiative, investment, entrepreneurship, Asia*

## INTRODUCTION

The BRI is a complex and multifaceted initiative with far-reaching implications for entrepreneurship development in Asia. The projects often involve significant investments in infrastructure that can have a direct impact on the lives of citizens, such as roads, bridges, and energy facilities. It presents both opportunities and challenges, and its ultimate impact will depend on a variety of factors, including the policies of the countries involved, the nature of the projects undertaken, and the management of potential social and environmental impacts (Picture 1). In addition to the numerous advantages that China's road and belt initiative has shown since its launch in 2013, the BRI also has faced criticism and opposition in some countries due to concerns about debt crises and the expansion of Chinese power (CFR, 2023).

The main goal of this paper is to point out the advantages and disadvantages of this initiative, as well as to point out the measures and possibilities of improving this initiative.

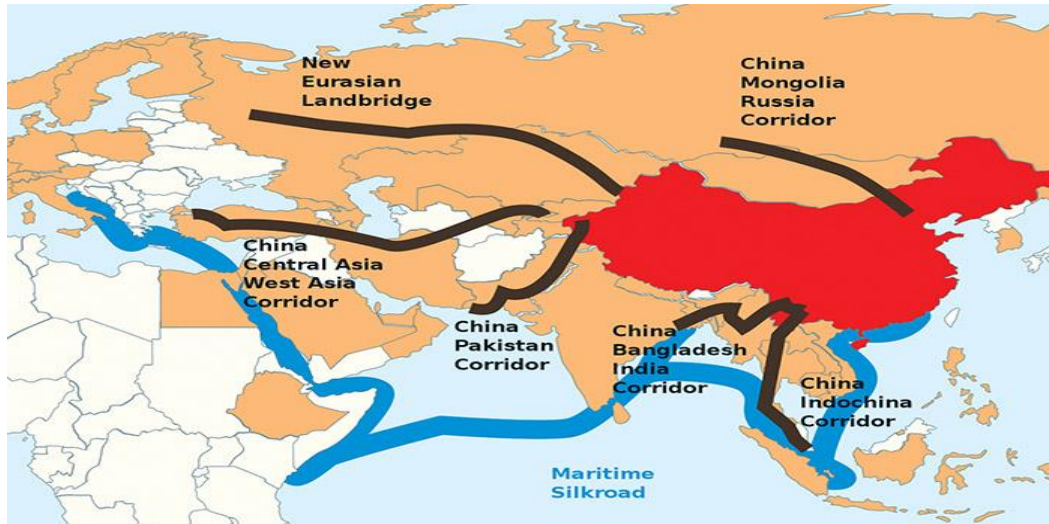
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Picture 1. BRI initiative in Asia  
*Source: BRI countries (bing.com)*

## THEORETICAL REVIEW

BRI fundamentally changes the approach and logic of traditional geopolitical competition. Examples of this are differences in the perception and interpretation of the goals and objectives of the BRI Initiative. Therefore, Linjie, (2022) suggests that the goals related to the creation of competition should be replaced by the harmonization of common interests for all countries that have accepted this initiative. In addition to the differences between countries related to the perception of this initiative, what is certainly common to all countries is the fact that through this program they expect to achieve economic growth and creating conditions for infrastructure development as a basis for entrepreneurial development. In line with this, China has recognized the critical role of entrepreneurship in driving economic growth and innovation in BRI countries. The BRI offered great opportunity for SMEs is China-Pakistan Economic Corridor (CPEC). The CPEC was a USD 62 billion flagship program of Belt and Road initiative envisioned to connect Pakistan's Arabian Sea port of Gwadar to Kashgar, western Chinese city. Opportunities under the CPEC led to decent growth of SMEs, which constitute 90% of the 3.2 million businesses in Pakistan. They approximately contribute 30% to Pakistan's GDP, 25% to the country's export earnings, and 35% to country's value-added manufacturing. The investment of above USD 60 billion by CPEC, provided unprecedented avenues for the growth of the SME in Pakistan (Lee, Shen, 2020).

The development of BRI, brought lots of new investment and business opportunities for Malaysian SMEs ('Belt-Road to Benefit Businesses' 2019). BRI initiatives which were promoted by Alibaba group empowered Malaysian SMEs through its Electronic World Trade Platform (eWTP) hub (Jing et al. 2017).

Bangladesh became a part of the BRI in 2016 . Bangladesh has decided to join the BRI, as this would provide a gateway to the wider Indian Ocean Region (World Bank, 2019). Also, Bangladesh's elevation to a middle-income country is very much related to China's policy (Datta, 2021).

One of the major benefits of the BRI for Bangladesh is that it will increase connectivity and trade with other countries in the region. Namely, China is currently the biggest trading partner of Bangladesh and



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Bangladesh is set to receive Chinese investments of over \$40 billion under the bilateral partnership (Rahman, 2021). According to Rahman (2021), from 2009 to 2019, the Dhaka Tribune found that China invested an estimated \$9.75 billion in transportation projects in Bangladesh. This will create new opportunities for entrepreneurs to expand their businesses and explore new markets. For example, the construction of new ports and the expansion of existing ones will facilitate greater exports and imports, and entrepreneurs can take advantage of this by expanding their business operations to take advantage of new trade routes. Additionally, the BRI is expected to lead to greater foreign investment in Bangladesh. This can provide entrepreneurs with access to capital, technology, and other resources that can help them grow their businesses. The development of new infrastructure, such as roads and railways, can also create new opportunities for entrepreneurship, as it can open up new areas for business development.

While there are some concerns about the potential risks and challenges associated with BRI investments, it is clear that the initiative is having a significant impact on entrepreneurship and innovation in many countries across Asia. It's important to note that the actual impact can vary greatly depending on the specific circumstances of each country.

## CHALLENGES ASSOCIATED WITH THE BRI

There are potential challenges associated with the BRI. One concern is that the infrastructure projects could lead to environmental degradation and social disruption, which could negatively impact entrepreneurship in the long term. Additionally, there are concerns that the BRI could lead to an increase in debt for Bangladesh, which could limit the country's ability to invest in other areas that are critical to entrepreneurship, such as education and research and development.

While the initiative has the potential to create new opportunities for entrepreneurs, it is important that policymakers and business leaders carefully consider the potential risks and challenges associated with the initiative in order to ensure that it leads to sustainable and inclusive economic growth. At the first place, in Bangladesh cannot be any room for corrupt practices while implementing the BRI projects.

The BRI has been considered as one of the main catalysts behind the intensified rivalry between China and Japan in recent years (Joe, 2022). According to Joe, Japan's shifting policy toward the BRI was characterized by an unusual decision-making process due to the differing viewpoints of policymakers. The main reason lies in the fact that the impact of BRI on entrepreneurship in Japan is complex and multifaceted. It depends on a range of factors, including the specific industries and firms involved, the nature of the projects, and the geopolitical dynamics in the country. However, the contemporary relationship between China and Japan is characterized by a very high degree of economic interdependence (The Mainichi, 2017, Suzuki, 2021). In line with this, BRI presents significant opportunities for Japanese entrepreneurs to expand their businesses into new markets and participate in large-scale infrastructure projects. Additionally, the initiative could potentially stimulate demand for Japanese goods and services in BRI countries, further supporting entrepreneurship and innovation.

On the other hand, BRI also presents significant challenges and risks for Japanese entrepreneurs. For example, the initiative could lead to increased competition from Chinese firms, who are likely to receive preferential treatment from their government. Japanese firms may also face obstacles such as corruption, political instability, and weak legal systems in some BRI countries, which could make it difficult to do business and protect intellectual property.



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# POTENTIAL NEGATIVE IMPACTS OF THE BRI ON MEMBER COUNTRIES

These are some of the potential negative impacts of the BRI on member countries. It's important to note that the actual impact can vary greatly depending on the specific circumstances of each country.

Here are some potential negatives for member countries such as:

- **Environmental degradation:** The construction of large-scale infrastructure projects associated with the Belt and Road Initiative has led to increased deforestation, water pollution, carbon emission, waste creation and air pollution in some areas. This has had negative impacts on both human health and biodiversity.
- **Social Risk:** An inflow of workers to complete the Belt and Road Initiative projects could transmit disease and create social tension (World Bank, 2019).
- **Debt burden:** Some participating countries have accumulated large amounts of debt to fund Belt and Road projects, which can lead to long-term economic instability and dependence on China.
- **Labor rights violations:** There have been reports of labor rights violations in some Belt and Road projects, including forced labor and poor working conditions.
- **Geopolitical tensions:** The Belt and Road Initiative has been criticized for its potential to increase China's political and economic influence in participating countries, which can create geopolitical tensions.
- **Governance Risk:** As the Belt and Road Initiative will cross several political boundaries it will create several new challenges and risks in governance (World Bank, 2019).
- **Lack of transparency:** There have been concerns about the lack of transparency in Belt and Road projects, including opaque procurement processes and limited public consultation.
- **Waste and Scrap (WaS):** Waste and scrap are valuable goods sold in global marketplace which are recycled and across the world recognized as substitutes for virgin manufacturing materials (ISRI, 2021). The Belt and Road Initiative (BRI) countries have become increasingly important to global WaS recycling. Specifically, the ratio of BRI-WaS trade value to global WaS trade value increased from 4.1% in 1990 to 15.1% in 2019 (Hu et al., 2021).

It is important to note that the negative impacts of the Belt and Road Initiative are not universal and may vary by project and country. However, these concerns highlight the need for careful consideration and evaluation of the potential benefits and risks associated with infrastructure development initiatives like the Belt and Road Initiative.

## RANGE OF MEASURES TO SUPPORT ENTREPRENEURSHIP IN BRI COUNTRIES

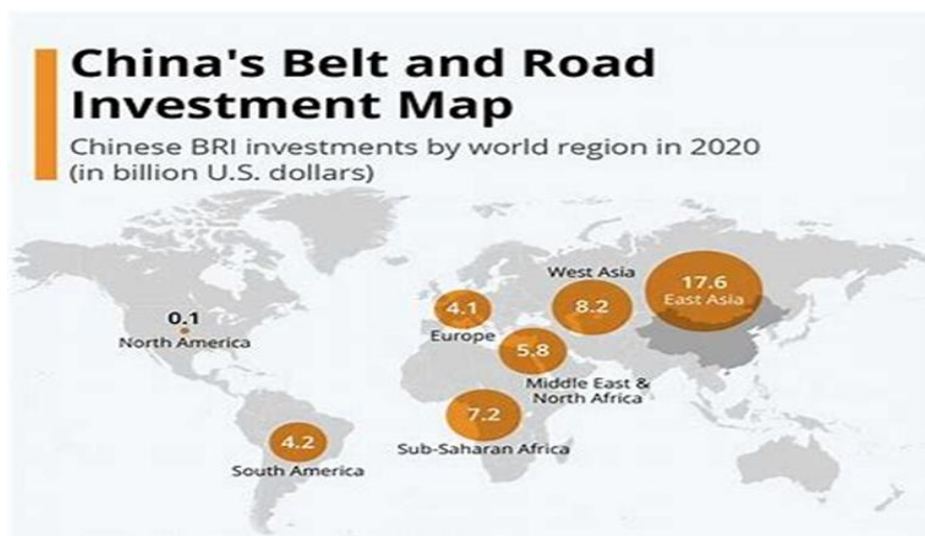
The BRI is providing a range of support mechanisms to encourage entrepreneurship and innovation in participating countries. These measures include as follow:





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- *Providing funding and investment:* The BRI has made significant investments in Asia, with the total investments surpassing \$1 trillion (WEF, 2023) – Picture 2. China has established a number of funds to support entrepreneurship in BRI countries, such as the Silk Road Fund, the China Development Bank Capital Corporation, and the China-Africa Development Fund. These funds provide investment, loans, and other financial support to start-ups and small businesses (Kariv, D. (2020). These projects aim to enhance connectivity through Southeast, South, Central, and West Asia (WEF, 2023). In this context, “the investments in the BRI countries along the land route bring significant improvement in China’s soft power“ (Voon, Xu, 2020).
- *Facilitating business partnerships:* The BRI has created opportunities for entrepreneurs to build partnerships with Chinese businesses and investors. Chinese companies are encouraged to partner with local businesses in BRI countries, and entrepreneurs are encouraged to attend trade fairs and other events to promote their businesses and connect with potential partners.
- *Sharing knowledge and expertise:* China has established a range of training and education programs to help entrepreneurs in BRI countries develop their skills and knowledge. These programs cover a range of topics, including business management, marketing, and technology.
- *Providing regulatory support:* China is also providing regulatory support to help create a favorable environment for entrepreneurship in BRI countries. This includes supporting the development of legal frameworks and policies that promote entrepreneurship and innovation.



Picture 2. CBI Investment Map

Source: Chinese Belt and road investment map (bing.com)

## CONCLUSION

One of the primary objectives of the BRI is to enhance connectivity through infrastructure development. China has been investing heavily in building roads, railways, ports, and energy infrastructure in BRI countries such as Pakistan, Sri Lanka, and Bangladesh. These investments create opportunities for local entrepreneurs to participate in construction projects, logistics services, and related industries. In order to achieve the desired



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effects, companies need a dynamic process of adapting to all changes that allows business owners to "look and move forward". It should and must be supported by a good innovation policy.

## REFERENCES

Belt and Road Portal (2019). The Belt and Road Initiative Progress, Contributions and Prospects. Belt and Road Portal. <https://eng.yidaiyilu.gov.cn/zchj/qwfb/86739.htm>. (Accessed on 12 December 2022).

CFR (2023). China's Massive Belt and Road Initiative. Available at: China's Massive Belt and Road Initiative | Council on Foreign Relations (cfr.org)

Datta, S.K. (2021). Strategic Implications BRI in Bangladesh. Available at: [https://www.researchgate.net/publication/354054288\\_BRI\\_in\\_Bangladesh\\_Strategic\\_Implications](https://www.researchgate.net/publication/354054288_BRI_in_Bangladesh_Strategic_Implications) [Accessed Apr 10 2023].

Jing, Shuiyu, Xin Qi, Wei, H. (2017). Alibaba Bringing Belt, Road Benefits to SMEs. China Daily: [http://www.chinadaily.com.cn/business/2017-04/24/content\\_29051117.htm](http://www.chinadaily.com.cn/business/2017-04/24/content_29051117.htm). (Accessed on 10 April 2024).

Joe, T.C. (2022). Balancing Rivalry and Cooperation: Japan's Response to the BRI in Southeast Asia. Available at : <https://www.e-ir.info/2022/06/20/balancing-rivalry-and-cooperation-japans-response-to-the-bri-in-southeast-asia/> [Accessed Apr 1 2023].

Kariv, D. (2020). Start-Up and Small Business Life. In: Carayannis, E.G. (eds) Encyclopedia of Creativity, Invention, Innovation and Entrepreneurship. Springer, Cham.

Lee, H. L., Shen, Z. J. M. (2020). Supply chain and logistics innovations with the Belt and Road Initiative. Journal of Management Science and Engineering, 5(2), 77-86.

Linjie, C. Z. (2022). Belt and Road Initiative (BRI) a Path to Economic Resilience: Theoretical and Conceptual Approaches. Journal of Entrepreneurship and Business Resilience, 5(2), 31–39.

Park, A., Tritto, A., Dini, S. (2021). The Belt and Road Initiative in ASEAN – Overview. Available at SSRN: <https://ssrn.com/abstract=3932776> or <http://dx.doi.org/10.2139/ssrn.3932776>

Radović Marković, M., Marković, D. (2022). Encouraging Enterprise Resilience and Unpredictable Business Environment. Journal Entrepreneurship and Business Resilience, 5(2), 7-13.

Rahman, S.A. (2021). The BRI in Bangladesh: "Win-Win" or a "Debt Trap"? Available at: <https://thediplomat.com/2021/11/the-bri-in-bangladesh-win-win-or-a-debt-trap/> [Accessed Apr 3 2023].

Suzuki, S. (2021). Economic statecraft, interdependence, and Sino-Japanese "rivalry". The Pacific Review, 35(3), 1-24.

The Mainichi. (2017). Gov't urges Japanese firms to take part in 'One Belt, One Road' Initiative. Available at: <https://mainichi.jp/english/articles/20171204/p2a/00m/0na/020000c>. [Accessed May 25 2023]

Voon, J., Xu, X. X. (2020). Impact of the Belt and Road Initiative on China's soft power: preliminary evidence, Economics Asia-Pacific Journal of Accounting & Economics, 27(1), 120-131.

WEF (2023). China's Belt and Road Initiative turns 10. Here's what to know. Available at: China's Belt and Road Initiative turns 10. Here's what to know | World Economic Forum (weforum.org)



## Conference Proceedings

Vujičić, S., Radović Marković, M., Nikitović, Z., Lapčević, G. (2021). The Inovative Activities for the Resilience of the SMEs in the Republic of Serbia. *Journal of Entrepreneurship and Business Resilience*, 4(1), 15–24.

World Bank (2016). *Connecting to Compete 2016: Trade Logistics in the Global Economy--The Logistics Performance Index and Its Indicators*. Washington DC. Available at: <https://openknowledge.worldbank.org/handle/10986/24598> [Accessed Apr 11 2023].



## Conference Proceedings

# CHALLENGES OF SUSTAINABLE DEVELOPMENT AND COMPETITIVENESS OF AGRICULTURAL

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DOI: 10.5937/EEE24003T  
JEL: P51, Q01, Q13  
Plenary Lecture

### ABSTRACT

*Agriculture has a significant impact on the entire humanity and because of that we analyze the the purpose of agriculture sector, especially the challenges of sustainable agriculture and the influence of competitiveness, which stems from the fact that the participation of agriculture in the economy of Serbia and Poland is at a relatively high level. In order to see more important performance and characteristics involved in the concept of challenges of sustainable development and competitiveness of agricultural, we will presents a brief overview of some specifics in two different countries - Serbia and Poland.*

### KEYWORDS

*agriculture, competitiveness of agricultural, sustainable development, sustainable agriculture*

## INTRODUCTION

The world is becoming more and more global and integrated, so no matter how specific a country, a region in it or a municipality is, it is impossible for their agricultural production, trade or prices to be outside the influence of regional and world trends (SEEDEV, 2017).

Simultaneously with the mentioned changes, important issues in the policy of sustainable development of agriculture are being developed and implemented, which in accordance with modern development concepts simultaneously connect and respect the economic, ecological and social dimensions.

Some authors (Praća et al., 2017) are of the opinion that sustainable agriculture is based on the use of technologies that maximize productivity and at the same time minimize negative effects on natural (land, water and biodiversity) and human resources (rural population and consumers). That is why the concept of sustainable agriculture was expanded to sustainable agricultural and rural development – SARD concept (Ristić, 2013, Stojanović, Manić, 2009).

According to the defined National Sustainable Development Strategy (2008), the long-term concept of sustainable development implies constant economic growth which, in addition to economic efficiency,

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technological progress, more clean technologies, innovation of the whole society and socially responsible business, ensures poverty reduction, long-term better use of resources, improvement of health conditions and quality of life and reduction of pollution to a level that environmental factors can withstand, prevention of new pollution and preservation of biodiversity.

Numerous sustainable agricultural practices are being promoted globally, including sets of metrics for various sustainable farming approaches that incorporate Sustainable Agricultural Practices -SAP (Coulibaly et. al., 2021). It is very important for decision makers to find ways to encourage farmers to switch to sustainable agricultural production, as well as to identify bottlenecks and problems in switching and problems in staying in sustainable agricultural production.

In order to see more important performance and characteristics involved in the concept of challenges of sustainable development and competitiveness of agricultural enterprises, we will present a brief overview of some specifics in two different countries - Serbia and Poland. Historically, they belonged to the same Eastern bloc of communist states, but after 1990 their paths of economic and political development diverged. Poland became a member of the European Union, Serbia remains outside this system. Nevertheless, the agrarian structure still has common features - small-scale farms dominate in both countries.

## COMPETITIVENESS OF AGRICULTURAL – SERBIA AND POLAND

In contemporary economies farmers face numerous competitiveness challenges, in particular: low representation in the value chain, input and output price volatility, shrinking land resources while the demand for food is constantly growing and, adaptation to climate change. Additionally, in highly developed countries, including the EU, farmers must meet the high requirements of legislation related to environmental protection and animal welfare. The ability of farmers to respond to these pressures depends on structural characteristics (farm size, specialisation, location and age of the farm manager), with larger farms and more educated farm managers being able to adapt more easily.

Analyzing the indicators of the competitiveness of the agricultural sector, certain authors single out seven patterns of non-competitive behavior of governments and businessmen of developing countries, which can be clearly recognized in the domestic economy and the agricultural production sector (Paraušić, Cvijanović, 2014, Fairbanks, Lindsay, 2007):

- Excessive reliance on basic factors of production (natural resources, cheap labor, favorable exchange rate);
- Underdeveloped marketing;
- Lack of real understanding of the competitive position of domestic companies;
- Absence of vertical integration;
- Insufficient cooperation between companies and institutions in the value chain/absence of clusters;
- A climate of mistrust and mutual blame for bad results between the public and private sectors, as well as within the private sector;
- Reliance of companies on government support (through incentives, subsidies, protection from foreign competition).

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Based on the above, the previous analysis of the general conditions of agricultural competitiveness according to Đurić, Njegovan (2016) showed that:

- Serbia still relies to the greatest extent on basic factors;
- most of the exported agricultural products contain a large share of primary production factors and a small share of added value, in which the main role is played by knowledge applied through technology, marketing or design;
- little investment in factors that create added value prevents the development of more complex products and services, which can be competitive on international markets;
- a competitiveness strategy based solely on basic factors does not ensure the improvement of competitiveness positions in the international framework, but rather a deterioration.

Since the beginning of the 21st century, the contribution of agriculture to GDP has been declining, primarily as a consequence of the faster growth of activities in non-production sectors, primarily in trade. However, the share of agriculture in the GVA structure of the economy of the Republic of Serbia is still high, and exports to countries from the region and the EU are also increasing (Figure 1).

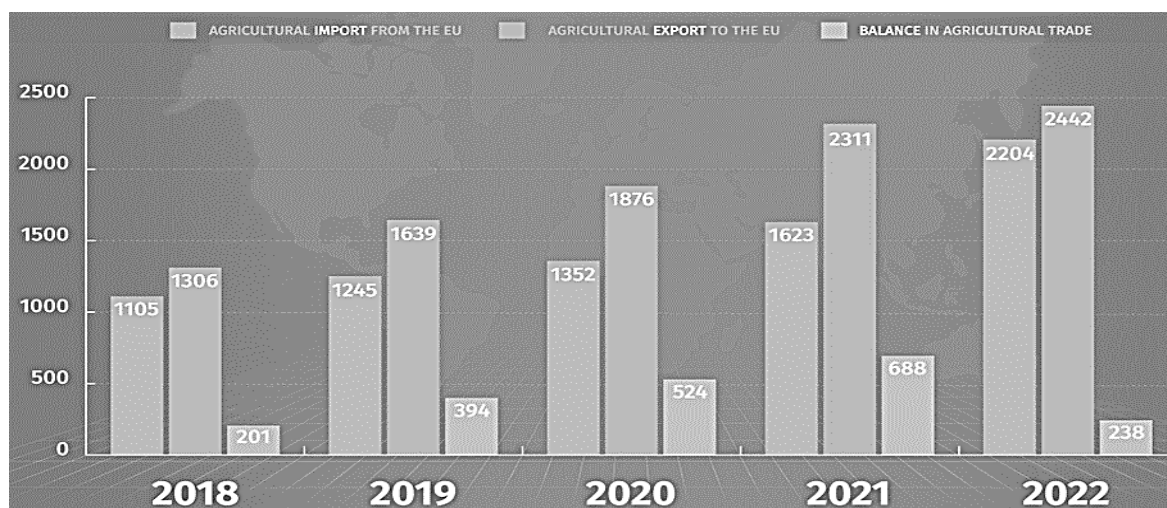


Figure 1. Serbia – EU trade in agricultural products (EUR millions).

Source: <https://europa.rs/trade>; Ministry of Agriculture, Forestry and Water Management of the Republic of Serbia, 2024.

What has always stood out as part of competitive advantages for Serbian agriculture was reflected through natural conditions, land, relief and climate, however, despite favorable factor conditions and trade advantages, the competitiveness of Serbian agriculture on the domestic and international markets is low.

On the other hand, when we analyze the competitiveness of agriculture in Poland, we can say that Polish farmers are subject to international competition arising from mechanization and other issues related to increasing efficiency. But they must also deal with the resource management and the environment, which requires an improved system of training in farm management (Kielbasa et. al., 2018). According to Poczta & Pawlak (2020) Poland's inclusion in the SEM area and the adoption of the rules of the Common Commercial Policy resulted in the creation and diversion of trade in agri-food products, and the comparative advantages achieved on the SEM became a source of favorable export specialization, allowing for relatively good use of the currently existing potential of agriculture and the food industry.



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What they also emphasize is the significant export potential of agricultural products not only on the EU market, but also on markets outside the EU, which would further strengthen the competitive position.

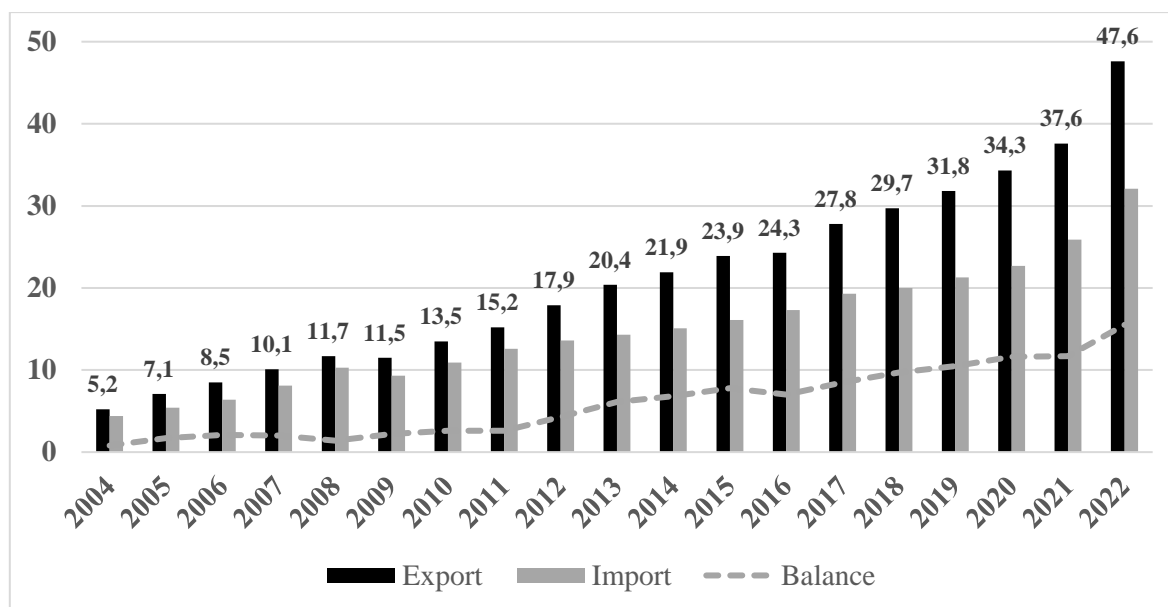


Figure 2. Polish foreign trade in agri-food products from 2004-2019 (EUR billion)

Source: own research based on data from Comext-Eurostat.

According to Kowalczyk & Kwasek (2020) radical changes in Polish foreign trade in agri-food products took place during the period of systemic transformation (Woś, 2000), and later after accession to the EU. Faster growth of exports than imports led to essential change in the foreign balance of the agri-food sector. Paradoxically, the advantages in foreign trade of Polish agri-food products are the result of the backwardness of agriculture, which is still dominated by traditional family farms, which distinguishes them from the industrial agribusiness sector in more affluent countries (Czyżewski & Stępień, 2011). But it is traditionally produced food that is valued by foreign consumers, which allows for an increase in the share of Polish food products in exports.

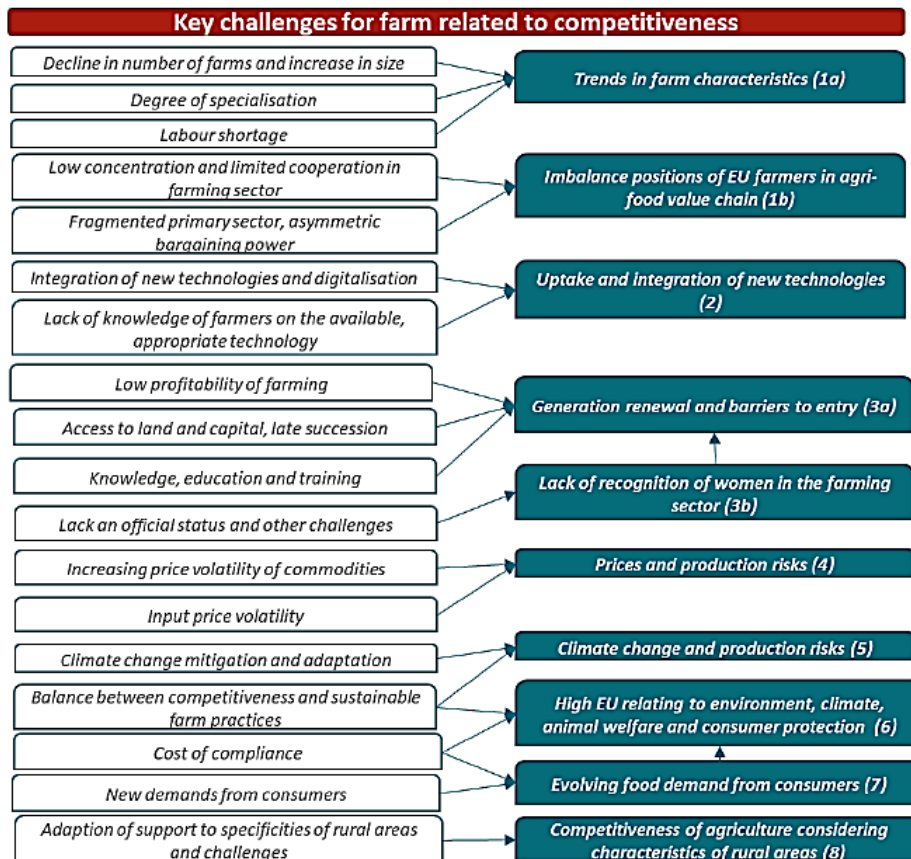
Although Poland's accession to the EU has brought positive changes in the agricultural sector, related to the improvement of the trade balance, growth in producers' incomes and increased investment expenditure, the competitiveness of the agriculture is very weak compared to other sectors of the Polish economy. The share in the generation of Polish GDP in the analyzed period did not exceed 3.0% (and less than 2.5% after 2021), despite the fact that 7% of the total number of employees in the national economy worked in agriculture at the beginning of 2024 (although in the mid-1990s it was as much as 22% of all employed people; Statistics Poland, 2024). Polish agriculture employs larger amounts of land and labor compared to other EU countries, but smaller amounts of capital, mainly due to the lack of own sources of financing. Poor equipment at work can significantly affect the efficiency and competitiveness of agriculture.

Some of the key challenges to farm competitiveness that we could analyse are the determinants that cover (Beck et al., 2024):

- 1) farms characteristics and position of the farmers in the value chain,
- 2) uptake and integration of new technologies by farmers,
- 3) human capital – young farmers and women,

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- 4) price and production risks,
- 5) climate change and production risks,
- 6) high EU requirements related to environment and climate, animal welfare and food safety,
- 7) evolving food demand from consumers.



Picture 1. Key challenges for the competitiveness of farms

Source: Beck et al., 2024.

More specific factors which could be analyzed as a key challenges for farm related to competitiveness was described on the Picture 1. starting with trends in farm characteristics - position in EU, integration of new technologies, prices and production risks, climate change and productions risks, characteristics of rural areas and others.

## CHALLENGES OF SUSTAINABLE AGRICULTURE

More sustainable agricultural is one of the most important factor and challenges for the competitiveness of farms. One of the reason is the fact that agriculture has a significant impact on the entire humanity - positively and negatively. Good Agricultural Practices (GAP) are dened by the FAO as a “collection of principles to apply for on-farm production and post production processes, resulting in safe and healthy



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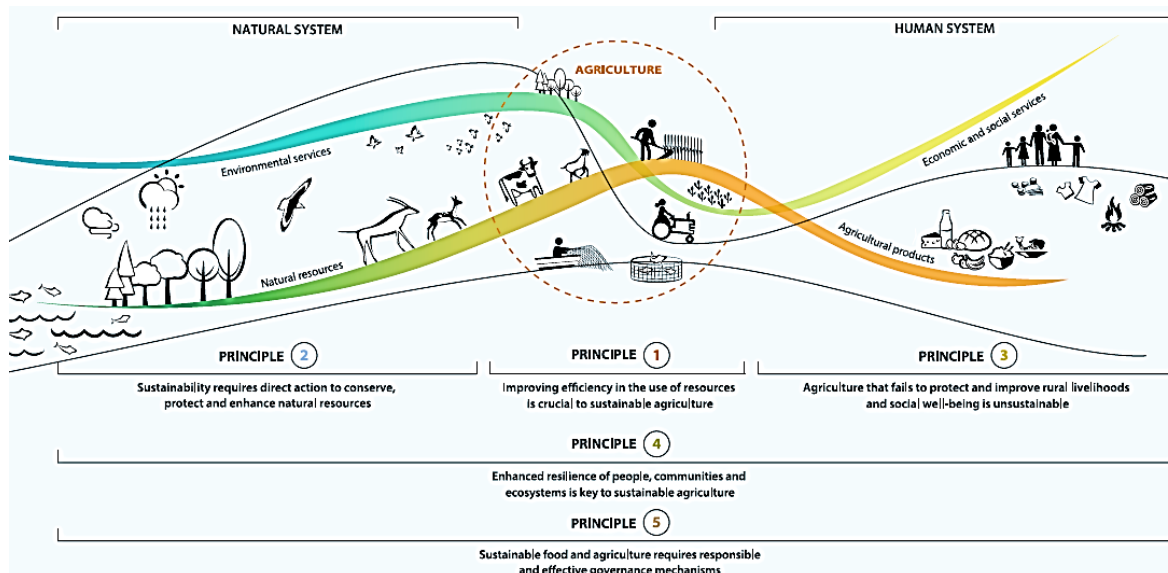
food and non-food agricultural products, while taking into account economic, social and environmental sustainability” (Sareen 2016).

The variations in the definitions and measurements of sustainable agriculture reflect the multi-dimensional and interdisciplinary nature of sustainable agriculture, and the needs to have a more holistic approach to monitor agricultural sustainability (Liu, 2023). According to Shelef et al. (2018) sustainable agriculture stands on four pillars: land management, resource management, human interface, and the ecosystem interface.

When we analyze the situation from the contest how agriculture could contribute and improve the living standards of all, in an economically, socially and environmentally sustainable manner, FAO has proposed the following five principles (UNESCO, WWAR, 2015, FAO, 2014):

1. Improving efficiency in the use of resources is crucial to sustainable agriculture.
2. Sustainability requires direct action to conserve, protect and enhance natural resources.
3. Agriculture that fails to protect and improve rural livelihoods and social well-being is unsustainable.
4. Enhanced resilience of people, communities and ecosystems is key to sustainable agriculture.
5. Sustainable food and agriculture requires responsible and effective governance mechanisms.

According to FAO (2014) the principles are interconnected and complementary and should often be considered simultaneously (Picture 2).



Picture 2. The five principles of sustainable agriculture

Source: UNESCO, WWAR, 2015, FAO, 2014.

Agriculture plays a central role in the European Green Deal, which includes various strategies to promote sustainable agriculture. Some of the strategies that stand out refer to the biodiversity strategy, strategies for the improvement and protection of rural areas, etc. What is important to point out is that the transformation towards sustainable agriculture cannot be expected after several revised strategies, but requires many other issues that may not be directly related to agriculture. That is, it is necessary to take into account social, economic, cultural, technical and environmental aspects, which is why it is



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important to involve all stakeholders and recognize that agriculture produces more than crops (both in a positive and negative sense) and start with local adaptation, and then wider. Accordingly, sustainable development requires the cooperation and efforts of each government individually, harmonizing the proposals and rules prescribed at the global level, then the cooperation of non-governmental organizations and stakeholders, with long-term planning focused on better environmental, economic and social policies. In this, Guth et al. (2020) who also indicate that the concept of sustainable development requires an integrated approach at all levels and in all sectoral policies, highlighting as an example the Common Agricultural Policy, one of the main purposes is to ensure a fair standard of living for the agricultural community, for example, through stable incomes and improving the quality of life in rural areas. According to Boix-Fayos and Vente (2023) at the core of the European Green Deal by 2050, there are three statements - no net emissions of greenhouse gases by 2050, economic growth decoupled from resource use, and no person and no place left behind and agriculture plays a central role in each of these three statements.

Analyzing the aspect of sustainable agriculture in developing countries, there is a need to better connect the Sustainable Development Goals (SDG) and organic agriculture, but when it comes specifically to Serbia, we can immediately see the existence of a rather large gap between the potential of their application and the actual situation. The root of the problem is that many global solutions are difficult to scale down to the local level and exploited by a large number of practitioners (Šeremešić et al., 2024). According to Tošović-Stevanović et al. (2023) the improvement of Serbian agriculture will be based on the postulates set within the EU – the European Green Agreement (EGA) and the instrument for its implementation, the Green Agenda for the Western Balkans (GAWB). Because the goal is to form sustainable agriculture through a circular economy, which will be based on competitive and productive agriculture, efficient use of resources in a way that minimizes pollution of climate, water, land, with the application of biodiversity.

The research conducted by the authors Wrzaszcz and Zieliński (2022) with a focus on the organizational aspect of agricultural production and the legal protection of ecologically valuable areas in Poland pointed to the fact that Poland has a great resource potential for the development of sustainable agriculture, but problematic aspects of the organization of production were also observed, which create a potential threat to the environment. Poland, as a member of the European Union, benefits from various support programs, such as the Common Agricultural Policy (CAP). Under the CAP, farmers receive subsidies for pro-ecological practices, such as organic farming, agroforestry, or water resource protection. There are also national programs that promote sustainable agriculture through education, agricultural advisory services, and financial support for innovation in agriculture. Research conducted by Smędzik-Ambroży et al. (2019) presented the thesis that Common Agricultural Policy subsidies improve the general level of economic sustainability of the agricultural sector, but in their current form they are not a sufficient instrument that serves the social sustainability of farms (especially small family farms).

Also, another study conducted in Poland was concerned with identifying key areas of research that can support the sustainability transition of Polish agriculture. Certain conclusions of the authors from that study (Wieliczko, Floriańczyk, 2022) indicated that although Polish strategic documents indicate the need for supporting these research areas, the actual progress in research and innovation required to stimulate the transition will be limited and fragmentary due to budgetary constraints. The development of sustainable agriculture in Poland also faces challenges related to the change in the mentality of farmers and their low pro-environmental education.



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### CONCLUSION

The paper presents some specific factors which could be analyzed as a key challenges related to competitiveness of agriculture, analyzing the trends in farm characteristics as position in EU, integration of new technologies, prices and production risks, climate change and productions risks, characteristics of rural areas and others.

Analyzing the situation in Serbia and Poland, numerous weaknesses and limitations were identified in terms of improving competitiveness and the process of sustainable development of agriculture, but at the same time a large number of resource potentials and development opportunities, which should be used more efficiently. And what can be pointed out as a common denominator in a large number of countries, including the example of Serbia and Poland, is that in practice the competitiveness and sustainability of agriculture is achieved by coordinating a large number of activities, policies and strategies in the domain of not only agricultural activities, but also rural development, ecology, environmental protection, etc., which is why it is necessary to emphasize that positive effects in all countries will be seen only through good coordination of the above-mentioned strategies and policies, as well as from the modality of using appropriate funds, incentives and subsidies to achieve a competitive and sustainable agriculture, which is a long-term goal.

### REFERENCES

- Beck, M., Van Bunnem, P., Bodart, S., Münch, A. et al. (2024). Research for AGRI Committee – Rural Areas – Levels of support and impact on competitiveness of farms. European Parliament, Policy Department for Structural and Cohesion Policies, Brussels.
- Boix-Fayos, C., Joris de Vente (2023). Challenges and potential pathways towards sustainable agriculture within the European Green Deal. *Agricultural Systems*, 207, 103634.
- Communication from the Commission to the European Parliament, the European Council, the Council, the European Economic and Social Committee and the Committee of the Regions -The European Green Deal. COM/2019/640 final, European Council, Brussels, 2019.
- Communication from the Commission to the European Parliament, the European Council, the Council, the European Economic and Social Committee and the Committee of the Regions A new Circular Economy Action Plan For a cleaner and more competitive Europe. COM/2020/98 final, European Commission, Brussels.
- Coulibaly, T. P., Du, J., Diakité, D. (2021). Sustainable agricultural practices adoption. *Agriculture (Pol'nohospodárstvo)*, 67(4), 166-176.
- Czyżewski, A., Stępień, S. (2011). Wspólna polityka rolna UE po 2013 r. a interesy polskiego rolnictwa (Common Agricultural Policy of the EU After 2013 and the Interests of the Polish Agriculture). *Ekonomista*, 1, 9-36.
- Fairbanks, M., Stace, L. (1997). *Plowing the Sea – Nurturing the Hidden sources of Growth in the Developing World*. Harvard Business School Press, Boston. Prevod na srpski jezik (Stubovi kulture, Beograd).
- Guth, M., Smędzik-Ambroży, K., Czyżewski, B., Stępień, S. (2020). The Economic Sustainability of Farms under Common Agricultural Policy in the European Union Countries. *Agriculture*, 10, 34.



## Conference Proceedings

- Kiełbasa B., Pietrzak S., Ulén B., Drangert J.-O., Tonderski K. (2018). Sustainable agriculture: The study on farmers' perception and practices regarding nutrient management and limiting losses. *Journal of Water and Land Development*, 36, 67–75.
- Kowalczyk, S., Kwasek, M. (2020). Agricultural sector in economy of Poland in 1950-2020. *Wbjaerd*, 2(2), 77-98.
- Liu, S. (2023). Towards a sustainable agriculture: Achievements and challenges of Sustainable Development Goal Indicator 2.4.1. *Global Food Security*, 37, 100694.
- National Strategy for Sustainable Development Resources ("Official Gazette of RS", No. 57/2008).
- Poczta, W., Pawlak, K. (2020). Competitiveness of Polish Agriculture in The Context of Globalization and Economic Integration – Competitive Potential and Position. *Zagadnienia Ekonomiki Rolnej / Problems of Agricultural Economics*, 365(4), 86-107.
- Prača, N., Paspalj, M., Paspalj, D. (2017). Impact of modern agriculture to sustainable development of guidelines. *Oditor*, 3(1), 37-51.
- Shelef, O., Fernández-Bayo, J.D., Sher, Y., Ancona, V., Slinn, H., Achmon, Y. (2018). Elucidating Local Food Production to Identify the Principles and Challenges of Sustainable Agriculture. *Sustainable Food Systems from Agriculture to Industry*, 47-81.
- Šeremešić, S.; Dolijanović, Ž.; Tomaš Simin, M.; Milašinović Šeremešić, M.; Vojnov, B.; Brankov, T.; Rajković, M. (2024). Articulating Organic Agriculture and Sustainable Development Goals: Serbia Case Study. *Sustainability*, 16, 1842.
- Statistics Poland (2024). Economic activity of the Polish population. <https://stat.gov.pl>
- Tošović, Stevanović, A., Jelisavac Trošić, S., Ristanović, V. (2023). Eco-efficiency and sustainable agricultural development in Central and Southeast Europe. *Međunarodna politika*, 74(1187), 107-132.
- WWAP (United Nations World Water Assessment Programme). (2015). *The United Nations World Water Development Report 2015: Water for a Sustainable World*. UNESCO, Paris.
- Wrzaszcz, W., Zieliński, M. (2022) Sustainable Development of Agriculture in Poland – Towards Organization and Biodiversity Improvement? *European Journal of Sustainable Development*, 11(1), 87-100.
- Wieliczko, B., Floriańczyk, Z. (2022). Priorities for Research on Sustainable Agriculture: The Case of Poland. *Energies*, 15(81), 1-21.



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# INVESTIGATING THE EFFECTS OF MACROECONOMIC INDICATORS ON STOCK RETURN: AN ANALYSIS ON BORSA ISTANBUL 100 INDEX

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DOI: 10.5937/EEE24004K  
JEL: G21, G28  
Plenary Lecture

### ABSTRACT

*For the stability of a country's economy, macroeconomic variables must be in a balanced structure with each other for economic stability. Changes in macroeconomic variables can affect each other as well as financial markets. On the other hand, monetary policy tools implemented by central banks appear as elements aimed at establishing or maintaining this balance. In this study, the relationships between selected macroeconomic variables such as inflation, interest rates, exchange rates and Borsa Istanbul 100 (BIST 100) index returns were examined. In this context, analyses were conducted using monthly data obtained from the electronic data distribution center system of the Central Bank of the Republic of Türkiye and Borsa Istanbul Historic Data Platform for the period January 2014 - June 2024. In the study, while examining the relationship between BIST 100 index returns and macroeconomic variables, firstly the stationarity of the series was examined and then cointegration test was applied to determine the existence of the relationship between the variables. Causality test was also applied to determine the direction of the detected relationship. In addition, variance decomposition tests were used to determine where the shocks in the variables originated from. It is thought that the findings may benefit for both investors and policy makers in decision-making processes.*

### KEYWORDS

*inflation, stock return, interest rate, currency, financial stability, ARDL*

## INTRODUCTION

Stock market of any country's is considered one of the most important indicators of economic growth. If the stock market is efficient, effective and performs better, it gives good signal of country's economy. Macroeconomic factors such as interest rate, exchange rate and inflation, also affects stock market. If there is a higher interest rate in any country, causes the problem of devaluation in its currency and increase in exchange rate. Because of that interest rate and exchange rate become critical in economy of country. For the success of market efficiency is vital condition. If a market is inefficient investors does not feel in safe themselves and a few of them get extraordinary profit. If the banks interest rate increases

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to pay depositors, many people prefer to transfer their money from stock market to bank. When the interest rate paid by bank to depositors increases, from the other side lending interest rate also increases. In that country investments in the economy decreases so that reflects to share price in stock market and even stock return (Uddin, Alam, 2010). In any country this interest rate is also determined by average funding cost of the Central Banks. In this study interest rate is determined as weighted average funding cost of the Central Bank of the Republic of Türkiye.

Global central banks modify their monetary policy and uses interest rate as a key to manage inflation. Stock return will be affected by inflation and investment decision of investors will shape according to situation in financial market. An increase in inflation or even inflationary expectations leads upper the expected stream of future nominal dividend payments for stocks, so it will cause to rise in value. In this study as macroeconomic factors, interest rate, inflation and exchange rate which are supported by Fisher's theory, are used to examine effects to stock returns. In broad perspective the application of the macroeconomic factors and their effects to stocks movement stem from the Arbitrage Pricing Theory. Limitations of study are using only three macroeconomic factors which affect to stock returns in literature review most. This study consists of four parts. After the introduction, extensive literature review and data set and development of methodology take part. In the last part of the study, the findings and discussion part ends with conclusion remarks.

## LITERATURE REVIEW

Capital Asset Pricing Model (CAPM) which is developed by Sharpe (1964), Mossin (1966) and Lintner (1969), most popular factor models in the literature. Indeed, efficient market hypothesis concept of diversification introduced by Markowitz (1952). In fact, many factors affecting returns and to be ignored in this situation. Because of that lots of assumptions lead to criticism of CAPM. After that Ross (1976) developed multi factor model called Arbitrage Pricing Theory (APT) and formulated by Roll and Ross (1980). Multi factor model in which effects of changes in macroeconomic factors on stock return can be observed, instead of one factor model. In the literature most of the studies have been conducted about macroeconomic factors which is affecting the stock return. Especially the effect of inflation, interest rate, exchange rates are mostly used variables in studies. Arbitrage Pricing Theory is a modern portfolio theory, uses of factors in trying to predict movement of share price. This research serves as a beginning application of APT with just interest rate, exchange rate and inflation factors for Borsa İstanbul Türkiye. The first papers about this topic started with Fisher. Fisher (1930) implies that positive relationship is expected in stock return and inflation. According to Fisher investing in stocks defend against inflation. Boudoukh and Richardson (1993) observed that inflation positively affects stock returns in the long run.

On the other hand, Nelson (1976) used data from the period 1953-1974 in the USA and found that inflation has a negative effect on stock return. Firth (1979) found that inflation has a negative effect on stock returns in UK, for the period of 1955-1976. Fama (1981) in "Proxy Effect" theory argued that there is a negative relationship between inflation and stock prices. Gallagher and Taylor (2002) found that inflation has negative effect on stock return in USA between 1957-1997. For interest rate there was also some studies. Fama and Schwert (1977), Chen, Roll et al. (1986) and Moosa (1998) found negative relationship between stock returns and interest rates. Czaja and Scholz (2006) investigated German stock return and interest rates and found that structure of interest rate is crucial to explain the stock return. Dritsaki-Bargiota and Dritsaki (2005) examine causality relationship between interest rates and Greek Stock Exchange Index and found that one way causality from interest rates to Greek Stock Exchange Index. Another macroeconomic factor exchange rate is also used in the papers. Aggrawal (1981) in his



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study found that exchange rate has positive effect on stock returns using data from the 1974-1978. Abdalla and Murinde (1997) searched for India, Korea, Pakistan and Philippines using data from 1985-1994 period, and found that exchange rates have positive effect on stock returns. Hatemi and Irandoust (2002) found that exchange rates have a negative effect on stock returns in Sweden for the time period 1993 to 1998.

In nowadays still this topic is popular between researchers and lots of macroeconomic factors are used in the papers to examine relationship with stock returns.

Rjoub, Türsoy and Günsel (2009), tried to observe the relationship between macroeconomic factors and stock returns in the Istanbul Stock Exchange which is the old name of the Borsa Istanbul. The time period January 2001-September 2005 was taken, and the results showed that there is a significant pricing relationship between the stock return and inflation, interest rate, risk premium, money supply. Findings showed that there was weak explanatory power on factors.

Sayılğan and Süslü (2011), investigated the relationship between stock returns and macroeconomic factors in emerging market economies one of them is Türkiye also. Data covers the period between 1996-2006. They found that all stock returns were affected by exchange rates, inflation and S&P500 Index, whereas the returns were not affected by interest rate, GDP, money supply and oil prices.

Sing, Mehta, Varsha (2011), investigated causality in Taiwan index returns and macroeconomic factors such as exchange rate, inflation, GDP, money supply and employment; found that inflation, exchange rate and money supply have negative relationship with stock returns.

Khan et. al. (2012), examined the impact of interest rate, exchange rate and inflation on stock returns of Karachi Stock Exchange (KSE)100 Index of Pakistan. Monthly data from July 2001 to June 2010 was taken in consideration and results showed that there was weak relationship between dependent and independent variable. Just exchange rate has significant impact on stock returns of KSE 100 Index. The impact of interest rate and inflation is insignificant on stock returns in that study.

Yurttañıkılmaz (2012), investigated whether inflation and exchange rate had any effect on stock returns in Türkiye for the period January 1994 to December 2010. The results showed that inflation was very high and positive effect on Istanbul Stock Exchange Index, while exchange rates were low and have negative effect in Türkiye.

Tangjitprom (2012), used macroeconomic factors and stock returns in Thailand time period January 2001 to December 2010. They found that macroeconomic factors are less important to predict future stock return in Thailand while stock returns are more. According to variance decomposition technique results interest rate is the most important factor to explain variance in stock return.

Issahaku, Ustarz and Domanban (2013), examined the existence of causality between stock returns and macroeconomic variables in Ghana, period of January 1995 to December 2010. They found that significant long run relationship between stock return and inflation, money supply and foreign direct investment, in the short run relationship between stock returns and interest rate, inflation and money supply. According to VECM coefficient in case of macroeconomic shocks occurs, approximately 20 months for the stock market to fully adjust to equilibrium position. Causal relationship was determined from inflation and exchange rate to stock returns. Other causality was from stock returns to money supply, interest rate and foreign direct investment.

Kaya, Çömlekçi and Kara (2013), examined macroeconomic factors and stock returns in Istanbul Stock Exchange 100 Index returns. They found that there was a negative relation with exchange rate and stock return, whereas a positive relation with money supply and stock return.



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Pimentel and Choudhry (2014) examined the relationship inflation and interest rates with stock returns in Brazil during the May 1986 to May 2011. This period involved both high inflation (May 1986- June 1994) and relative monetary stability term (July 1994-May 2011). The results showed that during high inflation interest rates are relevant to explain future changes in inflation and stock returns.

Altınbaş, Kutay and Akkaya (2015), searched the effects of macroeconomic factors on BIST 100 Index during January 2003- July 2012. The results showed that exchange rate is found as the only factor that explain BIST 100.

Amarasinghe (2015), examined the causal relationship between stock return and interest rate period of January 2007 to December 2013 in Colombo, Sri Lanka. According to results there was one way causal relationship between stock returns and interest rate; interest rate does granger cause of stock return. Moreover, interest rate has significant negative relationship with stock return.

Dinçergök (2016), analyzed relationship between oil prices, exchange rates, interest rates, industrial production and world equity index on sectors return indices such as BIST National Industry Sector Return Index, BIST National Service Sector Return Index, BIST National Financial Sector Index and BIST National Technology Sector Index for the period August 2000 till November 2008. The results showed that interest rates and exchange rates have negative effect on the stock returns all sectors.

Al-Abdallah and AL-Jarayesh (2017), investigated the influence of interest rate, exchange rate and inflation on stock returns of Amman Stock Exchange Market in Jordan, monthly data used from 2005-2015. They found that interest rate negatively, inflation positively correlated with stock return. There could not found any relationship between exchange rate and stock return. They also informed that R square shows a weak relationship between macroeconomic factors and stock return.

Tiryaki, Erdoğan and Ceylan (2017), investigated the long run relationship between domestic-international macroeconomic variables and the stock return in Türkiye period of January 2003 to December 2016. They found that, industrial production index, consumer price index, current account to export ratio, real effective exchange rate, S&P500 and World Oil Price Index have statistically significant and positive, interest rate has negative with stock return.

Ahmad, Maochun and Sattar (2019), have used data of interest rate, exchange rate and stock returns for the period 2007 to 2017 Pakistan. They found that interest rate is negatively, exchange rate is positively correlated with stock returns.

Iqmal and Putra (2020) searched the influence of macroeconomic factors on stock return period between 2014-2018 Indonesia Stock Exchange. They found that inflation and interest rate negatively and significantly affecting stock return, while exchange rate positively and significantly affect stock return.

Kusumaningtyas, Widagdo and Nurjannah (2021) studied that how interest rates, inflation and exchange rate affect stock returns with profitability in banking sector listed Indonesia Stock Exchange. Results showed that interest rates, inflation and exchange rate have negative effect on stock returns.

Suharyanto and Zaki (2021) found that inflation and exchange rate have significant negative effect on stock returns whereas interest rates have no effect on stock returns.

Katmas and Indarningsih (2022) used Bank Indonesia policy rate as a BI interest rate, exchange rate, inflation and the Indonesian Sharia Stock Index (ISSI) for the period 2015-2020 and found that in the long-term exchange rate and BI interest rate influences ISSI. On the other hand, in short term only exchange rate influences index. They could not find any short- and long-term relationship between inflation and ISSI in the study.





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Đaković, Pjanić and Indić (2023), examined macroeconomic factors and Belgrade Stock Exchange (BelexLine Index) with monthly data from 2015 to 2021. The results showed that existence of a unidirectional relationship between interest rate changes and stock prices, and bidirectional stock price changes and changes in inflation and interest rate. The primary change of the BelexLine Index to itself is positive, while in other periods there is a negative reaction, although at the end of the period, there is stabilization after the original occurrence of the shock.

Algoni and İvrendi (2024), analyzed the significance signal of both symmetric and asymmetric effects of interest rate, taxes, exchange rate, oil price and gold price on BIST 100 in Türkiye period May 2009 to November 2021. The results indicated that the long-term influence of exchange rate, gold price and interest rate on BIST100 Index is asymmetric. Additionally, The asymmetrical effects of taxes, oil prices, gold prices, interest rates and exchange rates in the short term on the BIST100 Index.

Coşkuner and Özer (2024), examined the effects of exchange rate and inflation on stock returns in Türkiye for the period January 2010 to December 2021. The results showed that causality was determined between BIST100 and exchange rate, BIST100 and inflation. Additionally exchange rate and inflation influence on BIST100 respectively 1% significant level and 10% significant level.

## DATA AND METHODOLOGY

Data used for the study were obtained from the electronic data distribution center system of the Central Bank of the Republic of Türkiye and Borsa Istanbul Historic Data Platform for the period January 2014 - June 2024 as monthly data form. Table 1. shows abbreviations, full names of the variables and data sources included in the study.

Table 1. The Abbreviations, Full Names and Data Sources of The Variables

Dependent Variable	Independent Variables			
	X100R	ACOF	USD	INF
Borsa Istanbul (BIST) 100 Index Return	Weighted Average Funding Cost of the Central Bank of The Republic of Türkiye (CBRT)	Exchange Rate, United States Dollars/Turkish Lira (USD/TL)	Inflation, Turkish Statistical Institute Consumer Price Index	
Data sources: Borsa Istanbul Historic Data Platform	Data sources: Central Bank of the Republic of Türkiye	Data sources: Central Bank of the Republic of Türkiye	Data sources: Turkish Statistical Institute	

In time series analysis cointegration tests are used to keep long run relationship of series. Granger (1981) and Engle and Granger (1987) suggested cointegration and formalized to evaluate the existence of long run relationships of variables. According to Johansen and Juselius (1990) cannot be applied when one cointegrating vector exists. After that Pesaran and Shin (1995) and Pesaran (1996) developed Autoregressive Distributed Lag (ARDL) method. ARDL is one of the cointegration method or bound cointegration method which does not care unit root tests unlike other cointegration method. When the series are integrated with different order as  $I(0)$ ,  $I(1)$ , or combination of both (Nkoro and Uko, 2016:63-64). ARDL method is more effective in small sample sizes and limited data. Moreover, the ability of ARDL to generate non-biased long run model (Harris and Sollis 2003). In this study, due to allows the examination of long term relationships between variables regardless of whether they are integrated at



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level I(0) and/or first difference I(1), ARDL Cointegration analysis was applied as an approach proposed by Pesaran et al. (2001) to analyze the long-term and short-term relationship between model variables.

The ARDL bounds test procedure is based on the F test; it investigates the existence of long-term association between variables and tests to significance of lagged level variables together.

Equation of ARDL(m, n) is as follows:

$$y_t = \beta_0 + \beta_1 y_{t-1} + \dots + \beta_p y_{t-m} + \alpha_0 x_t + \alpha_1 x_{t-1} + \alpha_2 x_{t-2} + \dots + \alpha_q x_{t-n} + \varepsilon_t \quad (1)$$

where  $\varepsilon_t$  is a random "disturbance" term.

The model is autoregressive, in the sense that "yt" is explained (in part) by lagged values of itself. It also has a distributed lag component, in the form of successive lags of the "x" explanatory variable.

Before performing any cointegration analysis, the stationarity of the variables should be examined. The ARDL bounds test cannot provide robust results in the presence of I(2) variables. In this study, Augmented Dickey-Fuller (ADF) and Phillips-Perron (PP) unit root tests were used to test the stationarity of the variables. After ARDL bounds test causality test examined with Toda Yamamoto.

Toda Yamamoto causality test is proposed by Toda and Yamamoto (1995). Modified Wald test (MWALD) avoids Granger causality test problems by ignoring any possible non-stationary and cointegration between variables. There are two steps to implement Toda Yamamoto causality test. Firstly, determination of lag length (k) with lag order selection criteria, then selection of maximal order of integration (dmax) for the variables. VAR model is calculates as (k+dmax) and coefficients of the last lagged dmax vector are ignored (Wolde-Rufael, 2004,2005,2006; Rambaldi and Doran 1996; Rambaldi, 1997; Zapata and Rambaldi, 1997). For the lag order selection; FPE: Final prediction error, AIC: Akaike information criterion, SC: Schwarz information criterion, HQ: Hannan-Quinn information criterion can be used to determine the most appropriate lag length of the VAR.

## FINDINGS AND DISCUSSION

### Unit Root Tests

In the study at the dataset, unit root tests were performed on the series and the stationarity degrees of the series were examined. While performing the unit root tests, ADF and PP unit root tests the most frequently used in the literature were used. According to the unit root tests results all variables in the model are integrated at a degree of I (0), I (1). Additionally, no variable is integrated at a degree of I(2).

Table 2 presents the Augmented Dickey-Fuller (ADF) and Phillips-Perron (PP) results. The ADF test results show that the dependent variable stock return (X100R) is stationary at 1% significance at the level and the independent variables interest rate (ACOF) are stationary at 5% significance at the level and the other variables are stationary at 1% significance at the 1<sup>st</sup> difference. PP test results show that the stock return variable is stationary at the 1% significance at the level and all other variables are stationary at the 1% significance at the 1<sup>st</sup> difference.

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Table 2. ADF and PP Unit Root Test Results

ADF-t Statistic	Dependent Variable	Independent Variables		
	X100R	ACOF	USD	INF
Prob*	0.0000	0.0475	0.0000	0.0000
Level – Trend and Intercept	<b>-10.19977*</b>	<b>-3.468017**</b>		
1st.Dif. - Trend and Intercept			<b>-7.944984*</b>	<b>-6.039923*</b>
Critical values (%1)	-4.033108	4.034997	4.034356	-4.033727
Critical values (%5)	-3.446168	-3.447072	-3.446765	-3.446464
Critical values (%10)	-3.148049	-3.148578	-3.148399	-3.148223
<b>PP-t Statistic</b>				
Prob*	0.0000	0.0000	0.0000	0.0000
Level – Trend and Intercept	<b>-10.16027*</b>			
1st.Dif. - Trend and Intercept		<b>-7.391332*</b>	<b>-6.804021*</b>	<b>-5.950198*</b>
Critical values (%1)	-4.033108	-4.033727	-4.033727	-4.033727
Critical values (%5)	-3.446168	-3.446464	-3.446464	-3.446464
Critical values (%10)	-3.148049	-3.148223	-3.148223	-3.148223

\*, \*\*, \*\*\* respectively %1, %5, %10 significance levels

Source: Authors' analysis

## Lag Length Criteria

Generally, information selection criteria such as Akaike Information Criterion (AIC), Schwarz Bayes Criterion (SBC) or Hannan-Quinn Criterion (HQC) (k) are used when determining the lag length. In this study, AIC was used to estimate the optimum lag time due to it allows the variables to be included in the best fit model without interaction effects. As shown in Table 3, the lag time was determined as 7 according to the Akaike Information Criterion as well as two of the other criteria among the others.

Table 3. Lag Order Selection Criteria

Lag	LogL	LR	FPE	AIC	SC	HQ
0	-1126.297	NA	2455.469	19.15758	19.25150	19.19571
1	-465.7088	1265.195	0.044203	8.232352	8.701960	8.423027
2	-399.3080	122.6727	0.018832	7.378101	8.223395*	7.721315*
3	-376.3347	40.88455	0.016773	7.259911	8.480891	7.755665
4	-351.6010	42.34077	0.014530	7.111882	8.708548	7.760175
5	-330.0544	35.42409	0.013322	7.017871	8.990223	7.818704
6	-311.2432	29.65156	0.012840	6.970224	9.318262	7.923596
7	-280.6976	<b>46.07726*</b>	<b>0.010186*</b>	<b>6.723688*</b>	9.447412	7.829600
8	-265.5233	21.86135	0.010540	6.737682	9.837092	7.996134

\* Indicates lag order selected by the criterion

LR: sequential modified LR test statistic (each test at 5% level)

FPE: Final prediction error



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AIC: Akaike information criterion
SC: Schwarz information criterion
HQ: Hannan-Quinn information criterion

Source: Authors' analysis

Figure 1. shows twenty models with varied lag lengths, with the model with the lowest value information criteria having the lag length (6, 0, 0, 0).

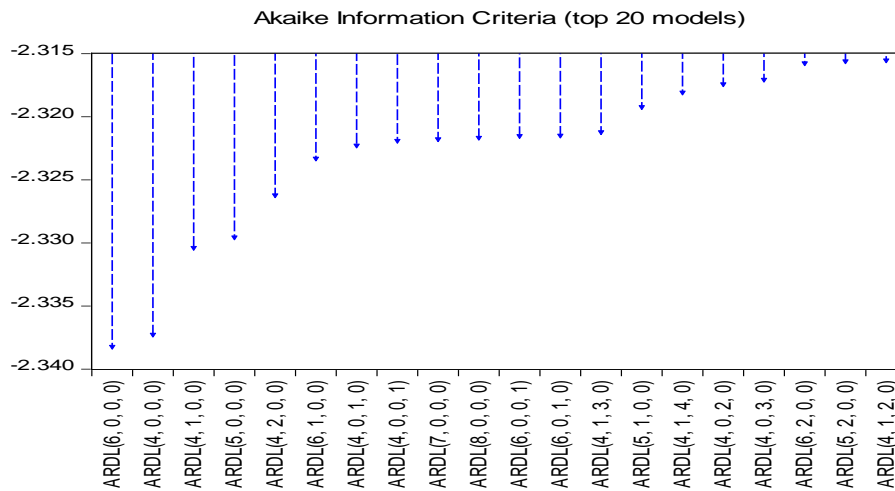


Figure 1. Model Selection Criteria Graph

Source: Authors' analysis

## ARDL Bounds Tests

The F-statistic value of bounds test calculates the statistics of the cointegration relationship between the variables in the model. The statistics presented in Table 4 show that the calculated F-statistic= 12.52348 > I(0) and/or I(1). This means that there is a cointegration relationship between the variables in the model. If the calculated F-statistic value was between I(0) and I(1), it would not be clear whether there is cointegration between the variables.

Table 4. Bounds Test Results of ARDL (6, 0, 0, 0)

Test Statistic	Value	Significance	I(0)	I(1)
F-statistic	12.52348	10%	3.47	4.45
k	3	5%	4.01	5.07
		2.5%	4.52	5.62
		1%	5.17	6.36

Source: Authors' analysis

Since cointegration was detected between the series, the ARDL model would be suitable for long and short-term forecasts.

Table 5 presents the long-term coefficient estimate of the ARDL (6, 0, 0, 0) model. According to the test results that BIST 100 index-stock return(X100R) has a positive relationship with inflation in the long



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term and a negative relationship with interest rate (ACOF) the weighted average funding cost (at a significance level of 5%). Accordingly, it is concluded that the increasing inflation in Türkiye positively affects the stock market index return in the long term but the increase in central bank funding costs negatively affects the stock market index return.

Table 5.: ARDL Long Run Form Test

Variable	Source: Author	Std. Error	t-Statistic	Probability
USD				
INF				
ACOF				
EC = X100R – (0.0015*USD + 0.0007*INF – 0.0015*ACOF)				

*Source: Authors' analysis*

To determine the short-run impact of the independent variables on stock return Error Correction Model (ECM) associated with the respective long-run relationships was estimated.

The ECM model produced an error correction coefficient for cointegrating equation (CointEq (-1) which was -1.960155. According to the Table 6 this value is highly significant at the 1% level. A negative and highly significant ECM-based cointegrating equation coefficient as in the study implies a long-term relationship exists between the dependent variable and the regressors. On the other hand, the error correction term represented in the ECM model is negative with an associated coefficient value of 1.960155. This means that ECM value implies that shock to the model in the current period will be restored at a speed of adjustment of about 196% in the next period and there is a long-run causality running from independent variables to the dependent variable. Also, this finding confirms the dependent and independent variables in the ARDL model are cointegrated and have a long-run relationship.

Table 6. ARDL Error Correction Model

Variable	Coefficient	Std. Error	t-Statistic	Probability
C	0.015316	0.014029	1.091738	0.2774
@TREND	0.000267	0.000189	1.410607	0.1612
D(X100R(-1))	0.864003	0.233195	3.705075	0.0003
D(X100R(-2))	0.735837	0.193336	3.806005	0.0002
D(X100R(-3))	0.493273	0.158544	3.111275	0.0024
D(X100R(-4))	0.253181	0.128637	1.968180	0.0516
D(X100R(-5))	0.161686	0.090563	1.785333	0.0770
CointEq(-1)*	-1.960155	0.273213	-7.174444	0.0000

*Source: Authors' analysis*

For the model estimated with the ARDL bounds test to be significant some specification tests such as the investigation of the autocorrelation problem between series, the heteroscedasticity problem, the normality test and the CUSUM test must be performed.



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Table 7. Model Diagnostic Tests Results

Tests	Statistic	Probability
Breusch-Godfrey Serial Correlation LM Test	0.517631	0.5974
Heteroskedasticity test: Breusch-Pagan-Godfrey	1.842103	0.0615
Jarque-Bera Test	0.780297	0.6769

Source: Authors' analysis

Table 7 shows that data are normally distributed, there is no autocorrelation problem and heteroskedasticity problem in any series.

The CUSUM test and squared-CUSUM test are used for evaluating the stability of coefficients depicted in Figure 2. The graphical depiction confirms the outcome of the ARDL model. This depiction produces the insight that coefficients are suitable for the dependent variable to predict the future. The findings indicate also that both the parameters and the variance of the estimated model remain consistent over time.

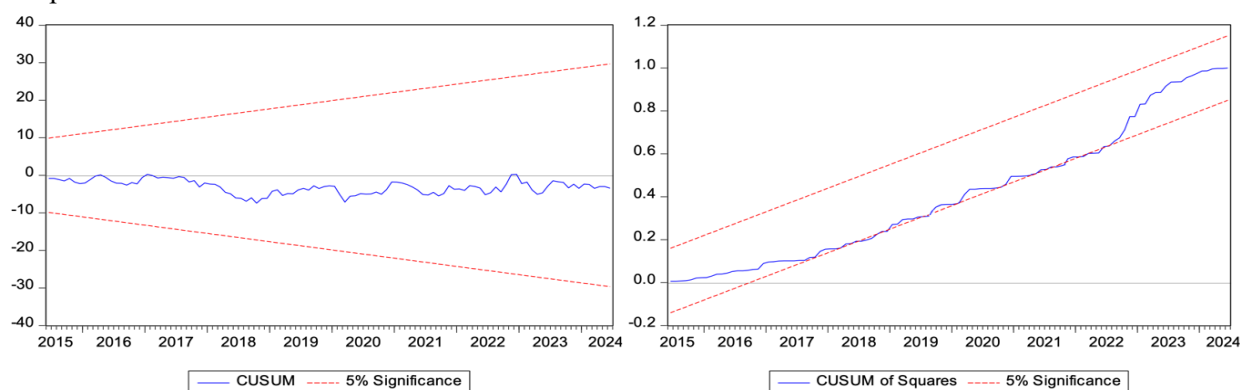


Figure 2. CUSUM and CUSUM of Squares Test

Source: Authors' analysis

### Toda Yamamoto Causality Test

The lag length for the Toda-Yamamoto causality test was determined as 8 but owing to the lag length of the variables is integrated at most at the 1<sup>st</sup> difference probability values were determined by 7-lag chi-square probability calculation.

The causality test results are shown in Table 8.

Table 8.: Test Results of Toda Yamamoto Causality Test

Dependent Variable: <i>XI00R</i>			
Independent Variable	Chi-square	df	Probability
<i>ACOF</i>	13.33729	8	0.06430
<i>INF</i>	12.24027	8	0.09293
<i>USD</i>	11.52966	8	0.11713
Dependent Variable: <i>ACOF</i>			



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Independent Variable	Chi-square	df	Probability
<i>X100R</i>	20.16152	8	0.00523*
<i>INF</i>	10.49908	8	0.16201
<i>USD</i>	27.80924	8	0.00024*
<b>Dependent Variable: <i>INF</i></b>			
Independent Variable	Chi-square	df	Probability
<i>X100R</i>	18.10657	8	0.01150*
<i>ACOF</i>	12.36547	8	0.08916
<i>USD</i>	98.55347	8	0.00000*
<b>Dependent Variable: <i>USD</i></b>			
Independent Variable	Chi-square	df	Probability
<i>X100R</i>	20.89097	8	0.00393*
<i>ACOF</i>	25.76301	8	0.00056*
<i>INF</i>	70.83409	8	0.00000*

*Source: Authors' analysis*

There is no causality at 1% and 5% significance level from all independent variables to the dependent variable of stock return (*X100R*). But at 10% significance level, causality relationship was determined from inflation and interest rate to stock return. Another causality was determined from stock return and exchange rate to interest rate and inflation at 5% significance level. In addition, causality relationship was determined from all other variables to exchange rate variable at 5% significance level as well.

## Variance Decomposition Test

Variance decomposition is a method used to examine the causes of changes in series. The method is obtained from the moving averages section of the VAR model and shows the sources of shocks occurring in the variables themselves and other variables in percentages. The variance decomposition results show what percentage of a change that will occur in the variables in the model is due to itself and what percentage is due to other variables (Enders, 1995: 310).

Table 9. Variance Decomposition Test Results

<b>X100R:</b>					
Period	S.E.	X100R	ACOF	INF	USD
1	0.073599	100.0000	0.000000	0.000000	0.000000
5	0.077750	90.09176	1.372465	2.695522	5.840255
10	0.078437	88.52539	1.511817	3.828155	6.134641
<b>ACOF:</b>					
Period	S.E.	X100R	ACOF	INF	USD
1	1.350313	0.224796	99.77520	0.000000	0.000000
5	3.781239	0.311689	91.10588	1.275831	7.306602
10	5.289959	0.248634	70.65452	20.97383	8.123024



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INF:					
Period	S.E.	X100R	ACOF	INF	USD
1	2.509730	0.183026	0.474868	99.34211	0.000000
5	10.00397	0.133351	0.076011	68.66833	31.12231
10	13.15529	0.328211	0.081443	60.16828	39.42207
USD:					
Period	S.E.	X100R	ACOF	INF	USD
1	0.477773	1.022873	3.871066	10.77889	84.32717
5	1.450900	0.336351	0.807591	3.013766	95.84229
10	2.109671	0.169535	2.015950	1.454324	96.36019
Cholesky Ordering: X100R ACOF INF USD					

Source: Authors' analysis

Table 9 shows the variance decomposition results of the variables for the 1<sup>st</sup>, 5<sup>th</sup> and 10<sup>th</sup> periods. The variance decomposition of the stock return variable is examined that while it is affected by the shocks in its own error term in the first period it is affected by the shocks in the error term of the other variables respectively by 6.13% exchange rate, 3.82% inflation and 1.51% interest rate in the 10<sup>th</sup> period. It is observed that the interest rate variable is affected the most by the shocks in the inflation among other variables. In the variance decomposition results of the inflation observed that it is significantly affected by the shocks in the exchange rate. It is seen that the inflation is affected by the shocks in the stock return as well. In the variance decomposition test results of the USD/TL exchange rate variable, it is observed that the shocks in other variables largely lose their effect after 5 periods.

Response to Cholesky One S.D. (d.f. adjusted) Innovations

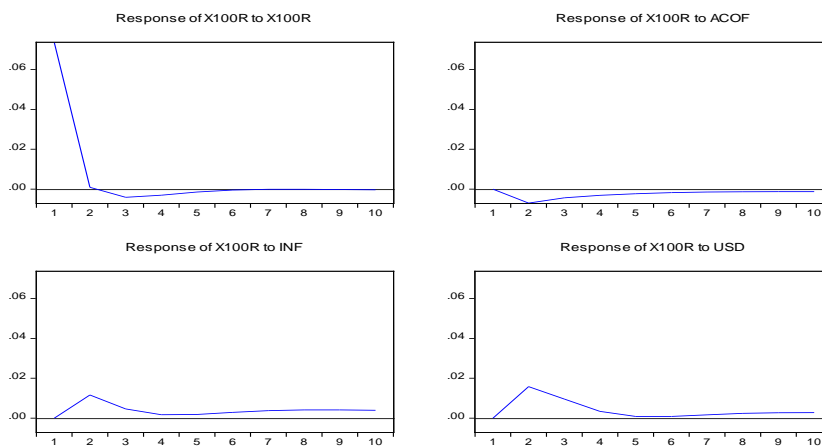


Figure 3. Impulse – Response Function Results

Source: Authors' analysis

If the findings obtained in the variance decomposition tests and the results of the impulse-response analysis shown in Figure 3 are evaluated together: It is concluded that the Borsa Istanbul 100 Index stock return is more affected by the shocks occurring in the exchange rate than other variables. When a unit standard error shock is





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applied to the exchange rate variable, the stock return variable responds to it with an increase for two periods, but then it is seen that it loses its response as of the 5<sup>th</sup> period. When a unit standard error shock is applied to the inflation variable, the stock return variable similarly responds to it with an increase for two periods again but then it is seen that it loses its response as of the 4<sup>th</sup> period. On the other hand, when a one standard error shock is applied to the weighted average interest rates, the stock return variable responds by decreasing for two periods and then the response disappears as of the 5<sup>th</sup> period.

## CONCLUSION

This study aims to examine relationship between the macroeconomic variables which are the interest rate, inflation and exchange rate with the stock return.

According to the findings obtained in the study; there is a cointegration relationship between the dependent variable stock return in the main model and the independent variables interest rate, inflation and exchange rate. In the study, a positive statistically significant relationship was found between the inflation and the stock return in the long term which is parallel to the results obtained by Issahaku, Ustarz and Domanban (2013); Fisher (1930). On the other hand, interest rate has a negative statistically significant relationship with stock return in the long term. Amarasinghe (2015); Al-Abdallah and ALjarayesh (2017); Tiryaki, Erdoğan and Ceylan (2017), Ahmad, Maochun and Sattar (2019); Iqmal and Putra (2020); Kusumaningtyas, Widagdo and Nurjannah (2021) reached also similar results in their studies. This result supports the idea that due to the increase in interest rates, investments transfer from the stock market to bank deposits moreover since increasing financing expenses cause increase costs in businesses thus a decrease in stock returns.

In the study there were no causal relationships at 1% and 5% significance levels from interest rate, inflation and exchange rate to stock return. But at 10% significance level as in previous studies in the literature Dritsaki et al. (2005), Issahaku et al. (2013) and Amarasinghe (2015) there were causal relationships from interest rate and inflation to stock return. Another causality relation observed that from stock return and exchange rate to interest rate-the weighted average cost of funding of CBRT at the level of 5% significant. It confirms that the results of the CBRT response with interest rate increases as a reaction to the increases in exchange rates. Another causality relationship is observed from the stock return and exchange rate to the inflation. This finding supports to the idea of increase in exchange rate causes an increase in import-based costs which causes an increase in inflation.

The other causalities observed from stock return and interest rate to exchange rate, it seems to be acceptable as evidence to reaction of CBRT by changing to the policy rate of interest. When the variance decomposition of the stock return variable is examined, it is seen that while it is affected by the shocks in its own error term in the first period, to increase decreasingly rate in the following periods. Finally in the 10<sup>th</sup> period it is affected by the shocks in the error term of the interest rate variable 6.13% exchange rate 3.82% and inflation 1.51% respectively. Even though there was no causality between interest rate and exchange rate. It is observed that interest rate is affected by the shocks occurring in the inflation among other variables at the most.

The results show exact impact of selected macroeconomic variables to stock return, so potential investors can evaluate their decisions looking to interest rate, inflation and exchange rate. However, if investors use these macroeconomic variables to predict the future performance of stock return, macroeconomic variables give little information and variation in stock return. Therefore, future studies



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will need to include more macroeconomic indicators integrated socio-economic and political factors into the model to better explain the changes in stock returns. As a result, It is thought that the findings may help both investors and policy makers in their decision-making processes should take into consideration the relationships between the variables identified and the limitations of this study.

## REFERENCES

- Abdalla, I.S., Murinde, V. (1997). Exchange Rate and Stock Price Interactions in Emerging Financial Markets: Evidence on India, Korea, Pakistan and the Philippines. *Applied Financial Economics*, 7, 25-35.
- Ahmad, M., Maochun, Z., Sattar, A. (2019). Impact of interest rate and exchange rate on stock returns. *Agathos*, 10(1), 259-266.
- Al-Abdallah, S. Y., Aljarayesh, N. I. (2017). Influence of Interest Rate, Exchange Rate and Inflation on Common Stock Returns of Amman Stock Exchange, Jordan. *International Journal of Economics, Commerce and Management*, 5, 589-601.
- Algoni, M., Ivrendi, M. (2024). The Effects of Macroeconomic Variables on the BIST 100 Index: ARDL and NARDL Approaches. *International Journal of Public Finance*, 9(1), 83–104.
- Altınbaş, H., Kutay, N., Akkaya, C. (2015). Makroekonomik Faktörlerin Hisse Senedi Piyasaları Üzerindeki Etkisi: Borsa İstanbul Üzerine Bir Uygulama. *Ekonomi Ve Yönetim Araştırmaları Dergisi*, 4(2), 30-49.
- Amarasinghe, A. A. (2015). Dynamic relationship between interest rate and stock price: Empirical evidence from colombo stock exchange. *International Journal of Business and Social Science*, 6(4), April.
- Boudoukh, J., Richardson, M. (1993). Stock Returns and Inflation: A Long-horizon Perspective. *American Economic Review*, (83), 1346-1355.
- Chen, N., Roll, R., Ross, S. (1986). Economic Forces And The Stock Market. *Journal of Business*, 59 (3), 383 – 403.
- Coşkuner, M., Özer, A. (2024). Döviz Kuru ve Enflasyonun Hisse Senedi Getirisi Üzerindeki Etkisi. *Balıkesir Üniversitesi İktisadi Ve İdari Bilimler Fakültesi Dergisi*, 5(1), 15-24.
- Czaja, M.G., Scholz, H. (2006). Sensitivity of Stock Returns to Changes in the Term Structure of Interest Rates – Evidence from the German Market". In: *Operations Research Proceedings*, pp. 305.310. Waldmann, K.H., Stocker, U.M. (eds.), Springer Berlin Heidelberg.
- Đaković, M., Pjanić, M., Indić, M. (2023). Inspecting The Influence Of Macroeconomic Factors On Stock Returns: The Case Of Serbia. *Ekonomika preduzeća*, 71(5-6), 343-354..
- Dinçergök, B. (2016). Stock Return Indices And Macroeconomic Factors: Evidence From Borsa İstanbul. *Journal of Accounting, Finance and Auditing Studies*, 2(3), 307-322.
- Dritsaki–Bargiota, M. ve Dritsaki, C. (2005). Macroeconomic Determinants of Stock Price Movements: An Empirical Investigation of the Stock Market. Available at: <http://mfs.rutgers.edu/MFC/MFC11/mfcindex/files/MFC-107%20DritsakiDritsaki.pdf>.
- Granger, C.W.J. (1981). Some Properties of Time Series Data and Their Use in Econometric Model Specification. *Journal of Econometrics*, 28, 121-130.



## Conference Proceedings

- Enders, W. (1995). *Applied Econometric Time Series*. John Wiley and Sons Inc., New York.
- Engle, R.F., Granger, C.W. J. (1987). Cointegration and Error Correction: Representation, Estimation and Testing. *Econometrica*, 55, 251-276.
- Fama, E.F., Schwert, G. W. (1977). Asset Returns and Inflation. *Journal of Financial Economics*, 5 (2): 115 – 146.
- Fama, E. F. (1981). Stock returns, real activity, inflation, and money. *The American economic review*, 71(4), 545-565.
- Firth, M. (1979). The Relationship Between Stock Market Returns and Rates of Inflation. *The Journal of Finance*, 34(3), 743-749.
- Fisher, I. (1930). *The Theory of Interest*. Macmillan, New York.
- Gallagher, L. A., Taylor, M. P. (2002). Permanent and Temporary Components of Stock Prices: Evidence from Assessing Macroeconomic Shocks. *Southern Economic Journal*, 69(2), 345.
- Harris, H., Sollis, R. (2003). *Applied Time Series Modelling and Forecasting*. Wiley, West Sussex.
- Hatemi-J, A., Irandoust, M. (2002). On the Causality between Exchange Rates and Stock Prices: A Note. *Bulletin of Economic Research*, 54(2), 197-203.
- Iqmal, F. M., Putra, I. G. S. (2020). Macroeconomic Factors and Influence on Stock Return That Impact the Corporate Values. *International Journal of Finance & Banking Studies*, 9(1), 68–75.
- Issahaku, H., Ustarz, Y., Domanban, P. B. (2013). Macroeconomic Variables And Stock Market Returns In Ghana: Any Causal Link? *Asian Economic and Financial Review*, 3(8), 1044-1062.
- Johansen, S., Juselius, K. (1990). Maximum likelihood estimation and inference on cointegration—with applications to the demand for money. *Oxford Bulletin of Economics and Statistics*, 52(2), 169-210.
- Katmas, E., Indarningsih, N. A. (2022). The Effect of B.I. Interest Rate, Exchange Rate, and Inflation on The Indonesian Sharia Stock Index (ISSI). *Indonesian Interdisciplinary Journal of Sharia Economics*, 5(2), 768-782.
- Kaya, V., Çömlekçi, İ., Kara, O. (2015). Hisse Senedi Getirilerini Etkileyen Makroekonomik Değişkenler 2002–2012 Türkiye Örneği. *Dumlupınar Üniversitesi Sosyal Bilimler Dergisi* (35).
- Khan, Z., Khan, S., Rukh, L. (2012). Impact of Interest Rate, Exchange Rate and Inflation on Stock Returns of KSE 100 Index. *Int. J. Eco. Res.*, 3(5), 142-155.
- Kusumaningtyas, N., Widagdo, B., Nurjannah, D. (2021). The Effect of Interest Rate, Inflation and Exchange Value on Stock Returns with Profitability as Intervening Variables. *Jurnal Manajemen Bisnis dan Kewirausahaan*, vol 01(02).
- Moosa, I. A. (1998). An Investigation into The Cyclical Behavior of Output, Money, Stock Prices and Interest Rates. *Applied Economic Letters*, 5(4), 235–238.
- Nelson, C. R. (1976). Inflation and Rates of Return on Common Stocks. *The Journal of Finance*, 31(2), 471-483.
- Nkoro, E., Uko, A. K. (2016). Autoregressive Distributed Lag (ARDL) cointegration technique: application and interpretation. *Journal of Statistical and Econometric methods*, 5(4), 63-91.
- Pesaran, M. H., Shin, Y. (1995). An autoregressive distributed lag modelling approach to cointegration analysis (Vol. 9514, pp. 371-413). University of Cambridge, Cambridge.



## Conference Proceedings

- Pesaran, M. H., Shin, Y. (1996). Cointegration and speed of convergence to equilibrium. *Journal of econometrics*, 71(1-2), 117-143.
- Pesaran, M.H., Shin, Y., Smith, R.J. (2001). Bounds Testing Approaches to the Analysis of Level Relationships. *Journal of Applied Econometrics*, 16, 289-326.
- Pimentel, R.C., Choudhry, T. (2014). Stock Returns Under High Inflation and Interest Rates: Evidence from the Brazilian Market. *Emerging Markets Finance and Trade*, 50(1), 71-92.
- Rambaldi, A.N. (1997). Multiple time series models and testing for causality and exogeneity: a Review. Working Papers in Econometrics and Applied Statistics No. 96, Department of Econometrics, University of New England, Armidale.
- Rambaldi, A.N., Doran, H.E. (1996). Testing for Granger non-causality in cointegrated system made easy. Working Papers in Econometrics and Applied Statistics No. 88, Department of Econometrics, University of New England, Armidale.
- Rjoub, H., Türsoy , T., Günsel, N. (2009). The effects of macroeconomic factors on stock returns: Istanbul Stock Market. *Studies in Economics and Finance*, 26(1), 36–45.
- Roll, R., Ross, S. (1980). An empirical investigation of the arbitrage pricing theory. *Journal of Finance*, vol. 35, pp. 1073-1103.
- Ross, S. (1976). The arbitrage theory of capital asset pricing. *Journal of Economic Theory*, vol. 13, p. 1073.
- Sayılgan, G., Süslü, C. (2011). Makroekonomik Faktörlerin Hisse Senedi Getirilerine Etkisi: Türkiye Ve Gelişmekte Olan Piyasalar Üzerine Bir İnceleme. *BDDK Bankacılık Ve Finansal Piyasalar Dergisi*, 5(1), 73-96.
- Singh, T., Mehta, S. Varsha, M.S. (2011). Macroeconomic factors and stock returns: Evidence from Taiwan. *Journal of Economics and International Finance*, 2(4), 217-227.
- Suharyanto, S., Zaki, A. (2021), The effect of inflation, interest rate, and exchange rate on stock returns in food & beverages companies. *Jurnal Aplikasi Manajemen*, 19(3), 616-622.
- Tangjitprom, N. (2012). Macroeconomic Factors of Emerging Stock Market: The Evidence from Thailand. *International Journal of Financial Research*, 3(2), 105-114.
- Tiryaki, A., Erdoğan, L., Ceylan, R. (2017). The causal relationship between selected macroeconomic variables and stock returns in Turkey. *Uluslararası İktisadi ve İdari İncelemeler Dergisi*, (19), 299-326.
- Toda, H.Y., Yamamoto, T. (1995). Statistical inference in Vector Autoregressions with possibly integrated processes. *Journal of Econometrics*, 66, 225-250.
- Uddin, M. G. S., Alam, M. M. (2010). The impacts of interest rate on stock market: empirical evidence from Dhaka Stock Exchange. *South Asian Journal of Management and Sciences*, 4(1), 21-30.
- Yurttañıkılmaz, Z. Ç. (2012). Döviz kuru ve enflasyonun hisse senedi getirileri üzerindeki etkisi. *EKEV Akademi Dergisi*, 16(51), 393-410.
- Wolde-Rufael, Y. (2004). Disaggregated industrial energy consumption and GDP: the case of Shanghai, 1952–1999. *Energy Economics*, 26 (1), 69–75.
- Wolde-Rufael, Y. (2005). Energy demand and economic growth: the African experience. *Journal of Policy Modeling*, 27, 891–903.



## Conference Proceedings

Wolde-Rufael, Y. (2006). Electricity consumption and economic growth: a time series experience for 17 African countries. *Energy Policy*, 34 (10), 1106–1114.

Zapata, H.O., Rambaldi, A.N. (1997). Monte Carlo evidence on cointegration and causation. *Oxford Bulletin of Economics and Statistics*, 59, 285–298.



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# LEADERSHIP PARADIGMS IN ADVANCING CIRCULAR ECONOMY INITIATIVES: A COMPREHENSIVE LITERATURE REVIEW

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DOI: 10.5937/EEE24005A

JEL: L21, M21, Q01, O30, O35

Review Scientific Paper

### ABSTRACT

*This literature review explores the interplay between leadership paradigms and circular economy (CE) initiatives, emphasizing key concepts, recent developments, and the challenges faced in furthering CE through diverse leadership models. It underscores the pivotal roles of transformational and digital leadership in fostering CE practices. The review identifies existing research gaps and proposes future research trajectories to enhance understanding in this domain. The findings highlight the necessity of effective leadership in facilitating sustainable transformations within organizations and the broader economy. Moreover, it calls for increased empirical investigations to evaluate the long-term effects of various leadership styles on CE outcomes. This study contributes to the discourse on sustainable leadership practices, advocating for a more profound examination of how leadership can influence the successful implementation of CE principles.*

### KEYWORDS

*circular economy, sustainability, digital leadership, organizational change*

## INTRODUCTION

The shift from a linear economy to a CE represents a fundamental transformation in resource management, emphasizing the sustainable use of resources and the creation of long-term value (Geissdoerfer et al., 2017). Unlike the linear economy, which follows a 'take-make-dispose' model, CE advocates for a regenerative approach that seeks to minimize waste, optimize resource utilization, and extend the lifecycle of products through reuse, recycling, and remanufacturing. This transition demands a comprehensive rethinking of conventional practices and necessitates the adoption of innovative strategies that can enhance resource efficiency and sustainability.

Central to the successful implementation of CE principles is the role of leadership, which is pivotal in guiding organizations through the complexities of change management. Leadership is not only responsible for steering organizational strategy but also for embedding sustainability into the core values and practices of the organization (Dima, Hategan, 2022). Effective leadership in this context involves the ability to foster a culture that prioritizes sustainability, encourages innovation, and promotes collaborative efforts across different sectors and disciplines. It also requires a deep understanding of the

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interconnectedness of various elements within the economy, recognizing that the shift to a CE is not merely a technical challenge but also a socio-cultural one.

This literature review provides a comprehensive analysis of various leadership paradigms and their impact on the advancement of CE initiatives. By synthesizing existing research, the review offers insights into the current state of leadership in the context of CE, examining how different leadership styles influence organizational commitment to sustainability. For instance, transformational leadership, which inspires and motivates employees to exceed their own expectations, is often highlighted as particularly effective in promoting CE practices. Conversely, transactional leadership, which focuses on supervision and performance, may be less effective in fostering the innovation and long-term thinking required for CE.

Moreover, the review identifies significant gaps in the literature, particularly the need for more empirical studies that explore the long-term effects of different leadership approaches on CE outcomes. While some studies have examined the short-term impacts of leadership on sustainability initiatives, there is a lack of research on how leadership can sustain these efforts over time and scale them across larger organizational structures.

The findings underscore the crucial role of leadership in not only driving organizational change but also in inspiring a collective vision that aligns with broader sustainable development goals. Leaders must therefore be equipped to navigate the complexities of CE, understanding that their role extends beyond managing resources to transforming organizational culture and fostering cross-sectoral collaboration. This review contributes to the growing body of knowledge on CE, offering a deeper understanding of how leadership can effectively facilitate the transition to a sustainable, circular economy, and paving the way for future research in this critical area.

## LEADRESHIP PARADIGMS IN THE CIRCULAR ECONOMY

Transformational leadership is increasingly recognized as a critical driver for advancing organizational change towards sustainability (Bass, Riggio, 2006). This leadership style is characterized by its ability to inspire and motivate employees, encouraging them to exceed standard performance expectations and embrace innovative practices aligned with CE principles (Dima, Hategan, 2023). Transformational leaders play a pivotal role in cultivating a culture focused on sustainability by promoting long-term strategic thinking and facilitating the integration of practices designed to minimize waste and optimize resource efficiency (Afsar, Badir, Kiani, 2016). These leaders extend their influence by fostering an organizational environment that prioritizes sustainability, thereby empowering employees to engage in initiatives that support environmental stewardship (Bass & Riggio, 2006). This supportive culture not only results in immediate improvements in organizational performance but also fosters a deeper, long-term commitment to sustainable practices. By embedding sustainability into the core values and operational strategies of the organization, transformational leaders contribute significantly to the transition towards a circular economic model (Dima, Hategan, 2023).

In summary, transformational leadership is a vital force in promoting sustainability within organizations. Through inspiring and motivating employees to adopt innovative and sustainable practices, these leaders facilitate both immediate and enduring improvements in organizational performance. Their role in embedding sustainability into the organizational culture supports a broader commitment to environmental stewardship and resource efficiency, driving progress toward a more circular economic model (Afsar, Badir, Kiani, 2016).



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# DIGITAL LEADERSHIP

Digital leadership has emerged as a crucial enabler of the CE, especially within the context of Industry 4.0 and the increasing digitization of business processes (Antikainen, Uusitalo, Kivikyto-Reponen, 2018). Leaders who effectively incorporate digital technologies into their organizational frameworks can substantially improve resource management, enhance decision-making processes, and drive innovation in CE practices (Dima, Hategan, 2023). The successful integration of technologies such as big data, the Internet of Things (IoT), and artificial intelligence (AI) into CE strategies requires leaders who not only possess technological expertise but also excel in guiding their organizations through intricate digital transformations (Jabbour et al., 2019).

Digital leaders play a critical role in creating more efficient and sustainable business models by leveraging these advanced technologies. Their ability to align technological advancements with sustainability goals is essential for ensuring that organizations remain competitive while fostering environmental stewardship. This alignment helps drive the transition towards a more circular economy, emphasizing the integration of sustainable practices into core business operations.

In conclusion, digital leadership is integral to advancing the circular economy. By harnessing digital tools and technologies, these leaders can enhance organizational efficiency and sustainability, thereby supporting the shift towards circular economic models and contributing to broader environmental objectives (Antikainen, Uusitalo, Kivikyto-Reponen, 2018, Dima, Hategan, 2023, Jabbour et al., 2019).

# RECENT ADVANCEMENTS IN LEADERSHIP FOR CIRCULAR ECONOMY

Recent research underscores the growing significance of leadership in advancing CE initiatives (Wang, Chen, Zhu, 2020). As organizations increasingly integrate sustainability into their corporate strategies, new leadership models have emerged that emphasize environmental, social, and governance (ESG) criteria as fundamental components of decision-making (Elkington, 1998). These models reflect a shift from traditional leadership approaches to more holistic frameworks that prioritize long-term sustainability alongside economic performance.

Moreover, the rise of digital leadership has further facilitated the adoption of CE practices by harnessing advanced technologies and promoting data-driven decision-making (Corona et al., 2019). Digital leaders leverage tools such as big data analytics, artificial intelligence, and the Internet of Things (IoT) to enhance operational efficiency and resource management. This technological integration not only supports sustainable practices but also fosters innovation within organizations, enabling them to respond proactively to environmental challenges.

Consequently, effective leadership is essential for steering organizations toward sustainable transitions, ensuring that CE initiatives are not merely implemented but become integral to the organizational culture. As the landscape of business continues to evolve, the role of leadership in driving CE forward remains a critical area for further exploration and development.





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# CHALLENGES IN ADVANCING CIRCULAR ECONOMY INITIATIVES

A significant challenge in advancing CE initiatives is overcoming organizational resistance to change. This resistance often presents a substantial barrier, stemming from limited understanding of CE principles, apprehension about the uncertainties associated with new practices, and concerns about potential disruptions to established business operations (Geissdoerfer et al., 2017). Such resistance can hinder the adoption of CE strategies and impede progress toward sustainability goals (Korhonen et al., 2018). To effectively address these challenges, leaders play a crucial role in creating a supportive environment for change. This involves clearly communicating the benefits of CE, such as increased resource efficiency, cost savings, and enhanced brand reputation, while also providing the necessary resources and training to support the transition (Northouse, 2019). Leaders must engage stakeholders through transparent communication and demonstrate the long-term value of CE initiatives to build trust and foster a culture of innovation. By doing so, they can mitigate resistance and promote a more receptive attitude towards adopting sustainable practices.

In summary, overcoming resistance to CE initiatives requires proactive leadership that emphasizes the advantages of CE and supports employees through the transition. Addressing these concerns is vital for the successful implementation of CE practices and achieving organizational sustainability goals (Geissdoerfer et al., 2017, Korhonen et al., 2018, Northouse, 2019).

The effectiveness of leadership in promoting CE initiatives is deeply influenced by cultural factors. Leadership styles that succeed in one cultural setting may not yield the same results in another due to varying cultural norms and values (Jabbour et al., 2019). This cultural variability underscores the critical need for leaders to cultivate a nuanced understanding of cross-cultural dynamics, especially when operating in diverse global markets.

As organizations endeavor to implement CE strategies across different geographical regions, leaders must adapt their approaches to align with local cultural contexts. This adaptability involves recognizing and respecting the unique cultural values and practices that characterize each region (Hategan et al., 2023). Leaders who fail to consider these cultural differences may encounter resistance or face challenges in engaging stakeholders effectively, thereby impeding the successful adoption of CE initiatives. Developing cultural awareness enables leaders to customize their strategies to better resonate with local stakeholders. For example, in regions where community and collective values are emphasized, leaders might focus on collaborative approaches and community-based initiatives to promote CE practices. Conversely, in cultures that prioritize individual achievement and innovation, leaders might highlight the personal and competitive advantages of adopting circular practices. By tailoring their approaches in this manner, leaders can foster greater engagement and collaboration, which is crucial for successful implementation.

Moreover, cultural adaptability helps leaders build trust and rapport with diverse stakeholder groups. When leaders demonstrate an understanding of and respect for local cultural norms, they are more likely to gain the support and cooperation necessary for implementing CE initiatives. This respect and alignment with cultural values can significantly enhance the receptiveness of stakeholders to new practices, thereby facilitating the transition towards a more sustainable and circular economic model. By aligning their strategies with local cultural contexts, leaders can effectively engage stakeholders, overcome resistance, and drive the successful adoption of sustainable practices. This cultural sensitivity is essential for creating a cohesive organizational vision that resonates across various regions, supporting the global transition towards a circular economy (Jabbour et al., 2019, Hategan et al., 2023).



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# CRITICAL EVALUATION OF CURRENT RESEARCH

Despite the growing body of literature on leadership and the CE, several significant gaps remain that warrant further investigation. A foremost concern is the scarcity of empirical research focused on the long-term impacts of leadership on CE outcomes (Dima, Hategan, 2022). While current studies have predominantly concentrated on short-term effects, this narrow scope fails to capture the enduring influence of leadership on the sustainability and resilience of CE practices over time (Creswell, Plano Clark, 2018).

The adoption of longitudinal research methodologies could address this deficiency by tracking leadership practices across extended periods, thereby uncovering the mechanisms through which leaders contribute to the sustained success of CE initiatives. Such insights are crucial for developing leadership paradigms that not only initiate but also perpetuate sustainable practices within organizations.

Another critical gap in the existing literature is the underexplored role of digital leadership in advancing CE. The rapid digitalization of organizational processes presents both opportunities and challenges for integrating advanced technologies into CE strategies, yet there remains a lack of comprehensive research on this intersection (Antikainen, Uusitalo, Kivikyto-Reponen, 2018).

Specifically, the literature is deficient in exploring the specific skills and competencies required for digital leaders to effectively navigate the complexities of CE. As digital tools and platforms become increasingly integral to organizational operations, understanding how digital leadership can enhance the implementation and scalability of CE practices is essential (Dima, Hategan, 2023). Research in this area could elucidate best practices and strategies that empower leaders to leverage digital innovation in support of sustainability goals.

Addressing these gaps is imperative for advancing both the theoretical understanding and practical application of leadership within the CE context. By expanding research to include long-term studies on leadership effects and a deeper exploration of digital leadership, scholars can provide more robust frameworks that inform effective leadership practices in the Circular Economy.

This will not only contribute to the academic discourse but also offer actionable insights for organizations seeking to align their leadership strategies with the principles of sustainability, ultimately leading to more resilient and adaptive business models in the pursuit of a CE.

## FUTURE RESEARCH DIRECTIONS

Future research in the domain of leadership and the CE should place a significant emphasis on cross-cultural studies, as these are crucial for gaining a nuanced understanding of how leadership practices within different cultural contexts influence the adoption and efficacy of CE initiatives (Jabbour et al., 2019). Given the global nature of sustainability challenges, it is imperative to recognize that leadership strategies cannot be universally applied without consideration of the cultural variables that may impact their success. Investigating the interaction between cultural factors and leadership styles will provide valuable insights into the specific conditions that either facilitate or hinder the implementation of CE practices across diverse settings. A cross-cultural approach is essential for identifying culturally specific barriers and enablers that influence leadership effectiveness in promoting CE.

Such research would delve into how cultural dimensions, such as power distance, individualism versus collectivism, and uncertainty avoidance, among others, shape leadership behaviors and organizational responses to sustainability initiatives. By understanding these cultural nuances, leaders can better tailor



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their strategies to align with local values and expectations, thereby enhancing the likelihood of successful CE adoption. Moreover, this approach allows for the identification of best practices that are sensitive to cultural differences, ultimately contributing to more effective and contextually appropriate leadership. In examining different regions and cultural contexts, researchers can explore how local norms, values, and business practices shape the reception and implementation of sustainability initiatives. This understanding is critical for developing leadership strategies that resonate with local stakeholders and are adaptable to regional realities (Hategan et al., 2023). For instance, in cultures with a high degree of collectivism, leadership approaches that emphasize community engagement and collective responsibility might be more effective in driving CE initiatives. Conversely, in more individualistic cultures, strategies that focus on personal accountability and innovation might yield better results.

Ultimately, adopting a cross-cultural perspective on leadership within the context of the CE will significantly enhance the global understanding of sustainability efforts. It will contribute to the development of leadership practices that are not only effective but also inclusive and adaptable to varying cultural contexts. Such research is vital for advancing the global sustainability agenda, as it ensures that leadership strategies are both globally informed and locally relevant, thus promoting a more seamless and widespread transition to a Circular Economy.

The growing recognition of the need for longitudinal studies to assess the impact of leadership on CE outcomes over extended periods underscores a crucial area of inquiry in sustainability research (Dima, Hategan, 2022). Longitudinal research methodologies are particularly valuable because they allow for an in-depth examination of the long-term effectiveness of different leadership paradigms in promoting sustainable change. By systematically tracking leadership practices and their outcomes over time, researchers can gain critical insights into which strategies most effectively support the successful implementation of CE initiatives. This temporal approach provides a more comprehensive understanding of the evolving dynamics between leadership and CE, offering a robust foundation for the identification and development of best practices applicable across varied organizational settings.

Moreover, longitudinal studies are instrumental in uncovering potential barriers to the sustained success of CE efforts. These studies can illuminate the challenges that emerge as organizations attempt to maintain and scale sustainability initiatives, thus enabling the refinement of existing leadership frameworks. Such insights are invaluable for both academic theory and practical application, as they inform the development of leadership models that are not only aligned with the principles of sustainability but also equipped to drive long-term organizational transitions toward a circular economy (Northouse, 2019). The contribution of longitudinal research to the field is significant, as it facilitates a deeper understanding of how leadership practices can evolve to meet the ongoing demands of CE. This knowledge is essential for fostering leadership styles that are resilient and adaptable, capable of navigating the complexities of sustainability challenges over time. By focusing on the longitudinal impact of leadership, scholars and practitioners alike can better equip organizations to cultivate leadership approaches that are not only effective in the short term but also sustainable in the long term. Consequently, these insights play a crucial role in advancing both the theoretical framework and practical implementation of leadership in the context of the circular economy, ensuring that organizations are well-positioned to achieve enduring success in their sustainability efforts.

## CONCLUSION

This literature review highlights the pivotal role of leadership in propelling circular economy initiatives. Among various leadership paradigms, transformational and digital leadership have emerged as



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particularly effective in fostering sustainability and guiding organizations through the complexities of transitioning to a circular model. Transformational leadership inspires and motivates teams to embrace innovative practices, while digital leadership facilitates the integration of advanced technologies crucial for CE strategies. Despite these advancements, significant gaps persist within the existing literature, particularly concerning the long-term impacts of leadership on CE outcomes. There is a pressing need for comprehensive studies that investigate how different leadership styles contribute to the sustained success of CE initiatives over time. Additionally, the specific role of digital leadership in harnessing technology to enhance CE strategies remains underexplored. Understanding how leaders can effectively leverage digital tools to optimize resource efficiency and promote sustainable practices is essential for the development of effective frameworks. Future research should prioritize cross-cultural and longitudinal studies to enrich our understanding of how leadership influences the transition to a sustainable economy. By examining diverse organizational contexts and tracking leadership effectiveness over time, scholars can identify best practices and contextual factors that enhance the impact of leadership on CE outcomes. Such studies could provide invaluable insights, enabling organizations to cultivate leadership approaches that not only drive immediate results but also ensure long-term sustainability in the evolving landscape of the circular economy. Ultimately, a deeper exploration of these themes is essential for advancing both theoretical and practical applications in the field.

## REFERENCES

- Afsar, B., Badir, Y., Kiani, U.S. (2016). Transformational leadership and innovative work behavior. *Industrial Management & Data Systems*, 116(8), 1543-1567.
- Antikainen, M., Uusitalo, T., Kivikyto-Reponen, P. (2018). Digitalization as an enabler of circular economy. *Procedia CIRP*, 73, 45-49.
- Avolio, B.J., Bass, B.M. (2004). *Multifactor Leadership Questionnaire*. Mind Garden, Redwood City.
- Bass, B.M. and Riggio, R.E. (2006). *Transformational Leadership*. 2nd ed. Psychology Press, New York.
- Bocken, N.M., De Pauw, I., Bakker, C., Van Der Grinten, B. (2016). Product design and business model strategies for a circular economy. *Journal of Industrial and Production Engineering*, 33(5), 308-320.
- Braun, V., Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology*, 3(2), 77-101.
- Corona, B., Shen, L., Reike, D., Carreón, J.R., Worrell, E. (2019). Towards sustainable development through the circular economy – A review and critical assessment on current circularity metrics. *Resources, Conservation and Recycling*, 151, 104498.
- Creswell, J.W., Plano Clark, V.L. (2018). *Designing and Conducting Mixed Methods Research*. 3rd edition, Sage Publications, Thousand Oaks.
- Dima, S.M., Hategan, C.D. (2020). Transformational leadership and sustainable business performance in the circular economy. *Journal of Cleaner Production*, 257, 120483.
- Dima, S.M., Hategan, C.D. (2022). The role of leadership in promoting a circular economy: Insights from a systematic review. *Sustainability*, 14(3).
- Dima, S.M., Hategan, C.D. (2023). Digital leadership in the circular economy: Challenges and opportunities. *Journal of Industrial Ecology*, 27(4), 978-990.



## Conference Proceedings

- Ellen MacArthur Foundation (2021). What is the circular economy? Available at: <<https://www.ellenmacarthurfoundation.org/circular-economy/concept>> Accessed 12 August 2024.
- Elkington, J. (1998). Partnerships from Cannibals with Forks: The Triple Bottom Line of 21st Century Business. *Environmental Quality Management*, 8(1), 37-51.
- Geissdoerfer, M., Savaget, P., Bocken, N.M.P., Hultink, E.J. (2017). The Circular Economy – A new sustainability paradigm? *Journal of Cleaner Production*, 143, 757-768.
- Greenleaf, R.K. (1977). *Servant Leadership: A Journey into the Nature of Legitimate Power and Greatness*. Paulist Press, New York..
- Hategan, C.D., Sirghi, N., Iatagan, M., Arsene, C. (2023). Exploring the leadership dynamics in circular economy initiatives: A mixed-methods approach. *Journal of Business Research*, 154, 273-285.
- Jabbour, C.J.C., de Sousa Jabbour, A.B.L., Sarkis, J., Godinho Filho, M. (2019). Unlocking the circular economy through new business models based on large-scale data: An integrative framework and research agenda. *Technological Forecasting and Social Change*, 144, 503-514.
- Korhonen, J., Nuur, C., Feldmann, A., Birkie, S.E. (2018). Circular economy as an essentially contested concept. *Journal of Cleaner Production*, 175, 544-552.
- Northouse, P.G. (2019). *Leadership: Theory and Practice*. 8th edition. Sage Publications, Thousand Oaks.
- Rizos, V., Tuokko, K., Behrens, A. (2016). *The Circular Economy: A review of definitions, processes and impacts*. CEPS Working Document No. 2016/05, Brussels.
- Wang, H., Chen, H., Zhu, Y. (2020). Exploring the Impact of Transactional Leadership on Organizational Innovation in a Circular Economy. *Journal of Cleaner Production*, 262, 121370.



## Conference Proceedings

# STRATEGY OF INFLUENCE AND LOBBYING OF SMALL AND MEDIUM-SIZE ENTERPRISES

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DOI: 10.5937/EEE24006R

JEL: D72

Review Scientific Paper

### ABSTRACT

*Small and medium enterprises have been identified as one of the essential levers of development in EU countries. These business entities have effects on the rest of the economic system in terms of job creation, product differentiation, and the use of local real production factors. The aim of this article is to focus on the benefit these companies could derive from the practice of influence and lobbying strategies. In EU countries, influence strategy still retains an unfavorable abstract and negative connotation. The influence strategy is based on two key levers: public relations and lobbying. On the one hand, PR aims to direct the attitude and behavior of the public on whose entities the economic activity of SMEs depends. On the other hand, lobbying is characterized by a series of direct or indirect interventions responsible for guiding the arbitration of public institutions in accordance with their interests. Thus, PR focuses on influencing the perception of things, while lobbying acts on the normative aspect of the environment. In this context, direct (grasstop) and indirect (grassroots) lobbying represent important tools for influencing and defending the interests of SMEs. The storytelling is a modern term in lobbying. These tools serve a targeted problem in order to arouse the interest of public decision makers. Mastery of the media universe and legislative context is vital to the development of lobbying.*

### KEYWORDS

*strategy of influence, direct lobbying (grasstop), indirect (grassroots) lobbying, small and medium enterprises, storytelling*

## INTRODUCTION

The strategy of corporate (commercial) influence, with all its questions and processes, can be very easily compared and identified with lobbying in the public sphere. Mostly it is a complex game that is built on the principle of everyone being a winner. And to that end, companies have every interest in using their influence both among themselves and in the environment as well as in the public sphere by influencing law makers. The main goal is to limit the risks due to too strong influence of the competition, and to increase one's own influence in the given area. In this way, influence strategy is identified with lobbying. The terms "lobbying" and "lobbyists" often appear in the media, as well as in the economic press, to describe influence games that favor commercial development. What does commercial lobbying mean? What does this type of lobbying include? What are the best practices? What is an influence strategy and what is its relationship to lobbying? Lobbying is a commercial or diplomatic tactic useful for influencing decision makers in the public sphere (Awé, 2022)

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It happens that the interests of the company are threatened by a general administrative decision or the adoption of a law in a country or in the wider EU. Then the question of protecting the interests of companies through lobbying arises. The phenomenon of lobbying does not have a good reputation among the general public. It is still difficult to recognize, often marginalized or treated negatively. However, lobbying, especially for SMEs, is one of the keystones of the development of companies or associative structures. At the same time, it is a vital issue for numerous organizations that want to influence legislation or certain public policies.

Although in EU countries, lobbying mainly consists of defending interests against institutional decisions or company dominance over the environment, commercial lobbying can also be used as a mechanism to influence decision makers, to facilitate establishment in inhospitable environments and to gain market share.<sup>1</sup> Relying on the connections between companies and public authorities, lobbying seeks to face the great challenge through sustainable development of the structure, whether at the local or national level. Influence strategy and lobbying implies a structural approach, because it is a kind of power game and influence game. When the term strategy is mentioned, it implies a structured approach.

Starting from the choice of lobby-group methodology, there are two different approaches to lobbying:

- a) direct lobbying, which includes direct interaction with key decision-makers (written texts, letters, phone calls, meetings, etc.), and
- b) indirect lobbying, which involves conveying a message in the media and gaining public support that will influence decision makers. Understanding the mechanisms of commercial lobbying in a business environment consists of defending the commercial interests of a product, service or company against decision makers from other companies. In this context, lobbying is focalized between the companies themselves.

The top five tools for commercial lobbying are:

- direct contact,
- personal contact,
- engagements and surveys,
- social networks,
- SMS or text messages.

It is about convincing people of their legitimacy and the relevance of the stated need. In order to implement the mentioned tools, the lobbying company must maintain in-depth contact with the decision-makers through organizing a meeting, a series of conferences or any other way of persuasion and influence with legislators and other companies. In addition, lobbying facilitates interaction between decision makers and businesses. Without lobbying, it would be more difficult for businesses to network with other businesses to promote their goods and services. Influence strategy is above all networking skills that must serve the interests of SMEs above all. Therefore, the relationship of the win-win model lies in the exchange of services. Each Influence Strategy must be carefully thought out, and presupposes:

- a) creation of an action plan,
- b) analysis of your business portfolio and your circle of influence, and

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<sup>1</sup> This is a common method in the United States, which allows, through influence play, to achieve twinning between companies in order to develop in an initially inaccessible environment.



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- c) construction and implementation of a network of contacts.

This story about influence strategy and lobbying is not complete without Storytelling or The storytelling as a modern term in the domain of lobbying. This tool serves a targeted problem and arouses the interest of public decision-makers. Ultimately vital for the development of any type of business, for the sustainability of the activity sector or for the defense of the interests of the community and society, lobbying relies on a perfect mastery of the media universe and the legislative context.

## CONCEPTION OF THE INFLUENCE STRATEGY

Any strategy of influence, and lobbying, if it seeks to achieve a greater effect, must be performed with a pre-prepared concept. This issue is particularly important for small and medium-sized enterprises (SMEs). An influence strategy presupposes the achievement of strategic meetings with targeted public or private decision-makers, capable of opening the right doors, at the right time. In that context, three significant aggregates of the Strategy of Influence concept are distinguished: Planning an action plan; Commercial portfolio analysis and circle of influence; Developing an effective network of contacts.

The goal of lobbying is primarily to build relationships with the target company in a process that is manageable, predictable and productive in terms of the interests of the various stakeholders.

This process or action plan ideally develops as follows:

- identification of the goal with a deadline;
- structuring/organization of time and priorities;
- analysis of obstacles and levers around the goal;
- collects information on decision-making power;
- identification of influence relays and different stakeholders (favorable or blocking);
- identifying elements of the context that can influence decisions (political, economic, sociological factors, etc.);
- development of own position;
- a valuable creation.

A well-structured action plan is in fact the surest way to confirm your commercial impact. gain more control over your strategy, ask yourself the right questions about your customers or partners:

- Who are they ? Who has the power and who are the relays of influence?
- What goods or services have they bought or can buy from you?
- What is their shopping frequency?

Once you have all the information you need to develop a profile, you will be able to collect what is necessary according to the specifics of your business (company size, decision maker, connectivity, traffic, etc.).

The basis of effective lobbying is building a strong network of contacts. Family, friends, customers, partners, suppliers, policy makers, legislators and industry partners play a significant role in this activity. It's about building long-term, mutually beneficial connections and relationships. These connections act as a catalyst for finding the right people and expanding your sphere of influence, thereby improving your business position and increasing your profits.





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### **DIRECT AND INDIRECT LOBBYING**

It is not uncommon for the interests of companies to be threatened by a general administrative decision or the adoption of a law in a country, a community of countries such as the EU or beyond. At that moment, the question of protecting the interests of companies through lobbying or some other method automatically arises. Regardless of the fact that lobbying does not have a good reputation, this phenomenon is increasingly significant and transparent, especially after the introduction of legal regulations and institutional control.<sup>1</sup> In developed countries, lobbying has become one of the key factors in the development of companies or associative structures. With the help of lobbying, numerous organizations want to influence the decisions of companies and decision-makers in legislative institutions. Lobbying requires specific knowledge, based on constitution and mastery of tools that are as valuable as they are exclusive. What does it consist of? What essential skills do you need to have to run an effective influencer campaign? First of all, the lobby group must act with great caution and with a pre-prepared strategy. Several authors such as Frank Rouault or Nicolas Teisseire offer more advice and the use of possible tools and techniques to overcome various challenges (Rouault, Teisseire-2022).

In that context, two lobbying techniques are possible, namely direct lobbying – grasstop and indirect lobbying or grassroots lobbying. Direct lobbying (grasstop) is expressed through attempts to influence the legislative body through communications with members or employees of the legislative body, or with civil servants participating in the formulation of laws (O'Boyle, 2023). Here we are talking about network lobbying, that is, based on the relationships that lobbies maintain with decision makers. Examples of direct lobbying are:

- meeting with legislators to discuss the potential content of the law and guide its drafting;
- negotiating the terms of the law, etc.

Direct lobbying can also refer to the persuasion of one company by another company or individuals. In our climate, direct lobbying is very present.

My personal experiences as a representative of an international company in the field of energy, Dufferko energy, are mostly realized with the help of direct lobbying. Conversations, clarifications, arguments, better offers than the competition, joint meetings are an integral part of my lobby activity.

Indirect lobbying – (lobbyisme « grassroots) is lobbying with the intention of reaching the legislative body and producing influence in the decision-making process. This lobbying technique consists in an attempt to influence public opinion to take a position on a specific legislative project. Indirect lobbying encourages the public to take concrete action on legislation. In both cases, the positions of the lobby group must be invoked and reflect the attitude towards the legislation. Indirect lobbying is an approach that differs from direct lobbying through the act of asking the general public to influence legislators and government officials regarding a specific issue (Grass Roots, Lobbying, 2022).

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<sup>1</sup> Regarding the legalization of lobby group activities, lobbyists in the EU are required to register in a digital directory and provide information about their activities, associates and budget. This directory in the EU countries is managed by a high authority for the transparency of public life. When the law on the regulation of lobby groups (Le Loi Sapin II) was announced in France, President Francois Hollande said: "Citizens will know who intervened and at what level the law enforcers public decision to improve, correct or modify a reform and with what arguments. Loi no 2016-1691 du 9 December 2016 relative à la transparence, à la lutte contre la corruption et à la modernization de la vie économique.



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Companies, associations and citizens are increasingly involved in lobbying as an attempt to influence changes in the law. A unique feature of local lobbying, unlike other forms of lobbying, is that it involves stimulating the politics of specific communities. This type of lobbying is different from the better-known direct lobbying, because it is naturally imposed by the organization. Half of EU companies with a turnover of more than 10 million euros participate in lobbying actions. This information highlights the importance of practice as a factor affecting the economic efficiency of companies. Direct grassroots lobbying includes the specificity of targeting powerful players.

Indirect grassroots lobbying focuses on the general public. However, the basic goal is the same: to defend the interests of one's business. At the same time, practice has shown that it is always more effective to participate in an action that is carried out together with others.

## USING INFLUENCE TO DEFEND ONE'S INTERESTS

Small and medium-sized enterprises are subject to decisions in which they simply did not participate and which can be very harmful to them. The range of actions we talked about in the previous paragraph, however, is not reserved for large groups that, due to their importance, already have the influence that SMEs, medium-sized enterprises, federations or associations are looking for.<sup>1</sup> Small businesses need even more representation to make their voices heard. (lesechos.fr/,2018) Regardless of the size of the company, the goals and benefits of lobbying ultimately remain the same, namely:

- convey your messages to decision makers;
- publish your problems;
- highlight your legitimate interests;
- defend and disseminate their views.

Small and medium-sized enterprises that want to lobby have an interest in using the services of a corporate communications agency. Indeed, they can then benefit from the agency's reputation and network through which their positions and views will finally be heard. Certain views are much more likely to be taken seriously when expressed by influence communication and lobbying professionals. Unlike a traditional lobbying firm, which achieves its influence through direct lobbying, corporate communications agencies coordinate both aspects of lobbying, since they also implement an indirect lobbying strategy. Such activity means the complete management of content and social networks and the launch of media campaigns. The same applies to associations that, although recognized as legitimate and their positions expected, are not yet imbued with a lobbying culture. They too could benefit from the advice of a global corporate communications agency. In a broader sense, lobbying today refers to a set of actions carried out by a company, federation or association, with the aim of defending its interests against political decision-makers and public authorities that could influence its activity (UNICORP, 2021).

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<sup>1</sup> SMEs – Small and medium-sized enterprises They are defined according to their size, measured by the number of employees. They have a workforce of between 20 and 249 employees. VSEs They are defined according to their size, measured by the number of employees. They have a workforce of between 0 and 19 employees. SMEs, small and medium-sized enterprises, are companies with 10 to 50 employees, whose turnover does not exceed 50 million euros or whose balance sheet total does not exceed 43 million euros. Among them, SMIs are small and medium-sized industries, i.e. companies in the industrial sector that meet the above criteria. VSEs are very small companies, with fewer than 10 employees and whose turnover or balance sheet total is less than 2 million euros. They are also called micro-enterprises. VSEs and SMEs represent 99.9% of companies in the EU.



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These operations have a threefold objective:

- to gain legitimacy and become a partner with authority in some sector of activity;
- to make concrete progress at the legislative level in terms of public policies (areas for reform, proposed amendments, etc.);
- to increase the visibility of the brand that promotes these actions.

Achieving these goals is based on the implementation of a long-term strategy based on the mastery of four essential elements, which are specific to this profession we call "public affairs". First of all, a list of certain important subjects is necessary, as a kind of address book. Then, the affirmation of the discourse with legitimate values, as well as the perfect mastery of the media and legislative landscapes. All this is preferably accompanied by a clear knowledge of the political spectrum (lesechos.fr/,2018).

## **THE RELATIONAL NETWORK MUST BE CONSTANTLY IMPROVED**

One of the main purposes of lobbying is to achieve strategic meetings with targeted public or private decision makers, capable of opening the right doors, at the right time. The first basic element to achieve this goal is:

- a) perfect knowledge of influence channels and involved actors. These can be political decision-makers (ministerial cabinets, state secretaries, MPs, senators, etc.), public administrations (local authorities, local elected officials, etc.), professional federations or even think tanks.
- b) another key tool is: a rich address book, regularly updated, dominated by influential people. Creating this exclusive and valuable repertoire is a long-term process. This requires significant and sustained immersion in a universe of insiders whose unique codes are specific to the world of politics and administration. There is no point in hoping for a quick infiltration in this environment. There's no improvisational random creation of an address book made up of generic numbers or "friends of friends who might know someone who will...". This is not possible for two reasons: First, in the EU you would be exposed to legal sanctions for not complying with the laws governing EU lobbying practices. Second, in order to contact officials with the aim of influencing public decisions, it is mandatory for any person or organization that regularly carries out lobbying activity to be registered in the directory of interest representatives. In the EU, this process is under the jurisdiction of the European Parliament, and the European Commission through the Registry on Transparency ([https://transparency-register.europa.eu/index\\_fr](https://transparency-register.europa.eu/index_fr)).

When it comes to lobbying, quick and direct contact with influential stakeholders regarding the presented strategy and targeted issue is vital. If you improvise through random connections, experience shows that it is a waste of time. There is also a risk that the lobby group will be blacklisted. An experienced lobbyist, with a clear political address book, will know who to contact, when and how. A few phone calls, e-mails or texts later will make it easier to identify yourself as a legitimate player in your market. This enables the right to be heard and included in current legislative and governmental discussions. It is, for example, the future of a sector of activity or the opening of new markets that could have a lasting impact on the future and sustainability of the company.

- c) The storytelling based on legitimate values. The expression the storytelling is a modern term in the domain of lobbying. However, just displaying it is not enough to make it an item of



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value. When it comes to lobbying, it must be based on carefully selected elements through the storytelling of a company or group. The main essence of this means is: to serve the targeted problem and arouse the interest of public decision-makers. Telling a selfish story about the life and work of a company or association will not be enough to convince the decision makers in the public (Etudes & analyses, 2023).

To keep their attention, it is essential to convey a message built around the legitimate values of the organization and its problems. For example, what benefits does the company bring to the development of the activity for the public community, consumers or society as a whole? If and why would a change in legislation (which is being lobbied against) be an obstacle to the implementation of activities of vital importance for the survival of the activity sector? How likely is that change to harm the development of the local or national economic fabric? Only an expert in influence strategy possesses the knowledge and techniques needed to define the linguistic elements that are appropriate for conveying a useful, sound and persuasive social message. Only an expert in public affairs will be able to implement a precise methodology to interest the administration and present common interests. Only a lobbying expert has the ability to write reasoned political memos to skillfully position the image of the structure, whatever it is, in terms of influence.

- d) Knowledge of the political spectrum is an important factor in lobbying. What common interests does the company I defend have with my (political) interlocutor? Who should I turn to in order not to offend the decision-maker who can advance the issue in question? These questions are not anecdotal. Far from it. Lobbying is, first of all, a collection of human exchanges that aim to bring about a given issue. That is why it is better to master even the smallest subtleties behind the political scene. Ignoring or not paying attention to them exposes you to numerous mistakes, which can offend the sensibilities of your most influential interlocutors. Once again, this ability cannot be improvised. It is acquired over time, with a great increase in personal and regular contacts with those who make up today's and tomorrow's political world.
- e) Perfect command of the media and legislative landscape: Delivering a public, economic or political message without a perfect knowledge of the media world and the evolution of the legislative framework is impossible. In order for journalists to convey it, the message must stick to current events or be in line with major social trends. It must also fit into the editorial line of the targeted media. It is therefore essential to identify promising subjects, master the workings of the press and know the key players. At the same time, it is crucial to know the functioning of the political world and follow the evolution of the legislative framework. Anticipating the connection or possible blockage between the enactment of legislation and the development of a company or a sector of activity is of vital importance. When submitting an amendment, it is necessary to know the precise and complex rules governing this highly technical process. Finally, it is desirable to perfectly master the finer points of the political world in order to stimulate and encourage the deputies or senators who would probably vote for the said amendment (Clavier, 2023).
- f) To be effective, a lobbyist must constantly juggle between "short-term" actions and a "long-term" vision. The evolution of the political agenda and media time requires a permanent adjustment of discourse and strategy. This daily and meticulous configuration must be carried out in tandem with the achievement of economic, political and social goals committed to the medium or long term plan. It must not be forgotten that lobbying does not consist of shaking hands while enjoying small cocktails and glasses of champagne. This discipline is



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not the prerogative of large industrialists either. While it requires real interpersonal skills, it also requires a keen sense of political strategy, combined with sharp technical, legal and editorial knowledge. Vital for the development of any type of business, for the sustainability of the activity sector or for the defense of the interests of the community and society, lobbying relies on a perfect mastery of the media universe and legislative context, together with skillful cooperation with different actors operating on chessboards that are as complex as and complementary. So we don't improvise like lobbyists. We learn to become one, through constant practice, time and with much wisdom.

Various specialized agencies such as Unicorp, ESCAL-Consulting, Influactive support the development of an influence strategy in the sense of:

- Revision, design and distribution of messages.
- A mapped agile ecosystem approach to bring your ideas to life and make your messages relevant.
- Constant monitoring of relevant media, political news and targeted sectors of activity.
- In-depth analysis of media treatment.
- Network on a daily basis.
- Implementation of customized strategies by senior expert consultants.
- Creating synergies between expertise to address impact challenges.

## CONCLUSION

The phenomenon of lobbying and the strategy or communication of influence are two close phenomena, which are often mutually complementary, identified and equated. Simon Adolph believes that influence strategy has become the new El Dorado for lobby groups. In the EU, lobbying and influence strategies have inherited a bad reputation due to non-transparency, manipulation and organized corruption. However, in the last fifteen years lobby agencies have professionalized and multiplied by five times. Lobbying will become a transparent and fully regulated and controlled process.

The influence strategy is based on two key levers: public relations and lobbying. On the one hand, PR aims to direct the attitude and behavior of the public on whose entities the economic activity of SMEs as well as large companies depends. On the other hand, lobbying is characterized by a series of direct or indirect interventions responsible for guiding the arbitration of public institutions in accordance with their interests. Thus, PR focuses on influencing the perception of things, while lobbying acts on the normative aspect of the environment. In this context, direct (grasstop) and indirect (grassroots) lobbying are important tools for influencing and defending the interests of SMEs and large companies.

Strategy of influence is relevant both for international groups and for small and medium-sized enterprises. Through influence strategy and lobbying, numerous companies try to influence in two directions a) the decisions and behavior of other companies, and b) decision-makers in legislative institutions.

Every strategy of influence, and lobbying, if it tries to achieve a greater effect, must be performed with a pre-prepared concept. This issue is particularly important for small and medium-sized enterprises (SMEs). In that context, three significant aggregates of the concept of the Strategy of Influence stand out: Planning an action plan; Commercial portfolio analysis and circle of influence;



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Strategy of influence presupposes the achievement of strategic meetings with targeted public or private decision-makers, capable of opening the right doors, at the right time. The first basic element to achieve this goal is:

- a) perfect knowledge of influence channels and involved actors. These can be political decision-makers (ministerial cabinets, state secretaries, MPs, senators, etc.), public administrations (local authorities, local elected officials, etc.), professional federations or even think tanks.
- b) another key tool is: a rich address book, which is regularly updated, dominated by influential people. An experienced lobbyist, with a clear address book, knows whom, when and how to contact.
- c) storytelling (The storytelling) based on legitimate values g) Perfect mastery of the media and legislative landscape Delivering a public, economic or political message without perfect knowledge of the media world and the evolution of the legislative framework is impossible. In order for journalists to convey it, the message must stick to current events or be in line with major social trends g). To be effective, a lobbyist must constantly juggle between "short-term" actions and a "long-term" vision.

Small businesses need even more representation to make their voices heard. Regardless of the size of the company, the goals and benefits of lobbying ultimately remain the same, namely:

- convey your messages to decision makers;
- do not hide limitations and openly disclose problems;
- highlight your legitimate interests;
- defend and disseminate their views.

Small and medium enterprises that lobby have an interest in using the services of a corporate communications agency.

## REFERENCES

Awé, Y. (2022). Lobbying commercial: une stratégie nécessaire pour développer votre entreprise Available at: <https://orsys-lemag.com/lobbying-commercial-strategie-necessaire-developper-votre-entreprise/>. Accessed 25.04.2024.

Etudes & analyses. Available at: <https://www.etudes-et-analyses.com/theme-economique/lobbying> (17. October 2023)

Henri Clavier Les lobbies en Europe (5/5): La fabrication de l'information, un lobbying détourné. Politique européenne 6 octobre 2022. <https://www.taurillon.org/les-lobbies-en-europe-5-5-la-fabrication-de-l-information?lang=fr>

Levet, J.L. (2001). L'Intelligence Economique, mode de pensée, mode d'action, Economica, 2001

O'Boyle, A. (2023). How to Build an Effective Grasstops Advocacy Program. Available at: [https://www.Asaecenter.org/resources/articles/an\\_plus/2023/4-april/how-to-build-an-effective-grasstops-advocacy-program](https://www.Asaecenter.org/resources/articles/an_plus/2023/4-april/how-to-build-an-effective-grasstops-advocacy-program). Accessed 26.04.2024.

Rouault, F., Teisseir, N. (2022). Lobbying en 100 question, Afnor (DR).



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What are the most common lobbying actions? Informal discussions or one-on-one meetings are the preferred format for lobbying (25.5%). Next comes the transmission of information and expertise with the aim of persuasion (24%), then suggestions in order to influence the drafting of a public decision (18%), or regular correspondence (letter, email: 14.5%). [Available at: Sudouest.fr. Accessed 25.04.2024].

<https://entrepreneurs.lesechos.fr/developpement-entreprise/commercial-marketing/le-lobbying-ne-laisse-pas-de-droit-a-lerreur-2018458>

[https://transparency-register.europa.eu/index\\_fr](https://transparency-register.europa.eu/index_fr) - The Transparency Register makes it easier for citizens to obtain information on lobbying activities carried out before the Union institutions, as well as statistical data on all registered entities.

UNICORP (2921). Agence de communication globale-Le lobbying, une compétence stratégique qui ne s'improvise pas. Available at: <https://www.unicorp.fr/blog/le-lobbying-une-competence-strategique-qui-ne-simprovise-pas/>, 23.03.2021. Accessed 26.04.2024.

Zerbib, R. (2017). «Stratégies d'Influence », Master 2 Intelligence économique et stratégies compétitives (Cf. cours 2016-2017, Université d'Angers).



## Conference Proceedings

# THE GREEN BOND MARKET IN THE FUNCTION OF ENHANCING SUSTAINABILITY

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DOI: 10.5937/EEE24007A  
JEL: G23, O44:  
Review Scientific Paper

## ABSTRACT

*Green bonds represent one of the most significant innovations in sustainable finance over the past decade. However, despite their increasing popularity, academic studies on green bonds are scarce and mostly focus on analyzing the impact of green labels on bond yields. Our research represents one of the first attempts to empirically investigate broader issues related to green bonds, such as reasons why investors and issuers enter the green bond market, the role green bonds play in redirecting capital towards more sustainable economic activities, and their influence on how organizations approach sustainability. This paper offers a detailed insight into the rapid growth of the green bond market and analyzes how these bonds are changing the way market participants perceive and implement sustainability into their operations. Green bonds function similarly to conventional bonds but with one crucial difference: funds raised from investors are exclusively used to finance projects with positive environmental impacts, such as renewable energy sources and green buildings.*

## KEYWORDS

*green bonds, market, sustainable finance, green economy*

## INTRODUCTION

The global green bond market is experiencing exceptionally rapid growth and is becoming a key component of sustainable financing worldwide. Green bonds, as a specific form of debt, are intended exclusively for projects that provide environmental benefits, such as renewable energy, energy-efficient buildings, sustainable agriculture, and waste management. This market has created an opportunity for investors to support ecological projects while simultaneously earning a return on their investments.

The green bond initiative arises from the need to redirect capital towards sustainable projects, aiming to reduce the negative environmental impacts of conventional investments. These bonds have attracted the attention of numerous institutional investors, including pension funds, insurance companies, and sovereign wealth funds, who are seeking ways to diversify their portfolios and respond to growing sustainability demands from their members and clients.

The growth of the green bond market is supported by global political frameworks and initiatives, such as the Paris Agreement and the United Nations Sustainable Development Goals. These frameworks

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provide a strong incentive for countries and companies to commit to reducing carbon dioxide emissions and investing in ecological projects. As a result, governments, financial institutions, and corporations are increasingly using green bonds as a means to raise funds for projects that contribute to environmental preservation.

The use of proceeds from green bonds is strictly regulated and monitored to ensure their application to environmentally friendly purposes. Transparency and reporting are key elements in this process, enabling investors to track the impact of their investments and ensure that funds are directed towards projects that genuinely deliver environmental benefits.

Europe is a leader in issuing green bonds, with a significant market share and numerous initiatives supporting sustainable financing. However, the green bond market is also growing in other parts of the world, including North America, Asia and the Pacific, as well as developing countries. China, for instance, is becoming an increasingly important player in this market, with ambitious goals for emission reductions and investments in green projects.

Although the green bond market still represents a relatively small portion of the overall bond market, its significance and impact are growing. An increasing number of issuers and investors recognize the value of these instruments, not only as a means to finance ecological projects but also as a tool for enhancing corporate reputation and attracting environmentally conscious investors.

Challenges still exist, including the need for standardization of criteria and methodologies for assessing green bonds, as well as increasing transparency and trust in the market. However, innovations in the financial sector, support from regulatory bodies, and growing awareness of the importance of sustainable investments provide an optimistic outlook for the future of the global green bond market.

The global green bond market offers significant opportunities for mobilizing capital towards sustainable projects, supporting the transition to a green economy, and contributing to global efforts in combating climate change. As the market develops and grows, it becomes increasingly clear that green bonds play a crucial role in creating a sustainable future for all.

## METHODS OF RESEARCH AND DISCUSSION

This research combines theoretical and empirical approaches to analyze the global green bond market with the aim of enhancing sustainability. The authors employed the following methods for this research:

1. **Literature Analysis:** Theoretical works, expert literature, and relevant publications on green bonds, their purpose, and their impact on sustainability were thoroughly reviewed. This analysis provided a foundation for understanding key concepts and theoretical frameworks of the research.
2. **Empirical Research:** Data collection and analysis regarding green bond issuances from various sources such as market reports, issuer financial statements, and green finance databases. This approach enabled the assessment of the actual impact of green bonds on sustainability in practice.
3. **Case Study:** Analysis of specific practical examples to illustrate different strategies and approaches in issuing green bonds, as well as their impact on ecological, social, and economic aspects of sustainability.



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The global green bond market plays a crucial role in advancing sustainability by financing projects and initiatives that have a positive impact on the environment and society. The research will address the following questions:

- Q1: What is the impact of green bonds on sustainability?
- Q2: What role do institutional investors play with regard to green bonds?
- Q3: What challenges and obstacles do green bonds face?
- Q4: What should be the future directions for research?

## CONCEPT AND REVIEW OF THE ORIGIN OF GREEN BONDS

According to the OECD (2015), green bonds are fixed-income securities that finance pro-environmental investments through the funds raised from issuance. They share the same capital-raising property as conventional bonds, achieved through the debt capital market. The International Capital Market Association (ICMA) highlights that green bonds differ from “regular” bonds by their designation, which indicates the obligation to use the raised funds exclusively for financing or refinancing “green” projects, assets, or business activities; and the obligation for detailed reporting on the use of proceeds and the sustainable nature of the projects. Consequently, it is not surprising that the widely accepted definition of green bonds suggests that they are traditional (conventional) bonds whose issuance proceeds are intended for projects that generate positive environmental benefits and/or help communities adapt to the effects of climate change (Sovilj, 2020).

Green bonds are financial instruments used to raise money for projects that have a positive environmental impact. This designation can be applied to various forms of debt, such as private placements (direct financing by investors), securitizations (packaging multiple debts into a single investment product), covered bonds (debt secured by assets), sukuk bonds (Islamic financial bonds), and green loans. The key requirement is that all these forms of financing comply with internationally recognized guidelines, such as the Green Bond Principles (GBP) or the Green Loan Principles (GLP). In this regard, the definition of green bonds often includes ensuring that the raised money is used for projects with ecological benefits (Almeida, 2020).

Deschryver & de Mariz (2020) distinguish four key principles of green bonds (GBP) related to:

- 1) the use of proceeds,
- 2) the selection and evaluation of projects,
- 3) fund management, and
- 4) reporting.

These principles are designed for broad application, providing issuers with guidelines for creating reliable green bonds. They promote the availability of information needed to assess the environmental impact of green bonds and facilitate market redirections that ease transactions in line with expected changes.

The term "green bond" was first used in 1949 in the bentonite processing industry under the name "Federal Green Bond." The financial sector adopted this term in 2007 to describe fixed-income securities whose proceeds are directed towards environmentally friendly projects and activities. The European



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Investment Bank (EIB), as the first issuer of these bonds with an issuance worth one billion US dollars, laid a strong foundation for the green bond market as we recognize it today.

A specific example of financing through green bonds is the issuance of bonds by Apple Inc. to support their sustainability initiatives. In 2016, Apple issued green bonds worth 1.5 billion dollars. These funds were allocated to financing projects such as renewable energy sources, resource efficiency, and waste management. For instance, Apple used the proceeds from green bonds to install solar panels on its facilities and to support its suppliers in transitioning to renewable energy sources.

The development of the green bond market has been further stimulated by the establishment of the International Capital Market Association (ICMA) in January 2014 and the adoption of the Green Bond Principles (GBP). In 2015, the harmonization of the United Nations Framework Convention on Climate Change (UNFCCC) with the Paris Climate Agreement required member states to direct public and private financial flows towards projects with low greenhouse gas emissions and climate-resilient development. Since then, the issuance of green bonds has seen significant growth, with the entry of Chinese issuers into the market and the emergence of sovereign and municipal green bonds (Ross, 2018).

## NOTABLE DATA ON THE GREEN BOND MARKET

According to summarized data from the Climate Bonds Initiative Report (2023), it is highlighted that in 2023, the annual volume of aligned green bonds reached USD 587.6 billion, exceeding half a trillion dollars for the third consecutive year and showing a 15% increase compared to the previous year. The volume of aligned sovereign green bonds increased by 45%, reaching USD 120 billion compared to USD 83 billion in 2022. Europe dominated this market with a volume of USD 309.6 billion. The largest single issuer was the United Kingdom, with an aligned issuance of GBP 18.3 billion (USD 22.5 billion), entirely composed of additional issuances. Throughout 2023, issuers from the private sector returned to the green bond market, with the volume of aligned issuances from non-financial corporate issuers increasing by 29% compared to the previous year. Table 1 presents the top 10 issuers of aligned green bonds in 2023.

Table 1. Top Ten Issuers of Aligned Green Bonds in 2023

ISSUER	AMOUNT (BILLION USD)
<b>UNITED KINGDOM</b>	22,5
<b>GERMANY</b>	18,5
<b>ITALY</b>	15,0
<b>HONG KONG</b>	14,4
<b>KFW</b>	14,0
<b>EIB</b>	13,6
<b>EU</b>	11,6
<b>AUSTRIA</b>	11,4
<b>FRANCE</b>	10,7
<b>ICBC</b>	9,9

*Source: Climate Bonds Initiative 2023*

The total value of active securities in 2023, according to Environmental Finance Bond (2024), amounts to USD 4.407 trillion, comprising the following shares:



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- Green bonds: USD 2.579 trillion,
- Social bonds: USD 774.619 billion,
- Sustainability bonds: USD 761.367 billion,
- Sustainability-linked bonds: USD 263.152 billion,
- Transition bonds: USD 28.657 billion.

The flexibility in structuring bonds has led to the emergence of several types of green bonds (Sovilj, 2020).

Figure 1 illustrates the value of active green securities, while Figure 2 shows the value of green bond issuances worldwide from 2014 to 2023.

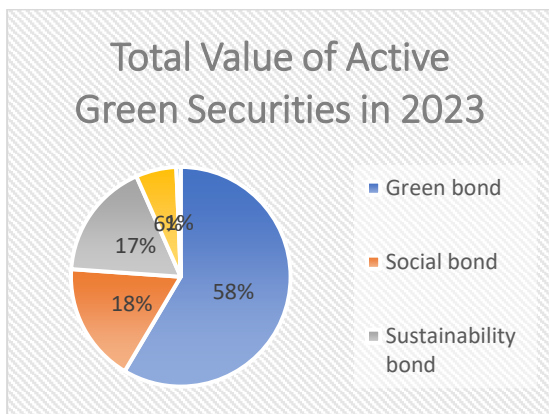


Figure 1. Value of Active Green Securities

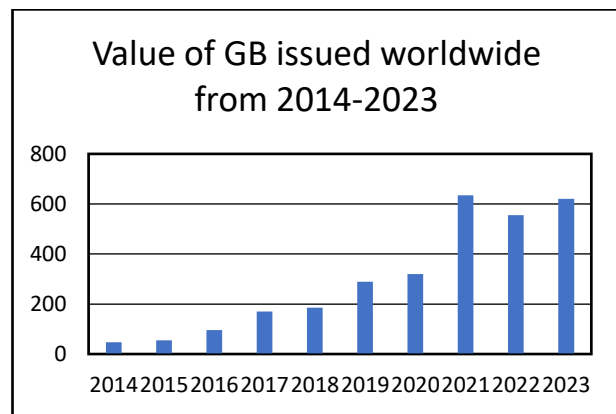


Figure 2. Value of Green Bond

*Source: Environmental Finance Bond 2024.*

Collaboration between development financial institutions, the private sector, and governments should enable the mobilization of private capital to support sustainable development and achieve goals aimed at climate change adaptation and mitigation of its negative impacts. The International Finance Corporation (IFC) is among the pioneers in recognizing the importance of issuing green bonds, having issued over \$10 billion in 20 different currencies to date. Through its Green, Social, and Sustainability Principles Executive Committee, the IFC provides technical support to issuers and investors in both developed and developing markets, ensuring the integrity of the green bond market. The German Development Bank KfW and the European Investment Bank also stand out among development financial institutions as green bond issuers. According to IFC (2023), by September 2022, KfW had issued green bonds worth \$8.3 billion, while the European Investment Bank had issued green bonds worth \$9.6 billion.

For a long time, European countries have been the leading issuers of green bonds. Interestingly, during 2022, there was a shift in the green bond market, with traditionally dominant European issuers giving way to a growing share of issuers from the United States and developing markets. Notably, China retained its position as the largest issuer of green bonds in developing markets (73%) and simultaneously became the largest global issuer of green bonds, surpassing Germany and the United States for the first time, as reported by IPC (2023).

Laborda & Sánchez-Guerra (2021) conducted research on green bonds in Europe, stating that institutional investors generally require their investments to be in assets listed on official markets,



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ensuring transparency and liquidity of investments. This is the case with green bonds, which are mostly issued and listed on official exchanges. In this context, at least eleven international exchanges list this type of asset or have created specific segments for them in recent years. Among them are the Oslo Børs, Stockholm Stock Exchange, London Stock Exchange, Mexican Stock Exchange, Luxembourg Stock Exchange, Italian Stock Exchange, Shanghai Stock Exchange, Taipei Stock Exchange, Johannesburg Stock Exchange, Tokyo Stock Exchange, and in Spain, BME, which lists this type of bond on AIAF, among others.

Anufriev & Dašić (2024) highlight that when green bonds are integrated into the context of a circular economy, they become a key instrument in supporting sustainable practices and project activities that promote circular resource use. Their characteristics include: financing sustainable initiatives, transparency and reporting, responding to growing interest in sustainability, and encouraging innovation. Thus, green bonds become a key instrument in financing the transition to a circular economy, providing funds for projects and initiatives that support sustainable resource use and minimize ecological impact. Green securities cannot be viewed separately from the green economy. Dašić & Anufriev (2022) note that the green economy is based on six key sectors that include the development and application of clean, sustainable, and affordable energy compositions, the construction of eco-friendly settlements, and the transformation of urban environments toward sustainability. Additionally, sustainable models of production and consumption that support environmentally conscious practices within industry and the wider community are crucial. Maltais & Nykvist (2020) reported in their research that over 90% of green bonds are investment-grade issues (Tiftik, Mahmood, Nozema, 2019), meaning they have high to medium credit ratings (i.e., AAA & AA or A & BBB). Sustainability is achieved when all economic, socially responsible, and ecological protective goals are met. Companies can respect the environment, social equality, and commercial success if they apply sustainable development while creating value. To illustrate this fact, we can use as an example a study conducted by the Dutch company LeasePlan Corporation (2019).

The benefits for investors who choose to invest in green bonds are numerous, including: exemption from income tax on debt securities, higher interest rates compared to government bonds or bank deposit rates, predictable interest payments, emission transparency, and the possibility of securing investments. Issuers highlight similar arguments and view the issuance of green bonds as a driver for increasing the "green ambition" of specific projects and the company as a whole. Although issuers do not claim that green bonds directly affect their cost of capital in a way that could influence their overall investment strategies, they note that green bonds can lead to increased investments in the ecological performance of projects they choose to invest in. This is a significant finding in light of recent empirical evidence showing that green bonds are associated with better environmental impact from issuing companies compared to other forms of financing (Flammer, 2020, p.120). Additionally, issuers of green municipal bonds may have the right to borrow at lower interest rates compared to other forms of borrowing, such as bank loans, attract a wider range of potential investors, and have the possibility of early redemption of bonds. Despite these benefits, working on strengthening the credibility of local governments by improving the efficiency of their institutions, monitoring the use of budget funds allocated for environmental projects, and so on, represents an extremely important, often necessary condition for attracting potential investors and encouraging them to invest in green municipal bonds.

According to Jolović & Jolović (2021), the speed at which green bond markets develop and mature is conditioned by numerous variables, including regulatory factors and policies (e.g., policies creating demand for green projects) as well as market conditions (e.g., movements in interest rates and credit cycles). These variables vary depending on the jurisdiction in which green bonds are issued, and it can be concluded that they are conditioned by: subnational, national, and regional markets that have a base of investors seeking green bonds in global contexts.



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Although green bonds have many advantages in supporting ecological projects and attracting investment for sustainable development, there are also some weaknesses that can be identified:

1. **Definition and standards:** The lack of clear and universally accepted definitions and standards for green bonds can lead to uncertainties and various interpretations of their ecological benefits. This can lead to "greenwashing," where funds raised through green bonds are used for projects that have minimal or no actual environmental impact.
2. **Issuance costs:** Issuing green bonds can be more expensive compared to traditional bonds due to the need for additional verification, reporting, and monitoring of the use of funds. This can reduce attractiveness for issuers and increase the cost of capital.
3. **Market liquidity:** Green bonds often have lower liquidity in the market compared to conventional bonds. This can limit availability and attractiveness for investors seeking liquid instruments.
4. **Market risks:** Investors in green bonds may be exposed to specific risks such as political risks (regulatory changes), technological risks (inefficiencies of technologies), or risks related to ecological changes that may impact the performance of projects supported by green bond funds.
5. **Maintaining long-term ecological sustainability:** Achieving long-term ecological sustainability and real ecological benefits can be challenging. Projects supported by green bonds must demonstrate their ability to maintain and enhance their ecological contributions over time.

## GREEN BONDS IN THE REPUBLIC OF SERBIA

Serbia has ratified all significant international environmental agreements, including the 2030 Agenda for Sustainable Development, the United Nations Framework Convention on Climate Change, the Paris Agreement, the Kyoto Protocol, and the Doha Amendments to the Kyoto Protocol. By signing the Paris Agreement, Serbia committed to reducing greenhouse gas emissions to prevent further temperature rises, in accordance with its capabilities outlined in the Agreement and which became binding upon ratification. However, the current state of green bonds in Serbia shows that this market is in its infancy and that there is potential for further growth and development. Serbia, as a developing country, has only recently begun to explore opportunities related to green bonds and environmentally sustainable investments.

Additionally, the process through which the Republic of Serbia has gone has prompted it to establish an institutional financial mechanism for implementing financial measures in the field of environmental protection in 2016, resulting in the establishment of the Green Fund (Ilić et al., 2019). The Green Fund is intended for financing and developing projects and activities in the field of conservation, sustainable use, protection, and improvement of the environment

, with clear tracking of earmarked funds for the implementation of these projects. It was established with the goal of promoting sustainable development and the principles of the green economy. The fund is replenished through donations, budget loans from the Republic of Serbia for the current year, and other public revenues. Its main objectives are defined by the National Strategy for Sustainable Development, and its long-term implementation depends on the budget allocation of financial resources for sustainable development and national "green" financing issues. However, a long-standing problem is the insufficient financial resources that the Republic of Serbia allocates for these purposes, which often prevents the realization of sustainable and green development programs and the fulfillment of recommendations from national and international financial institutions.



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For the long-term development of investment funds in the Republic of Serbia, it is crucial to expand the range of their investments and broaden the offering of financial instruments in the capital market. The introduction of "green" bonds, which would support new environmentally sustainable projects, plays a key role in this process. It is also important to ensure economic and legal stability, improve legislative regulations in line with EU regulations, especially in the areas of "green" financing and economy, and ensure a high level of transparency in the operations of investment funds. The development of the investment fund sector and support for new financial mechanisms for "green" projects could positively impact the strengthening of the domestic capital market and the economy (Dimić et al., 2023).

Regarding the challenges related to green securities in national legislation, it is important to note that the Capital Market Law of the Republic of Serbia does not recognize these long-term instruments as named securities. However, the issuance and trading of these types of securities are not prohibited. Due to the lack of a "numerus clausus" principle in the Law, issuers are allowed, in addition to already existing named securities, to issue new securities that are not defined and regulated by regulations. In such cases, the issuance of new securities requires the approval of the market supervisory authority - the Securities Commission, which can grant approval to the issuer after determining that all legally prescribed conditions related to the existence of the issuer, legality of operations, investor information and protection, as well as the characteristics of the securities themselves, have been met. After receiving this approval, the issuer of long-term securities (e.g., green bonds) can independently determine the official name of the securities and arrange obligations toward their holders.

The lack of green bond issuances in the Serbian financial market so far may be due to a lack of awareness about green finance, the absence of a regulatory framework, or the lack of concrete projects qualifying for financing through green bonds. Serbia has potential sectors that could be suitable for financing through green bonds, such as renewable energy sources (solar, wind farms), energy efficiency in public buildings, water and wastewater infrastructure improvements, and environmental protection projects. To encourage the issuance of green bonds, it is important for Serbia to develop a clear regulatory framework that supports these types of financial instruments. This includes defining standards for green bonds, establishing a system for verification and reporting on the ecological benefits of projects, and providing tax or other incentives for issuers and investors. Increasing awareness of green finance and its benefits may be crucial for the development of the green bond market in Serbia. Educating issuers, investors, and regulators about the advantages and procedures related to green bonds can contribute to their faster adoption. International organizations and financial institutions can play an important role in supporting the development of the green bond market in Serbia through providing technical assistance, training, as well as direct financing or guarantees for issuances.

## CONCLUSION

The green bonds market proves to be a key mechanism for enhancing sustainability by enabling the financing of projects that contribute to environmental protection and sustainable development. Investors who choose to invest in these bonds have the opportunity to achieve financial gains while benefiting from tax incentives, predictable interest payments, and transparency in issuance. On the other hand, issuers, including local governments, have the opportunity to raise funds under more favorable conditions compared to traditional borrowing methods, attract a broader base of investors, and finance projects of critical importance to the community.

For the further development of the green bonds market, crucial steps include strengthening the regulatory framework, improving transparency, and monitoring the effectiveness of funds used for



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sustainable projects. Through these measures, the green bonds market can effectively contribute to global efforts towards environmental preservation and sustainable development, playing a significant role in achieving long-term economic and ecological sustainability.

Empirical data analysis confirms that green bonds significantly contribute to the financing of energy efficiency projects, renewable energy sources, and other sustainable initiatives, indicating their crucial role in transitioning to a low-carbon economic model. The research highlights the importance of institutional investors in driving the growth of the green bonds market. Their increasing interest in sustainable investments further supports the development of this market.

However, the research also identifies challenges such as the lack of standardization, transparency, and insufficient market awareness. These factors may limit the further development of the green bonds market. To strengthen the role of green bonds in advancing sustainability, future research could focus on adopting new standards and guidelines, promoting market education, and further developing financial mechanisms that support sustainable projects.

## REFERENCES

- Almeida, M. (2020). *Global Green Bond State of the Market 2019*. Climate Bonds Initiative, London.
- Anufrijević, A., Dašić, G. (2024). Inovativni strategijski finansijski instrumenti u funkciji razvoja cirkularnih biznis modela. *Ekonomija teorija i praksa*, 17(1), 61-81.
- Climate Bonds Initiative (2023). *Sustainable Debt Global State Market*. London.
- Dašić, G., Anufrijević, A. (2022). Zelena ekonomija kroz prizmu digitalne transformacije Green economy through the prism of digital transformation. *Ecologica*, 29(107), 331-336.
- Deschryver, P., de Mariz, F. (2020). What Future for the Green Bond Market? How Can Policymakers, Companies, and Investors Unlock the Potential of the Green Bond Market?, *Journal of Risk and Financial Management*, 13(61), 1-26.
- Dimić, M., Gajdobranski, A., Marjanović, M. (2023). Investicioni fondovi i „zelenе“ obveznice u Republici Srbiji Investment funds and green bonds in the Republic of Serbia. *Ecologica*, 30(112), 653-662.
- Flammer, C. (2020). Green Bonds: Effectiveness and Implications for Public Policy. *Environmental and Energy Policy and the Economy*, 1(1), 95-128.
- IFC (2023). *Emerging Market Green Bonds Report*. International Finance Corporation, Washington, Amundi Joint Report, July 2023.
- Ilić, B., Đukić, G., Balaban, M. (2019). Upravljanje zelenim finansijama na međunarodnom nivou. U: Agić, Z. (ur.) "Računovodstvo i revizija u teoriji i praksi", Banja Luka. Zbornik radova, 205-220.
- Jolović, N., Jolović, I. (2021). Aktuelno stanje i perspektive razvoja globalnog i nacionalnog tržišta zelenih obveznica. *Megatrend revija*, 18(4), 1-24.
- Laborda, J., Sánchez-Guerra, Á. (2021). Green bond finance in Europe and the stock market reaction. *Studies of Applied Economics*, 39(3).
- Leaseplan Corporation (2019). *The Total Cost of Ownership of electric vehicles*. <https://www.leaseplan.com/en-ix/global-fleet-insights/tco-ev/>





## Conference Proceedings

Maltais, A., Nykvist, B. (2020). Understanding the role of green bonds in advancing sustainability. *Journal of Sustainable Finance & Investment*, 1-20.

Organisation for Economic Co-operation and Development (2015). *Green Bonds – Mobilising the Debt Capital Markets for a Low-Carbon Transition: Policy Perspectives*. OECD Publishing, Paris

Ostojić, I. (2023). Zelene obveznice–inovativni instrumenti tržišta kapitala u funkciji zaštite životne sredine. U: *Cirkularna (bio)ekonomija: Teorijski i praktični aspekti*. Zbornik radova, 183-198. Univerzitet u Beogradu, Centar za izdavačku delatnost Ekonomskog fakulteta, Beograd.

Ross, A. (2018). *Green Bonds: Securities Regulation Towards a Low-Carbon Economy*. Thesis, Victoria University of Wellington, Faculty of Law, Wellington.

Sovilj, R. (2020). Tržište zelenih hartija od vrednosti-stanje i perspektive. *Pravo i privreda*, 58(2), 137-153.

Zakon o tržištu kapitala, Službeni glasnik Republike Srbije, br. 31/2011, 112/2015, 108/2016, 9/2020



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# E-HRM AND THE APPLICATION OF AI FOR GLOBALIZATION AND SUSTAINABLE DEVELOPMENT

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DOI: 10.5937/EEE24008A

JEL: M54

Review Scientific Paper

### ABSTRACT

*The role of technology is significant in driving the work activities of human resources departments in organisations. This practically introduces the concept of E-HRM system. The E-HRM concept is adopted by organisations to ensure a smooth flow of employee related matters such as: employee database management, employee onboarding, employee grievance, employee separation that is executed and controlled through digital transformation. The researchers conducted a pilot survey to collect certain data that are in lines to the human resources activities performed with the help of E-HRM system. The collected data tested the E-HRM application and its effectiveness while measuring the operational outputs of human resources functions in the IT and biomedical sectors. Since the philosophy of E-HRM is focused on digitization of the human resources processes in organisations so there is a space to cultivate the whole human resources process by virtue of the presence of Artificial Intelligence. It can be categorically stated that E-HRM system combined with Artificial Intelligence can help creating a value addition by driving the human resources systems to act faster as well as helping the organisations to proactively achieve their strategic goals and thereby enabling a culture of sustainable development.*

### KEYWORDS

*E-HRM, artificial intelligence, organisation, process*

## INTRODUCTION

There are ample challenges that come across while managing a global workforce that operates out of different countries under an umbrella of one entity. This relates to the real-time existence of multiple entities having their workforces operating globally in different regions. Information Technology and biomedical engineering are sectors that have consistently focused on bringing and developing a global workforce that operates from different regions (Cascio, Montealegre, 2016). This results in diversity and inclusion. One of the primary challenges of the industry is managing their resources efficiently and effectively. With the competition of skills in the job market and different organisations looking for skilled

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resources, there are chances of losing the best of the resources to another competitor. One of the ways to mitigate these challenges and difficulties is by having a systematic tool in place that is capable of handling tasks that are easy to use and at the same time it is easy to get the required output.

In such instances, it is E-HRM that helps organisation to manage such challenges with ease and covering the workforces not just locally, but across the globe. Now, to explain this better let's take an example of the covid-19 pandemic situation that literally pushed people to work and carry out activities remotely. In such instances, the challenges of controlling the workforce be-came more demanding as people spread across different geographies. It is human resources management which is vital for an organisation to run its business (Campbell et. al., 2012).

In this paper, the researchers tried to explain the core importance of E-HRM system in IT and biomedical engineering organisations and how such a digital system can help in automating the HR (Human Resources) processes and thereby helping to globalize the organisation's businesses by dealing with multiple workforces who are located globally. Not just that, but out of the many activities that are lined up in the corporate environment, one of the core activities and focus from an organisational standpoint is how much they can automate their key HR processes to achieve better results and correspondingly increase the overall productivity and efficiency among their workforces.

## LITERATURE REVIEW

It is "War for Talent" when it comes to hiring the best of the best resources for an organisation. This is generating great competition (Chambers et. al., 1998). Various survey and job market analysis has thrown enough lights to the fact that majority of the organisations across all the sectors are facing a fierce competition for the right talent and are not able to fill in their open job positions throughout the year, and this is happening since many years (George et. al., 2014). There is enough pressure on HR managers to transform their role and their team member role to become strategist. This is referring to HR transformation (Ulrich et.al., 2010).

One of the core issues noticed against the HR professionals is they are not technical and there arises a dependency factor. Here, the HR and the IT managers are expected to collaborate to ensure that the automation of the HR processes that are laid out are working fine. It is equally important for the IT department to create the value addition (Weill et. al., 2013).

It is important to ensure that IT and business synchronize with each other and agree to the strategies at the same time. In a practical case, such synchronization between IT and HR is a challenge (Kappelman et.al.2013). Various reports suggest that both the HR and the IT departments have shown enough of symptoms of slow growing in the organisation. This also indicates the level of maturity in the job profile as well as a tendency to collaborate and arrive at a common solution to the problems faced, which is including and not limited to addressing those problems in a common forum.

Overall, this is an area of concern to the management or people who are running the organisation as it deals with an issue of in-tra-department communication gap (Laumer et.al., 2010). Overall, it is equally important for a HR professional to have a good know-how of the technological system such as E-HRM in their workplace as this will help them to perform better in their job role.



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### **E-HRM and Sustainable Development**

The concept of E-HRM is primarily utilized for different purposes in organisations and some of them are notably in the lines of decision making, evaluate the cost effectiveness, incorporate environment friendly measures to gain the momentum in the business (Hosain, 2017). The value addition of E-HRM comes from the stakeholder management. These are the aspects of employee and employer relations especially from an employee, manager, and HR professionals' perspective. All these stakeholders perform a key role in executing the HR related functions in organisations (Waheed, 2020). This is aligned to the fact that the application of E-HRM in organisations is directly linked to the technical and strategic efficacy and thereby significant in improving the service level of HR (L'Écuyer, Raymond, 2020). Thus, it overall indicates the role of E-HRM that is significant in corporate sustainable development in terms of value addition, cost effectiveness and benefits (Oswal, Narayanappa, 2015).

### **AI (Artificial Intelligence) and Sustainable Development**

Sustainable development was first initiated by the United Nations as part of a global initiative. Even though there are research performed in this area, but this is still in the emerging state (Baumgartner, 2011). The definition of sustainable development was earlier stated as 'development that is meeting the needs of the current state without negotiating the requirements of future generations' (United Nations, 1987). The appearance of artificial intelligence is proving to have a direct impact on globalization, productivity, environment sanitization and a few other areas. It can be explicitly concluded that the overall framework of artificial intelligence has created an impact on the overall business functions and the way it should operate. This has a say in the sustainable development goal as set by the organisation. Artificial intelligence has changed the overall business model of how a business should work in a corporate environment. Having said that this transformation of change management towards sustainable goal and development of the organisation has a dependency on culture, mindset, and capability of people (Bolukbasi et. al., 2016).

## **RESEARCH OBJECTIVES AND METHODOLOGY**

The world is moving towards a continuous development and as the day passes there arise certain innovations that catch the momentum of the people. Advancement of technology is one of the areas of continuous development that is growing bigger and has this ability to catch the attention. It is not very relevant to say in which business sector that an organisation is functioning, but what is important is to know how the organisations are running their businesses and what are all the challenges faced by them (Lee et. al., 2018). A stable workforce or employees in the organisation can help create a stable business for the organisation. Hence, it is important to ensure to nurture the employees as it relates to the success of an organisation (Wirtz, Jerger, 2017). The problem comes for the human resources department when the workforce is diversified and spread across different locations. The first question that comes here is: how to manage a workforce that is aligned globally? The second question would be: How to align these diversified workforces in a centralized environment to ensure proper synchronization? The last but not the least: How to ensure an environment sustainability keeping in mind of having a diversified workforces operating out of different location and what value addition that an organisation can give to this planet to ensure its safety and sustainability. The concept of Electronic Human Resources



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Management System has probably found few solutions that can help to create the required balance in managing the requirements of the employees as well as its organisation. In this paper, the researchers tried to highlight a scenario of employee separation process by having an E-HRM system in place and correspondingly the kind of value addition that such technological system can generate for their respective employees.

Based on the review of literature, the hypothesis for the research is arrived as:

H1A: HRM practices if adopted well has a direct impact and value addition in executing the strategies of globalization and sustainability.

H1B: E-HRM practices if adopted well have a direct impact and value addition in executing the strategies of globalization and sustainability.

H1C: AI practices if adopted well have a direct impact and value addition in executing the strategies of globalization and sustainability.

The method used for the research study is in line to the core components of the research study and that is the 'topic of the research', 'review of literature', 'analysis of the data', 'logical facts between literature review and the results obtained', and last but not the least 'evaluation criteria' (Yin, 2014). The researchers followed the pattern of the research method as prescribed in the core components. Here, the topic of the research opted is to explain the features of E-HRM, AI and the link to these two elements, which is economic sustainable development. The data available in review of literature is taken into consideration as secondary sources of data. These secondary sources of data are then compared with the data obtained after the research being carried out in the form of data analysis and interpretation. The last component is buttressing the claims of literature review with the data captured and providing them for further discussion.

The contribution to the responses on the questionnaire and the respondents of the survey conducted are from the HR department of IT and biomedical organisations who are working in the E-HRM and AI platform. Such professionals also carry rich experience in the HR operations segment wherein they are handling the HR related transactions using digital automation on a day-to-day basis. The researchers gathered about 50 HR professionals from IT and biomedical organisations that are operating and having their presence globally.

## RESEARCH RESULTS

While there are multiple HR processes in an organisation but here the researchers emphasized their study on the module of employee retention and employee separation process. Here, the employee retention process is enabled through E-HRM coupled with artificial intelligence to predict employee attrition in organisation. On the other side, the employee separation process is a walkthrough and assessment of the current E-HRM set up in the organisation.

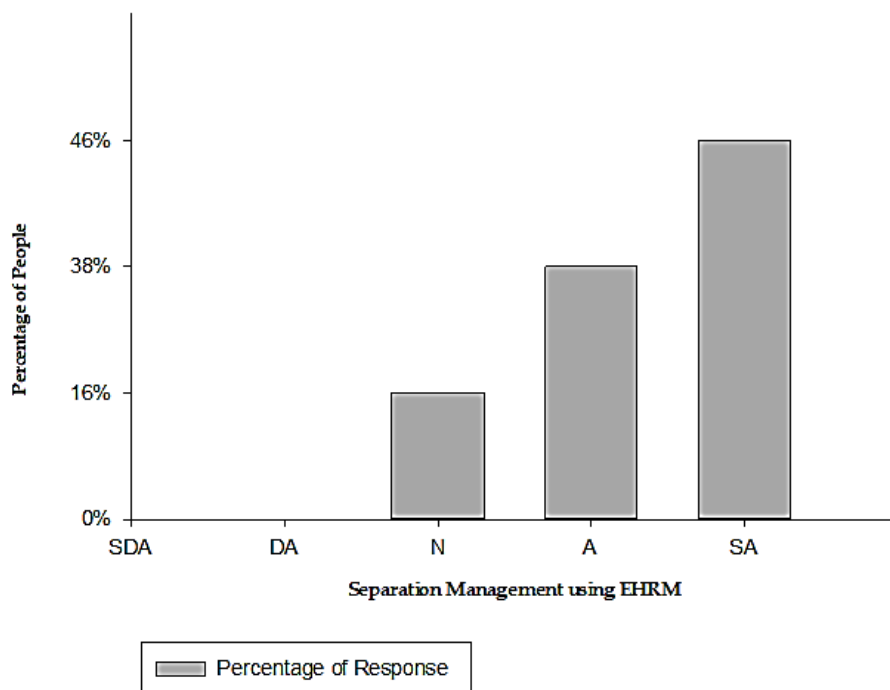
The collected data from the HR professionals were aligned primarily into different scenarios and mapping them with the employee experiences and in line with the operational activities that is faced by the HR professionals on a day-to-day basis. As the morale and motivation of the employees are high, it means a positive impact on the productivity of the organisation (Bailey, 2019).

It is important to ensure that the employees leaving the organisations are given a fair and transparent exit irrespective of the fact that it is a voluntary or involuntary exit. Having a fair and transparent exit



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process makes the employees leaving the organisation happy (Jeske et. al., 2021). There is always a demand of skills which are required for an organisation to operate their businesses. These skills are coming from the employees of an organisation (Ronald, Washington, 2003). At times and in general, there are employees who wish to go back to their previous organisation due to various reasons. A proper employee separation process helps to deal with situations wherein it becomes a trend setter for the organisation to upkeep their level and standard at any locations from wherever they operate. Employees leaving the organisation are generally unhappy and if the employee exit or the separation process is not fair and transparent, then it is causing more problems for the HR department as well as for the organisation.



SDA = Strongly Disagree, DA = Disagree, N = Neutral, A = Agree, SA = Strongly Agree

Figure 1. HRM and Separation Management

Source: Authors research

The given scenario on Figure 1 helps to arrive at a conclusion that round about 84% of the respondents (HR professionals) are either agreeing (38%) or strongly agreeing (46%) to the fact that due to the presence of E-HRM, there is an ease of managing the employee separation process. There is about 16% of respondents in the neutral state. However, being neutral does not indicate any negative side of the E-HRM system. The reason for them being neutral is because their organisation is yet to adopt a digital process for employee separation process or are in the mode of a digital evaluation process and consideration.

Table 1 indicates the variable type used for the survey followed by a brief description of the variable and its use cases. As shown in the table, the independent variables are E-HRM, Artificial Intelligence and Human Resources Management. The dependent variable is talking more about Globalization and Sustainability.



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Table 1. Variable and use cases

Variable type	Variable description	Variable use case
Independent	E-HRM	Information Technology Sector HR Process Automation HR Decision Making HR Communication
	Artificial Intelligence	Enhance Employee Experience Fast Processing of HR Transaction Streamlining HR Process Automating Repetitive Tasks
	Human Resource Management	Employee Separation Decision Making
Dependent	Globalization and Sustainability	Process Efficiency Sustainable Growth Sustainable Revenue Sustainable Market Presence Sustainable Social Responsibility

*Source: Authors research*

The descriptive analysis is performed as shown in Table 2. Here, the items measured are in the form of mean and standard deviation. The value of standard deviation is in the range of 1.12 to 1.65, which is found to be suitable as they are of ordinal type. The Cronbach's alpha is in the range of .928 to .963 and that shows the reliability of the questionnaire used for the survey is reliable and appropriate. The variable used are in the form of AI (Artificial Intelligence), HRM (Human Resources Management) and GS (Globalization and Sustainability).

Table 2. Descriptive analysis

	E-HRM	AI	HRM	GS
Mean	5,29	5,36	5,32	5,38
Standard Deviation	1,64	1,65	1,24	1,12
Cronbach's Alpha	0,963	0,947	0,931	0,928

*Source: Authors research*

The correlation analysis was conducted and has the significance of 5% as shown in Table 3. There seem to be a strong correlation between E-HRM and AI (0.67), followed by a similar value of correlation obtained between E-HRM and HRM processes (0.69). Last but not least, the test also throws light on the correlation between E-HRM and 'Globalization and Sustainability' (0.71). This significantly proves that there is a strong correlation between E-HRM, AI, and HRM that helps to effectively drive the objectives of globalization and sustainable development.

Table 3. Correlation analysis

	E-HRM	AI	HRM	GS
E-HRM	1,00			
AI	0,67	1,00		
HRM	0,69	0,64	1,00	
GS	0,71	0,69	0,68	1,00

Significance: 5%

*Source: Authors research*



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Regression analysis was performed as indicated in Table 4. Here, the concept of E-HRM, AI and HRM is considered as independent variables (denoted as Y) and globalization and sustainability is treated as dependent variable (denoted as X). The  $R^2$  value of 0.68 indicates a positive correlation between the dependent (GS) and independent variables (E-HRM, AI and HRM). The p-value is found to be significant.

Table 4. Regression Analysis

X	Y	R2	F	p-value	F Sig.
GS	E-HRM				
	AI	0,68	163,21	< 0,0001	< 0,0001
	HRM				

GS – Globalization and Sustainability; E-HRM – Electronic Human Resource Management; AI – Artificial Intelligence; HRM – Human Resource Management

*Source: Authors research*

Hence, it can be concluded that the alternate hypothesis is accepted. This indicates that in an environment of running an organisation that carries its business functions and by virtue of having a strong presence of a quality HR processes that is combined with E-HRM and enabled with high technological systems in the form of artificial intelligence and machine learning has a significant impact in driving the workforces globally and ensuring sustainable economic development for the organisation and its people.

While there are multiple HR processes in an organisation but here the researchers emphasized their study on the module of employee retention and employee separation process. Now, the employee retention process is enabled through E-HRM and combined with artificial intelligence to predict employee attrition in organisations. On the other side, the employee separation process is a walkthrough and assessment of the current E-HRM set up in their organisation.

There are multiple challenges in retaining the workforce and that too when it comes to the retention of the workforce in the Information Technology sector. One of the primary reasons of this challenge is globalization that makes the employee with the right skills as the soft target for better opportunities in a competitive job market (Vasquez, 2014). Now, the role of Artificial Intelligence is significant in such conditions wherein this challenge of retaining the workforce requires attention from the organisation. It means the organisation should proactively plan to mitigate employee attrition. One of the core features of the artificial intelligence system coupled with machine learning is to predict the employee attrition in advance and project the employee retention technique well in advance to the department of human resources and the management of an organisation (Al-Darraji et. al., 2021).

Here, the researchers went a few steps ahead and implanted a device that can perform this employee retention predictions by virtue of having a smart device in place that when coupled with a computer performs action that pro-actively provides enough of hints and messages to the department of human resources to pro-actively address the employee emotions and sentiments that would try and negate them to look for opportunities outside the organisation.

The concept and working of the smart device and technique is copywritten and the product patent is currently under progress. A typical block diagram of the smart device coupled with E-HRM, and AI and its functioning is as shown in Figure 2. With the new age technology and the so-called millennial workforces, it is imperative to have a robust employee retention model that an organisation should adopt in the best interest of their nature of business that they expect to grow (Ngotngamwong, 2020). The presence of E-HRM can help boost the human resources function in the organisation (Parry, 2021). Further, it helps to reduce the amount of paperwork involved with all the human resources related



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activities and transactions, which can be performed digitally and supportive of sustained Green Human Resources Management process.

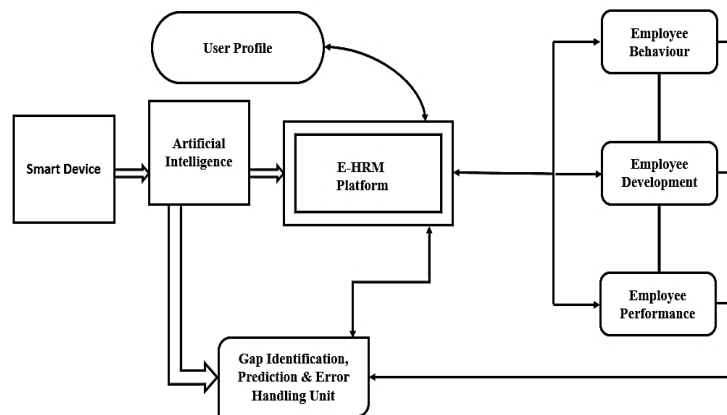


Figure 2. E-HRM platform

Source: Authors research

The process of human resources in organisations has multiple roles to cater for and this could be in the form of recruitment, performance management, training, rewards, employee engagement and employee grievances. The list does not end here. The role of artificial intelligence is very significant. This constitutes machine learning, robotics, computers and so on. All of these have their own role to perform. However, it is not that everything is possible and achieved by science and machine. Hence, there will be instances where human intervention is required and that cannot be ignored. Now that does not mean that this science and machines can be ignored. The organisation that shows its inability to adapt to the high-end technology system such as artificial intelligence will fall behind in the race of economic and sustainable development (Garg, 2018).

## CONCLUSION

From the above scenarios, it is observed that by having a steady HR system in place and by having a strong HR team in existence, it is possible to bring the required ease of automating the HR processes in the organisations. Even though the current research was carried out in the IT and biomedical organisations, but the workforce conditions towards HR related matters remains similar across all the industries except for few changes that are directly related to a sector or industry wise classification. The core focus of the paper is to highlight the advantages of E-HRM by creating an environment wherein the effectiveness of E-HRM is at its best possible state and it can create a platform for helping the HR professionals to manage the people matters more efficiently and effectively. In addition, the paper also addresses the concept of globalization and its impact in the organisations by introducing the software product by means of artificial intelligence and machine learning. Out of the many goals set by the organisation to achieve and as part of their corporate activities, one of the key goals is to ensure that the environment that they operate is safe and eco-friendly (Vel'as et. al. 2022). The logic of E-HRM helps the organisation in great deal to raise their conscious level of becoming environmentally friendly that believes in investing on technology that will also cater to digital transformation. The concept of artificial intelligence can be used as a predictor tool not just for employee separation and retention processes but



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also to various other processes (Votto et. al., 2021). Technology acts as a gateway and has a significant role in shaping an organisation. It helps the workforce in organisations become more effective in their day-to-day work, which in turn helps the organisation achieve its productivity (Andrić et. al., 2023). Hence, creating an environment of continuous sustainable development by empowering technology that helps the organisation to run its businesses effectively.

## REFERENCES

- Cascio, W., Montealegre, R. (2016). How Technology Is Changing Work and Organisations. *Annual Review of Organisational Psychology and Organisational Behavior*, 3, 349-375.
- Campbell, B. A., Coff, R., Kryscynski, D. (2012) Rethinking sustained competitive advantage from human capital. *The Academy of Management Review*, 37 (3), 376–395.
- Chambers, E.G., Foulon, M., Handfield-Jones, H., Hankin, S., Michaels, E. (1998). The War for Talent. *The McKinsey Quarterly*, 3, 44-57.
- George, B., Hirschheim, R., Von Stetten, A. (2014). Through the lens of social capital: A research agenda for studying IT outsourcing. *Strategic Outsourcing*, 7(2), 107-134.
- Ulrich, D., Allen, J., Brockbank, W., Younger, J., Nyman, M. (2010). HR Transformation: Building Human Resources from the outside in. *NHRD Network Journal*, 3(4), 102-120.
- Weill, P., Woerner, S. L. (2013). The Future of the CIO in a Digital Economy, *MIS Quarterly Executive*, vol. 12(2), Article 3.
- Kappelman, L., McLean, E., Luftman, J., Johnson, V. (2013). Key issues of IT organisations and their leadership: The 2013 SIM IT trends study. *MIS Quarterly Executive*, 12, 227-240.
- Laumer, S., Eckhardt, A., Weitzel, T. (2010). Electronic Human Resources Management in an E-Business Environment. *Journal of Electronic Commerce Research*, 11(4), 240 – 265.
- Hosain, S. (2017). The Impact of E-HRM on Organisational Performance: Evidence from Selective Service Sectors of Bangladesh. *International Journal of Human Resources Management*, 6(3), 1-14.
- Waheed, A., Xiaoming, M., Waheed, S., Ahmad, N., Tian-tian, S. (2020). E-HRM implementation, adoption, and its predictors: a case of small and medium enterprises of Pakistan. *International Journal of Information Technology and Management*, 19, 162-180.
- L'Écuyer, F., Raymond, L. (2020). Aligning the e-HRM and Strategic HRM Capabilities of Manufacturing SMEs: A “Gestalts” Perspective. In: *Electronic HRM in the Smart Era*. Emerald Publishing Limited, Bingley.
- Oswal, N., Narayanappa, G.L (2015). Evolution of HRM to E-HRM to Achieve Organisational Effectiveness and Sustainability. *International Journal of Business Administration and Management Research*, 1(2), 22-26.
- Baumgartner, R. (2011). Critical perspectives of sustainable development research and practice. *Journal of Cleaner Production*, 19(8), 783-786.
- United Nations, General Assembly (1987). Report of the World Commission on Environment and Development: Our Common Future, transmitted to the General Assembly as an Annex to document. Article 42, pp. 427, New York.



## Conference Proceedings

- Bolukbasi, T., Chang, K.W., Zou, J., Saligrama, V., Kalai, A. (2016). Man is to Computer Programmer as Woman is to Homemaker, debiasing word embeddings. In *Advances in neural information processing systems*, 29, 4349-4357.
- Lee, J.; Davari, H.; Singh, J.; Pandhare, V.J.M. (2018). Industrial Artificial Intelligence for Industry 4.0-based manufacturing systems. *Manufacturing Letters*, 18, 20–23.
- Burgess J, Connell J. (2020). New technology and work: Exploring the challenges. *The Economic and Labour Relations Review*, 31(3), 310-323.
- Wirtz, J., Jerger, C. (2017). Managing Service Employees: Literature Review, Expert Opinions, and Research Directions. *Service Industries Journal*, 36 (15), 757 – 788.
- Yin, R. (2014). *Case Study Research Design and Methods* (5th ed.). The Canadian Journal of Program Evaluation. Sage Publishing, Thousand Oaks.
- Bailey C, Yeoman R, Madden A, Thompson M., Kerridge G. A (2019). Review of the Empirical Literature on Meaningful Work: Progress and Research Agenda. *Human Resource Development Review*, 18(1), 83-113.
- Jeske Van B., Van De Voorde, K., Veldhoven, M. (2021). The employee perspective on HR practices: A systematic literature review, integration and outlook. *The International Journal of Human Resource Management*, 32(2), 359-393.
- Ronald J., Washington, C. (2003). Employee development and organisational performance: a review of literature and directions for future research. *Human Resource Development International*, 6(3), 343-354.
- Vasquez, D. (2014). Employee retention for economic stabilization: A qualitative phenomenological study in the hospitality sector. *International Journal of Management, Economics and Social Sciences*, 3(1), 1-17.
- Al-Darraj, S., Honi, D.G., Fallucchi, F., Abdulsada, A.I., Giuliano, R., Abdulmalik, H.A. (2021). Employee Attrition Prediction Using Deep Neural Networks. *Computers*, 10, 141.
- Ngotngamwong, R. (2020). A Study of Millennial Job Satisfaction and Retention. *Human Behavior, Development and Society*, 21(3), 47-58.
- Parry, E. (2021). An examination of e-HRM as a means to increase the value of the HR function. *The International Journal of Human Resource Management*, 22(5), 1146-1162.
- Garg, V. (2018). Application of Artificial Intelligence for Sustaining Green Human Resource Management. *International Conference on Automation and Computational Engineering*, 113-116.
- Delvallee, D.R., Yewan, S.Y., Bansal, U., Deng, X. (2020). *IETI Transactions on Economics and Management*, pp. 19-33.
- Veľas, A., Halaj, M., Hofreiter, L. (2022). Research of security and safety culture within an organisation. The case study within the Slovak Republic. *Security Journal*, 35, 571–599.
- Andrić, B., Hak, M., Balakrishnan, B. (2023). The Impact of e-HRM on Organisational Citizenship Behaviour—A Study Outlined in the IT Sector. In: *14th International Odyssey Conference on Economics and Business* (pp. 18-25). Ekonomski fakultet Sveučilišta u Zagrebu.
- Votto, A. M., Valecha, R., Najafirad, P., Rao, H. R. (2021). Artificial intelligence in tactical human resource management: A systematic literature review. *International Journal of Information Management Data Insights*, 1(2), 100047.



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# THE IMPACT OF DIGITALISATION ON THE DEVELOPMENT OF INSURANCE SALES CHANNELS

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DOI: 10.5937/EEE24009A

JEL: G22

Review Scientific Paper

### ABSTRACT

*Insurance distribution channels are key factors in the value chain of insurance companies. With the development of digital technology, distribution channels have taken on different forms, so new ways of distribution appear in insurance sales, such as mobile applications, websites of insurance companies, aggregators, etc. With the development of technology, new methods and new techniques appear for collecting and processing data and for detecting fraud. Digitalisation has direct impact on the operations of insurance companies. This paper work also analyzes the online insurance sales in Serbia, as well as the perspective of implementation of modern insurance distribution channels in the future. The analysis covers the period 2019-2023. The research showed that online insurance sales in Serbia are growing, but its share in total insurance sales is still negligible.*

### KEYWORDS

*digitalisation, insurance, sale channels, Serbia*

## INTRODUCTION

Today, the Internet has become an indispensable tool in the business of companies in the insurance sector. With its ability to connect businesses with consumers, the Internet has revolutionized insurance sales. The Internet has changed the way policies are marketed, sold and serviced. In the past, insurance transactions were often time-consuming and involved a lot of paperwork. However, the Internet offers convenience and efficiency. Now potential policyholders can research, compare and buy insurance policies online, right from their homes or offices. This digital transformation has streamlined the process, making it faster and more friendly user, ultimately leading to greater customer satisfaction.

Modern trends in business have imposed on insurance companies the need for accelerated digitalisation, with the aim of increasing the number of clients, sales volume, market share, as well as improving the company's financial performance. On the other hand, digitalisation is the source of new types of risks in the insurance sector.

In some countries, payment of insurance premiums, delivery of insurance policy and payment of claims are not allowed to be done completely online, in accordance with legal regulations and technical limitations. However,

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in most countries in order to support online payment of insurance premiums and online delivery of insurance policies, legal regulations are constantly being modified (Hiwarkar, Khot, 2013).

According to Eling and Lehmann (2018) digital transformation directly affects insurance companies, as it enables the automation of business processes and decision making. The authors point out that existing insurance products are changing in insurance, but new products are also being created (e.g. cyber risk insurance). Finally, the way insurance companies communicate with their customers is also fundamentally changing, which is why the insurance sales sector is particularly affected.

The covid-19 pandemic additionally influenced insurance companies to switch their business from traditional to online business. Kim (2020) emphasizes that consumer adaptation to online commerce will not end or decrease after the covid-19 pandemic has passed. Online sales of insurance policies and claims reporting enabled policyholders easier and faster access to insurance companies. On the other hand, the advantage of selling insurance online is the small number of mistakes by insurance employees, because the insured person is responsible for the entered data. It follows that the advantage of online sales is greater precision in the data and a greater degree of their control. The covid-19 pandemic affected business changes, but it also caused changes in consumer behavior. It is certain that the changes are of a long-term nature, that they continued even after the end of the pandemic. Kim (2020) points out that the motives for live shopping are immediacy and social interaction, and the motives for online sales are economic and it offers more flexibility in terms of time, location and access to a variety of products.

## DIGITALISATION OF THE INSURANCE SECTOR

The application of digital technology in almost every segment of business, known as digitalisation, has reshaped the world economy in recent decades. Digitalisation is the process of converting information into a digital format, which enables computing, which in turn enables the digital transformation of economic activities and thus enables:

- 1) to extract and analyze much more data,
- 2) greater personalization and customization,
- 3) new types of controlled experimentation and optimization; and 4) new forms of contracts (Swiss Re, 2023).

There are different definitions of digital transformation and digitalisation in the literature (Ingleton et al., 2011, Hiendlmeier, Herting, 2015, Eling, Lehmann, 2018). Here we highlight the definition of Eling and Lehman (2018), who understand digital transformation as the integration of the analog and digital worlds using new technologies, which improve interaction with customers, business processes and data availability. Therefore, the authors emphasize exclusively the economic effects of digitalisation. Digitalisation contributes to the development of new products, services, business models and stages in the value chain of insurance companies.

When we talk about relevant digital technologies, digital applications for selling insurance have been identified based on them. Analyses by Eckert & Osterrieder (2020) and Eling & Lehmann (2018) show that strong drivers of digitalisation are big data, artificial intelligence, cloud computing and new communication channels.

In 2023, EIOPA (European Insurance and Occupational Pensions Authority) conducted an extensive survey of the European insurance market with the aim of better understanding the dynamics,



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opportunities and risks associated with ongoing digitalisation projects in the insurance sector. The EIOPA report (2024) listed the following key research findings:

- The digitalisation of the insurance sector in Europe is diverse and, in most cases, still under development; as the practical application in the insurance market is different, and the level of digitisation varies significantly from one insurance company to another;
- "Pure" digital distribution channels still play a secondary role among all distribution channels for insurance products, especially for life insurance; Customers still buy insurance products through physical channels, although online tools can be used for comparison and information purposes; Customers' shopping behaviors primarily depends on their level of digital literacy;
- Telephone, e-mail and face-to-face are the most popular communication channels that customers use to interact with insurance companies today. Chatbots are used; their use is expected to increase significantly in the near future, which is related to the emergence of solutions based on artificial intelligence (AI). A small number of clients have implemented applications for mobile phones;
- Most insurance companies are active in social media, mainly to interact with clients and launch marketing and financial education campaigns, and in some cases they also cooperate with social media "influencers";
- There is a high concentration in the provision of relevant IT services such as cloud computing; almost 80% of respondents store data on the BigTech cloud;
- AI is used by 50% of respondents in non-life insurance and 24% in life insurance, and an additional 30% and 39% of respondents expect to use AI in the next 3 years, in non-life and life insurance;
- Most of the AI use cases are developed in-house, with simpler and more understandable AI solutions currently being used the most. From a company governance and risk management perspective, AI is most often used with human supervision, and the company's Board of Directors/Executive Board is most often responsible for approving the use of AI;
- Other technologies, such as Blockchain (including crypto assets) and Internet of Things (IoT) are currently used by small number of insurance companies;
- Most insurance companies report growth in the cyber insurance market over the past two years, although cyber insurance products still include significant coverage exclusions. Cyber insurance products are mainly marketed to corporate clients, including small and medium enterprises (SMEs);
- Acquiring adequate skills is considered the main driver of digitalisation, but also a barrier to digital transformation. Insurance companies see cyber risks as the main risk arising from digitalisation.

Since the 2010s, the literature often provides practically oriented researches of specific problems in the organization of business processes starting from general ones, such as Internet technology (websites, mobile applications, other programs for online sales), to applied aspects of using artificial intelligence (chatbots, generation of proposals based on analysis of requirements), program for recognition and protection of documents.(Bryzgalov, Tsyganov, 2022)

The use of the Internet in the distribution of insurance services has led to the emergence of insurance companies that base their business exclusively on the Internet, but their offer of insurance services is



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limited. The insurance protection services (e.g. auto liability insurance, travel health insurance, accident insurance or household insurance) that do not require detailed risk assessments or customized service can be sold via the Internet (Piljan, Cogoljević, Piljan, 2023).

One of the results of the research conducted by Eckert, Eckert and Zitzmann (2021), after the first wave of the covid-19 crisis in Germany, shows that many traditional insurance sales channels are still not used as well as messenger services or video chat to interact with customers, although are these tools the most convenient alternatives for providing advice without personal contact. However, participants see greater benefit in video chats with more advanced features, such as screen or whiteboard sharing. Thus, video chat alone is not considered effective enough to replace face-to-face meetings, while video chats with advanced features hold more promise. The reason for such results could be the less open attitude of insurance intermediaries regarding digital applications. However, another reason may be that customers themselves still have reservations about digital applications. Easy-to-use and secure tools could solve this problem and improve the sales process when face-to-face meetings are not possible. Overall, the research results reveal that digital transformation in traditional insurance sales has not yet progressed (Eckert, Eckert, Zitzmann, 2021).

Digitalisation brings multiple opportunities for customers and insurance companies. From the perspective of insurance companies, faster and automated processes, lower operational costs and more convenient products and services for customers (e.g., products available on a 24-hour basis and accessible from any location) are presented as the greatest benefits (EIOPA, 2024).

## ANALYSIS OF ONLINE INSURANCE SALES IN SERBIA

The insurance market in Serbia is still underdeveloped. Data such as low premium per inhabitant, low share of premiums in the gross domestic product, low share of life insurance in the structure of the total premium prove this. (Aničić, Anufrijević, 2022)

Today, classic insurance contracts are still dominant in Serbia, but it is inevitable that the sale of insurance online will become more and more common. This type of contracting, as well as activities aimed at the digitisation of business, was accelerated by the COVID-19 pandemic, primarily due to the growing need to find additional ways to sell insurance, but also to perform all other activities related to insurance (resolving compensation claims, customer service for clients, etc.).

According to data from the National Bank of Serbia (NBS) on the total insurance premium by sales channels and by insurance companies, insurance services are sold on the Serbian market through the internal sales network of companies: company employees, as well as the Internet and other means of telecommunications, then intermediaries and insurance agents, legal entities that were established according to another law and have the consent of the National Bank of Serbia for the sale of insurance services (banks, financial leasing and public postal operators), technical inspections, persons that perform mediation and representation activities based on Article 113 of the Law about insurance, where insurance is a supplement to a specific product (travel agencies, mobile phone stores, technology stores, etc.).

NBS publishes annual reports on the operations of insurance companies. According to NBS reports, insurance services are sold mainly through the internal sales channel, i.e. employees of insurance companies. During the observed period (2019-2023), the share of the premium in the total market premium realized in this way was more than 60%, followed by insurance intermediaries with 12% (on average), technical inspections with around 10%, companies for representation in insurance 6%, banks with around 5% and other distribution channels individually under 5% share (NBS).



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The data on the premium generated by the sale of insurance services via the Internet and other means of telecommunications (online sale) are devastating. The share of this premium in the total premium (life and non-life insurance) in the period from 2019 to 2023 recorded a growth in a certain percentage, whereby in 2019 it had a share in the premium of 0.1%, while in 2020 its share was 0.06%, and in 2021 it was 0.15%, in 2022 it was 0.28% and in 2023 it was 0.36% in the total market insurance premium (Table 1.)

Table 1. Share of the insurance premium realized through online sales in the total insurance premium

	2019	2020	2021	2022	2023
Total insurance premium (in 000 dinars)	107.449.870	109.916.743	119.408.670	133.925.041	155.254.730
Online sale (in 000 dinars)	110.659	71.255	181.967	368.942	552.192
Share (%)	0,1	0,06	0,15	0,28	0,36

*Source: Author's preparation based on the annual report of the NBS on the operations of the insurance companies in 2019, 2020, 2021, 2022, 2023.*

Analyzing the year 2023, as the year with the best results, insurance companies, through the Internet as one of the sales channels, sold only non-life insurance, whereby the dominant share in the insurance premium realized through online sales was travel assistance insurance (more than 76%). motor vehicle insurance (more than 17%), financial loss insurance (2.78%), voluntary health insurance (1.4%), other property insurance (0.81%), property insurance against fire and other hazards (0.66%) and a small share of insurance against the consequences of an accident, legal protection costs and general liability (Table 2.).

Table 2. The structure of insurance premium realized through online sales in 2023.

Type of insurance	Insurance premium (in 000 dinars)	Share (%)
Travel assistance insurance	423.552	76,7
Motor vehicle insurance	97.323	17,62
Financial loss insurance	15.344	2,78
Voluntary health insurance	7.719	1,4
Other property insurances	4.478	0,81
Property insurance against fire and other hazards	3.624	0,66
Accident insurance	105	0,02
Legal protection costs insurance	27	0,005
General liability insurance	20	0,004
TOTAL	552.192	100,00

*Source: Author's preparation based on the annual report of the NBS on the operations of the insurance companies in 2023.*

## CONCLUSION

The revenue generated by digital distribution channels is important indicator for assessing the level of digitalisation of the insurance sector. In insurance, digital sales are distributed through the insurance company website, comparison websites, social media, mobile applications, or websites from other third parties (e.g., airplane companies selling travel insurance on its website).





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So far, the results of online sales of insurance in Serbia are modest, but they are constantly growing. With the improvement of the overall economic situation in the country, an increased interest in this distribution channel can be expected on the part of both clients and insurers.

Research has shown that the choice of insurance sales channel depends on the type of product being purchased and its features. Traditional sales channels are more suitable for life insurance. On the other hand, modern sales channels are more suitable for travel insurance, car insurance, liability insurance and some simple life insurance products.

Insurance companies should direct their activities towards online sales of insurance for the following reasons: a) the increase in existing services can be achieved by adding value through online sales, thereby increasing user satisfaction; b) reduction of costs, because digitalisation of the sales process enables fast and efficient sales and obtaining an insurance policy online and paying for services by payment card; c) increasing the quality of services and client satisfaction; d) increasing the rating of the insurance company.

## REFERENCES

- Aničić, A., Anufrijević, A. (2022). Optimism in the development of the insurance sector in Serbia. *Revizor*, 25(99), 81-88.
- Bryzgalov, D.V., Tsyganov, A.A. (2022). Consumer Limitations on the Digitalization of the Insurance Market and Ways to Overcome Them. *Studies on Russian Economic Development*, 33, 539–546.
- Eckert, C., Eckert, J., Zitzmann, A. (2021). The status quo of digital transformation in insurance sales: an empirical analysis of the German insurance industry. *ZversWiss*, 110, 133–155.
- Eckert, C., Osterrieder, K. (2020). How digitalization affects insurance companies: overview and use cases of digital technologies. *Zeitschrift für die gesamte Versicherungswissenschaft*, 109(5), 333-360.
- EIOPA. (2024). Report on digitalisation of the European insurance sector. EIOPA-BoS-24/139, 30 april 2024. Frankfurt. Available on: [https://www.eiopa.europa.eu/document/download/6ca9e171-42b9-44d7-a2e6-beaf0134ecb8\\_en?filename=Report%20on%20the%20digitalisation%20of%20the%20European%20insurance%20sector.pdf](https://www.eiopa.europa.eu/document/download/6ca9e171-42b9-44d7-a2e6-beaf0134ecb8_en?filename=Report%20on%20the%20digitalisation%20of%20the%20European%20insurance%20sector.pdf)
- Eling, M., Lehmann, M. (2018). The impact of digitalization on the insurance value chain and the insurability of risks. *The Geneva papers on risk and insurance-issues and practice*, 43, 359-396.
- Hiendlmeier, S., Hertting, M. (2015). The impacts of digitization on the management of insurance companies: steering business in a digital world. Available on: [https://www.horvath-partners.com/fileadmin/horvath-partners.com/assets/05\\_Media\\_Center/PDFs/englisch/WP\\_Insurance\\_Digital\\_web\\_g.pdf](https://www.horvath-partners.com/fileadmin/horvath-partners.com/assets/05_Media_Center/PDFs/englisch/WP_Insurance_Digital_web_g.pdf)
- Hiwarkar, T., Khot, P. G. (2013). E-Insurance: Analysis of the Collision and Allegation of E-Commerce on the Insurance and Banking. *Journal of Business Management & Social Sciences Research*, 2(6), 457-470.
- Ingleton, R., Ozler, Y., Thomas, P. (2011). The digitization of everything: how organizations must adapt to changing consumer behavior. Available on: [http://www.ey.com/Publication/vwLUAssets/The\\_digitisation\\_of\\_everything\\_How\\_organisations\\_must\\_adapt\\_to\\_changing\\_consumer\\_behaviour/%24file/EY\\_Digitisation\\_of\\_everything.pdf](http://www.ey.com/Publication/vwLUAssets/The_digitisation_of_everything_How_organisations_must_adapt_to_changing_consumer_behaviour/%24file/EY_Digitisation_of_everything.pdf)



## Conference Proceedings

Kim, R.Y. (2020). The Impact of COVID-19 on Consumers: Preparing for Digital Sales. *IEEE Engineering Management Review*, 48(39), 212-218. doi: 10.1109/EMR.2020.2990115

NBS (2024). Annual report on the total insurance premium by the sales channels for Serbia in 2023. Available on: [https://www.nbs.rs/export/sites/NBS\\_site/documents/osiguranje/godisnji/god\\_T15\\_2023.pdf](https://www.nbs.rs/export/sites/NBS_site/documents/osiguranje/godisnji/god_T15_2023.pdf)

NBS (2023). Annual report on the total insurance premium by the sales channels for Serbia in 2022. Available on: [https://www.nbs.rs/export/sites/NBS\\_site/documents/osiguranje/godisnji/god\\_T15\\_2022.pdf](https://www.nbs.rs/export/sites/NBS_site/documents/osiguranje/godisnji/god_T15_2022.pdf)

NBS (2022). Annual report on the total insurance premium by the sales channels for Serbia in 2021. Available on: [https://www.nbs.rs/export/sites/NBS\\_site/documents/osiguranje/godisnji/god\\_T15\\_2021.pdf](https://www.nbs.rs/export/sites/NBS_site/documents/osiguranje/godisnji/god_T15_2021.pdf)

NBS (2021). Annual report on the total insurance premium by the sales channels for Serbia in 2020. Available on: [https://www.nbs.rs/export/sites/NBS\\_site/documents/osiguranje/godisnji/god\\_T15\\_2020.pdf](https://www.nbs.rs/export/sites/NBS_site/documents/osiguranje/godisnji/god_T15_2020.pdf)

NBS (2020). Annual report on the total insurance premium by the sales channels in Serbia in 2019. Available on: [https://www.nbs.rs/export/sites/NBS\\_site/documents/osiguranje/godisnji/god\\_T15\\_2019.pdf](https://www.nbs.rs/export/sites/NBS_site/documents/osiguranje/godisnji/god_T15_2019.pdf)

Piljan, I., Cogoljević, D., Piljan. T. (2023). *Osiguranje. Visoka škola za poslovnu ekonomiju i preduzetništvo*, Beograd.

Swiss Re Institute. (2023). The economics of digitalisation in insurance: new risks, new solutions, new efficiencies. *Sigma* No 5/2023. Zurich. Available on: <https://www.swisre.com/dam/jcr:dfcf4d4a-d6f6-424c-949f-794066470c8f/2023-09-sri-sigma-5-the-economics-of-digitalisation-2023.pdf>

Zakon o osiguranju („Sl. glasnik RS“, br. 139/2014 i 44/2021)



## Conference Proceedings

# THE AUSTRALIAN IMMIGRATION LAW IN A PUBLIC EMERGENCY: THE INFAMOUS DJOKOVIC CASE

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DOI: 10.5937/EEE24010R

JEL: K38, K41

Review Scientific Paper

### ABSTRACT

*Australian immigration law and policy have often been criticised for inconsistency with international human rights standards. Their arbitrary character is demonstrated in one example from the Australian case law that spurred a global debate on the legitimacy of the public health measures against the COVID-19 pandemic. This is the case of the government's cancellation of the visa of the famous tennis player Novak Djokovic, who entered Australia to compete in the tennis tournament in January 2022. This government's denial interfered with his freedom not to follow public official recommendations and policies. This paper investigates the limits of the government's discretion to take emergency measures for public health protection analysing procedural and substantive aspects of decisions that have struck this famous tennis player. Proceeding from universally accepted theoretical stances on the rule of law and human rights it evaluates a legal basis, argumentation and legal consequences of the decisions of the Australian government and the Federal Court. Eventually, this case indicates that all such decisions may be justified by the public interest, although such unfavourable treatment of a foreigner can hardly be justified. In short, foreigners cannot rely upon guarantees of human rights and the rule of law, because of the ignorance of relevant international standards, vague immigration laws, a broad judicial interpretation of executive powers and a narrow judicial review.*

### KEYWORDS

*immigration, public emergency, pandemic, human rights*

## INTRODUCTION

Immigration legislations worldwide, especially in developed states, are based on a quest for a sensitive balance between the homeland's protection of public wealth and the respect for internationally recognized human rights of foreigners. A striking balance between those opposing requirements may be achieved with precisely pondered statutory checks and balances that limit the executive powers, and with a consistent judicial scrutiny on executive decisions. Circumstances of a public emergency of any kind have always implied opportunities for evaluate immigration laws because the temptation of governments to undermine this sensitive balance is sometimes too high.

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This paper demonstrates this temptation in the case that attracted global attention during the COVID-19 pandemic, i.e. the expulsion of the on-that-time No. 1 world tennis player Novak Djokovic from Australia in January 2022. In short, the Government denied him a visa to compete at the Australian Open tennis tournament after he had entered Australia, reasoning that his anti-vaccination stance might support the domestic sentiment against the government's strict anti-COVID-19 policy. After being challenged before administrative courts by Djokovic, this government's decision was justified by the Australian judiciary as a lawful exercise of the executive's powers.

However, the legitimacy of this government's action and judicial reasoning has been highly contested in the homeland and worldwide. Many welcomed such a strict approach to the anti-COVID-19 policies for the sake of a legitimate goal of public health protection and the opponents have seen it as a dangerous precedent of arbitrary decision-making that does not meet standards of the rule of law and internationally recognised human rights (Sadler, 2022; Australian Lawyers Alliance, 2022).

This paper assesses the implementation of international human rights standards in the Australian executive and judiciary decisions, utilizing the example of the Djokovic case. It commences with a brief insight into the legal framework of the human rights of foreigners in public emergencies. In the second part, this framework is confronted with administrative and judicial reasoning in the Djokovic case.

## HUMAN RIGHTS OF FOREIGNERS IN A PUBLIC EMERGENCY

In the Djokovic case, it cannot be disputed that the Australian government enjoyed quite wide discretionary powers. The binding international human rights standards allow limitations based on foreign citizenship and derogations of human rights based on extraordinary circumstances of a public emergency. When dealing with such persons and circumstances, the augmentation of executive powers and the more flexible approach to states' obligation to respect international human rights, can be justified by a plethora of necessities. Therefore, the government's measures that impair with human rights may be considered to be a conducive means of crisis management.

For instance, in the the International Covenant on Civil and Political Rights (ICCPR,1996) the prescribed rights and freedoms are recognized to „all individuals“ in Art 2. and to „every child“ in Art. 25, but some of them are reserved to „every citizen“ in Art 25. And the Art. 4. entitles states to „take measures derogating from their obligations...“

However, the same provision imposes a severe caveat to governments, stipulating that such human rights limitations may be legitimate only if „the extent...(is) strictly required by the exigencies of the situation, provided that such measures are not inconsistent with their other obligations under international law and do not involve discrimination solely on the ground of race, colour, sex, language, religion or social origin.“ Besides, these limitations must exclusively serve these legitimate goals: public order, public health, morals, national security, public safety, the rights and freedoms of others, and the integrity of the public trial. Furthermore, the same provision in para 2 excludes governments' entitlement of human rights restrictions to the right of life, torture, not to be enslaved, not to be imprisoned because of inability to fulfil a contractual obligation, to be legally recognized as a person, privacy and freedom of thought, conscience and religion (Art. 6,7,8,11,16,17,18 ICCPR).

These requirements must be seen as an essence of the rule of law: The executive decision-making must not be arbitrary and must respect human rights and freedoms to the highest possible degree. Concepts



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used in these provisions are wide, but the meaning of this requirement can be more precisely defined in the case law of international bodies that supervise international human rights implementation. One of the most convincing interpretations of the caveats in limiting and derogating human rights is given in Siracusa's principles. In short, limitations must be strictly prescribed and provided by law, must not jeopardize the essence of the right concerned, must serve the purpose for which it has been prescribed, cannot be applied arbitrarily, must be subject to the possibility of challenge and remedy against its abusive application, and not to be discriminatory. Finally, a legitimate limitation must be necessary, in terms of being based on the ground justifying limitation under the ICCPR, responsive to a pressing public or social need, pursuing a legitimate aim, and proportional to that aim (American Association for the International Commission of Jurists, 1985, A).

Further, the meaning of proportionality is developed in constitutional law theory. According to Alexy, the government's measure that restricts the enjoyment of a certain goal and principle is proportional only if it meets all these conditions: if it is suitable for the promoting of the chosen principle or goal; if it is necessary, i.e. if the chosen measure interferes the least intensively with other legitimate goals or principles; if the chosen principle or goal is more important than the others that have been interfered by this measure; and if the chosen measure interferes less and it is reliable more than others in achieving a chosen goal or principle (Alexy, 2021, 1-10). This complicated and rigorous test can be conducive in cases of restrictions and derogations of internationally recognized human rights, because these rights can be seen as legitimate principles and goals that governments are obliged to achieve, or at least to aspire. Besides, the application of this test has already been routinely applied by international bodies that supervise the obligations of states to respect and promote human rights.

Furthermore, Siracusa narrows the meaning of the concept of „public emergency which threatens the life of the nation“ to a „situation of exceptional and actual or imminent danger“ that „affects the whole population and either the whole or part of the territory of the state and threatens the physical integrity of the population, the political independence or the territorial integrity or the existence of basic functioning of institutions...“ Such an emergency must be officially proclaimed by a state in a procedure that is previously prescribed and must contain all details on rights being derogated, the legal basis for derogation, the period of derogation, reasons and anticipated effects of derogation (American Association for the International Commission of Jurists, 1985, Art.39-50). Just like in cases of human rights restrictions, human rights derogations imply preciseness and subtleness, and thus posit severe caveats to governments. By eliminating the possibilities of abuse of power or arbitrariness, and by insisting on respect of human rights to the highest possible degree, these interpretations aspire to preserve the rule of law.

However, reflections of these interpretations cannot be found in the Australian legal system. Australian constitutional arrangements look quite peculiar: Although being a signatory of all significant human rights conventions, Australia's federal constitution does not contain any human rights catalogue. This lacuna is exacerbated by a lack of legislative enthusiasm to implement international human rights standards and judicial restraint in the application of international law (Kirby, 1993; Kirby, 2011; National Report of Australia, 2020, para 70-73).

Therefore, invoking the rule of law argument may provide the only plausible guidance when the government's actions impair human rights. The weight of this argument cannot be underestimated in the environment shaped by rich common law tradition, successful economy and a high standard of living. Unfortunately for the applicant, it did not work in his case.



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### **APORIE OF THE FEDERAL COURT'S ARGUMENTATION**

The facts and arguments of the case *Djokovic v Minister for Immigration, Citizenship, Migrant Services and Multicultural Affairs*, the Federal Court of Australia (FCA) have been found in Reasons for the dismissal of Novak Djokovic's application that was published on 20 January 2022. In short, the applicant, the famous tennis player who publicly disclosed his choice not to be vaccinated against COVID-19, legally entered Australia to compete at the Australia Open championship. After some time the Australian Minister for Immigration, Citizenship, Migrant Services and Multicultural Affairs cancelled his visa, exercising his discretionary power to do so under s 133C(3) and 116(1) (e) (i) of the Migration Act 1958 (MA 1958 and Migration Amendment Act 2014).

These provisions authorize the Minister to cancel a visa, without affording the applicant procedural fairness, if he finds that „the presence of its holder in Australia is or may be, or would or might be, a risk to ... the health, safety or good order of the Australian community...“, and „that it would be in the public interest“ (FCA, *Djokovic*, 2022, FCAFC 3, VID 18 to of 2022). These provisions entitle the Minister to cancel the applicant's visa, being satisfied that the presence of the “high profile unvaccinated individual” in Australia had posed a risk to the health and good order (para 44-68).

In the outcome of the judicial review, FCA upheld the Minister's decision, reasoning that the presence of the unvaccinated applicant in Australia may boost anti-vaccination sentiment to the extent that his expulsion is in the public interest underpinned by the strict border and COVID-19 vaccination policies. This led to the applicant's confinement in quarantine and expulsion from Australia.

The judicial review in favour of the executive's decision looks well argued, because of implied limited jurisdiction and strong restraint of the FCA „to rule upon the lawfulness or legality of the decision by reference to the complaints made about it,“ excluding the merits and wisdom (para. 17). A routine exercise of a government's sovereign rights against foreigners whose presence may undermine the public interest may hardly be contested, but some arguments look dubious. As a result, FCA justified the Minister's conclusion that the applicant's presence in Australia implied hypothetical jeopardy.

However, the sanction of expulsion looks disproportional to Djokovic's unwanted, but still lawful deeds and intentions: he was detained and expelled, although the legality of his initial entrance and behaviour in Australia was not contested at all. For these reasons, the FCA's argumentation must be under suspicion off the applicant's procedural and substantial human rights violations.

The first impression from the FCA decision is the lack of reasoning on internationally recognized human rights of foreigners, especially those rights that are envisaged by ICCPR. In short, Art. 2 binds Australia „to respect and to ensure to all individuals within its territory and subject to its jurisdiction the rights recognized in the present Covenant, without distinction of any kind“ and ensure an effective remedy for violations; Art. 18 to respect everyone's freedom of thought; Art. 19 to respect „the right to hold opinions without interference“ that can be limited by rights of others, national security or public order, public health or morals, only if are provided by law and necessary.

In short, the restrictions must be strictly prescribed by law, necessary, appropriate, the least intrusive and proportional to a legitimate aim (Castan, 2013, 406-426). The Australian government could not ignore these guarantees, because the World Health Organisation's declaration of the „public health emergency“ does not fall under the prescribed reason for human rights' derogation under ICCPR Art. 4 para 1, i.e. the „public emergency which threatens the life of the nation and the existence of which is officially proclaimed...“ (Rasevic, 2021, 549-569).



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In their reasoning, both the Minister and the FCA weighted possible outcomes of maximization of the public interest. However, they failed to produce a single word about the appropriateness, minimal intrusion and proportionality of the Minister`s measure with the applicant`s human rights. Besides, they did not interpret vague notions of legitimate aims in MA: „health, safety, good order and public interest“ following more precise ICCPR`s standards of „rights of others, national security or public order, public health or morals“ (para. 36-43). This lacuna in the FCA judgment cannot be justified by the notorious lack of a Bill of Rights in the Australian Constitution and federal laws (FCA 1624, Newall, 1998) because the courts must implement ex officio all applicable laws.

Second, the FCA`s conclusion that the Djokovic`s presence in Australia „is or may be, or would or might be, a risk“ under the applicable MA`s provisions, is based on the false analogy with Newall (FCA 1624, Newall, 1998), where it is found that „is not necessary that the visa holder himself or herself take action to create the risk. It is the presence of the person in Australia that must found the risk.“(para. 41). The implementation of this precedent must be highly contested, because of different personality traits of applicants, and duration and purpose of visa: in contrast to a „high profile unvaccinated individual“ and philanthrope with a diplomatic passport in Djokovic (para.65-68), the thwarted visa holder in Newall was a criminal on probation, sentenced abroad to 6 years imprisonment for assisting after the murder and hiding from justice; Djokovic`s visa was issued for a public appearance and lasted a few weeks, while Newall was supposed to reside one year in Australia for private reasons. Everybody is equal before the law, but the presence of a „high-profile individual" obviously must have had a less malicious social impact than that of the convicted criminal. Therefore, it can be concluded that such FCA`s sweeping generalisation must have seriously diminished the applicant`s prospects for success.

Finally, it can be argued that the FCA deprived the applicant of procedural fairness in the judicial review, just as the Minister did, but this time without any legal ground. The Court`s argumentation about the extremely narrow scope of judicial review and strong judicial restraint sits ill with the rule of law, especially with standards of lawful limitation of government's power, respect of human rights, equal rights in judicial proceedings, and predictability of government's actions.

The MA provision that triggers the Minister`s discretion, i.e. „the presence ... in Australia is or may be, or would or might be, a risk" is not sufficiently clear and descriptive to be applied without arbitrariness. Nevertheless, the FCA limited its review to highly subjective Minister`s speculations of the applicant`s hypothetical influence on public anti-vaccination sentiment and allowed him unfettered discretion in interpreting wide and vague terms of MA. This lack of legislative clarity has been criticized by United Nations human rights bodies and academia as a source of the government's "god-like powers"(Duckett White, 2020, 37-38).

Besides, the FCA upheld the Minister`s satisfaction that the applicant`s presence had become social jeopardy based on hearsay in the media while giving less weight to the applicant's evidence (para. 71-77). The lack of time to fully consider the applicant's defence was not a good excuse because the emergency was caused by the Minister's unpredictable visa cancellation. The lowest level of judicial scrutiny can be confirmed in para. 104: „...where the criterion of which the authority is required to be satisfied turns upon factual matters upon which reasonable minds could reasonably differ, it will be very difficult to show that no reasonable decision-maker could have arrived at the decision in question.” Actually, the FCA shifted the whole burden of proof to the applicant and unfairly raised his standard of proof.



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# CONCLUSION

The Djokovic case proved to be a good example of gray zone between the legitimate administrative and judicial decision-making and an abuse of power against oppressed individual.

This Australian government's resort to discretionary power against a lawful, but unvaccinated foreigner can hardly be justified by the high pressure of immigration, pandemic concerns, or any other public interest that does not amount to a „public emergency which threatens the life of the nation ... which is officially proclaimed“ (ICCPR, Art 4). Notwithstanding that every state is authorised to deal with unwelcome foreigners as they see fit, this case exposes that they are not equally or at least fairly treated in Australia.

According to Dworkin, resorting to human rights should be effective trumps of an individual against collective goals (Dworkin, 1977, xi-xv), and this has not happened in the Djokovic case.

The status of foreigners shaped by the Australian government's strict border policy and the lack of effective judicial scrutiny looks quite peculiar for a legal system based on impeccable common law traditions. In short, foreigners cannot effectively challenge the executive's powers because of the legislative vagueness, broad discretion of the executive, narrow judicial review and strong judicial restraint. And this is not just about the COVID-19 pandemic. The combination of such unfavourable factors can easily result in an arbitrary exercise of executive discretion in a public emergency and all other emergency-like situations.

# REFERENCES

- Sadler, K. (2022). Djokovic vaccine case exposes Australian dictatorship. *The Washington Times*. Retrieved February 1, 2024, from <https://www.washingtontimes.com/news/2022/jan/18/djokovic-vaccine-case-exposes-australian-dictators>
- Australian Lawyers Alliance (2022). Djokovic case sets a dangerous precedent. Retrieved March 31, 2024, from <https://www.lawyersalliance.com.au/news/djokovic-case-sets-dangerous-precedent>
- Alexy R. (2021). *Constitutional Rights, Proportionality and Argumentation*. Robert Alexy's Theory of Constitutional Rights. In: Sieckman J. R. (ed.). *Proportionalizm balancing and Rights* (pp.1-11) Cham: Springer.
- National Report of Australia (2020). *Universal Periodic Review 2021, Annex 1 Australia's second cycle UPR recommendations 2015 – Status of implementation* Retrieved March 1, 2023 from <https://www.ag.gov.au/sites/default/files/2020-12/annex-1-upr-2021.pdf>
- Kirby, M. (1993). *The Australian Use of International Human Rights Norms: From Bangalore to Baliol – A View from the Antipodes*. *UNSW Law Journal* 1993 vol 16(2).
- Kirby, M. (2011). *Australia and the European Court of Human Rights*, The Australian National University Centre for European Studies. Retrieved August 7, 2023, from <https://www.michaelkirby.com.au/images/stories/speeches/2000s/2011/2524-ANU-CONF-EUROPEAN-STUDIES-14-FEB-2011.pdf>
- Federal Court of Australia. (2022). *Djokovic v Minister for Immigration, Citizenship, Migrant Services and Multicultural Affairs*. FCAFC 3, VID 18 of 2022. Retrieved May 2 2023, <https://www.judgments.fedcourt.gov.au/judgments/Judgments/fca/full/2022/2022fcafc0003>





## Conference Proceedings

The Commonwealth of Australia (1958, 2014). Migration Act 1958 (Cth) ss 116, 116(1)(e)(i), 133C, 133C(3), 133C(3)(a), 133C(3)(b), 133C(4), 476, 476A , Migration Amendment (Character and General Visa Cancellation) Act 2014 (Cth).

United Nations General Assembly (1966). International Covenant on Civil and Political Rights.

Castan, M. (2013). The International Covenant on Civil and Political Rights, Cases, Materials and Commentary. Oxford: Oxford University Press.

American Association for the International Commission of Jurists. (1985). Siracusa Principles on the Limitation and Derogation Provisions in the ICCPR. Retrieved February 1, 2024 from <https://www.icj.org/wp-content/uploads/1984/07/Siracusa-principles-ICCPR-legal-submission-1985-eng.pdf>

Rasevic, Z. (2021). The resort to military force in the COVID-19 health emergency: a justification. *Revista Cientifica General Jose Maria Cordova* 19 (35), 549-569

The Commonwealth of Australia. The Parliamentary Education Office and Australian Government Solicitor (2010). Australia`s Constitution With Overview and Notes by the Australian Government Solicitor. Canberra: Commonwealth of Australia.

Federal Court of Australia (1999). *Newall v Minister for Immigration and Multicultural Affairs*. FCA 1624. Retrieved November 2, 2023, from <https://jade.io/article/117818>

Duckett White, S. C. (2020). God-like Powers: The Character Test and Unfettered Ministerial Discretion, *41(1) Adelaide Law Review*, 37-38.

United Nations General Assembly (1966). International Covenant on Civil and Political Rights.

Dworkin, R. (1977). *Taking Rights Seriously*, Harward University Press, Cambridge, Massachusets, pp. xi-xv.



## Conference Proceedings

# PROBLEMS OF BLOCKCHAIN TECHNOLOGY IMPLEMENTATION IN BUSINESS SYSTEMS

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DOI: 10.5937/EEE24011B  
JEL: M15  
Review Scientific Paper

### ABSTRACT

*Ever since the first paper on blockchain technology appeared, public interest in this area has grown rapidly. The popularity of Bitcoin and other cryptocurrencies has also increased due to media headlines that made this technology known to the world. Soon, companies from the fields of finance, healthcare, education, insurance and other types of businesses began experimenting with this technology to solve their data exchange problems without having to rely on a third party to authenticate the transfer of information. The fact is that there is a lot of discussion and analysis concerning the possibilities of applying blockchain technology in different environments, while the actual implementation of solutions in this area is still relatively slow. Like any new technology, blockchain has been accepted uncritically and in many cases without considering the real needs and conditions for its application. The aim of this paper is to provide guidance regarding the questions that need to be answered and to realistically see the need for the implementation of this technology in the business environment. On the other hand, this technology is not without its drawbacks, so the overall unbiased assessment of advantages and disadvantages is a challenge for companies that want to improve their business and realistically assess the perspective of its application in each business environment.*

### KEYWORDS

*blockchain, organization, consensus, energy consumption, blockchain security*

## INTRODUCTION

Business application of new technologies always carries the risks of causing greater problems for the company in its implementation stage, as well as in later work, especially if the experience of working with it is relatively small. The rapidly changing environment leads companies to indiscriminately apply new technological solutions without considering the problems they may encounter while working with new technologies. Blockchain technology is relatively new in business application, but an increasing number of companies are interested and are planning to accept it and introduce it into their business processes.

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The first paper on blockchain technology entitled “Bitcoin: A Peer-to-Peer Electronic Cash System” appeared in 2008 on a little-known site on the Internet (the paper was originally published on the cryptography mailing list at metzdowd.com). The author of this material is a completely unknown person, Satoshi Nakamoto, who has remained unknown to this day, but in his paper, he presented the idea of creating a crypto currency completely independent of any financial institution or state. This radical solution of crypto money (officially still not a currency, but a commodity with added value) caused a lot of public attention. In 2009, the first Bitcoin coins appeared, and the first transactions were made in 2010. In 2017, the US Chicago Board Options Exchange (CBOE) listed Bitcoin as a commodity, and thus Bitcoin began to be traded on commodity exchange markets. In 2020, on the 3<sup>rd</sup> of September, the Frankfurt Stock Exchange also placed Bitcoin on the trading list (ETN – Exchange-Traded Note).

The development of crypto currencies was followed by intense media attention. Other systems, e.g. Litecoin, appeared shortly afterward and a rapid creation of new ones ensued. In a few years, their number exceeded a thousand different systems, so today over ten thousand different cryptocurrencies are registered on the website (CoinMarketCap.com).

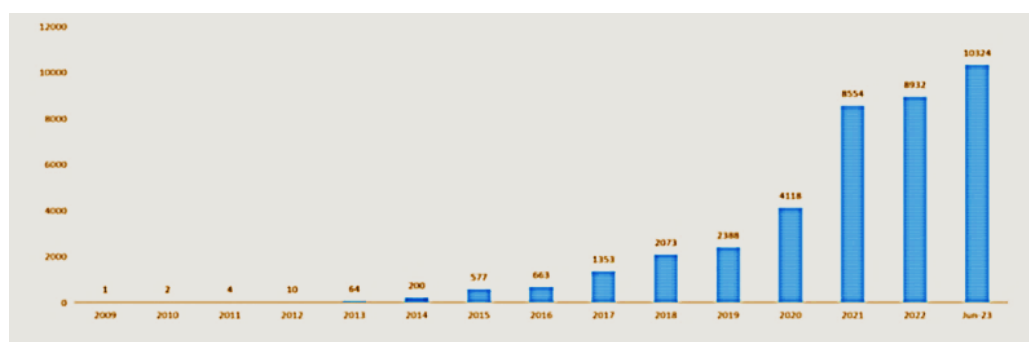


Figure 1. Cryptocurrency growth over time (CoinMarketCap.com)

Considering that the software used for the operation of crypto currencies is free to download from the Internet, everyone who had enough knowledge started to make their own payment systems.

A breakthrough in the development of blockchain technology was made when Vitalik Buterin published his paper entitled “A Next Generation Smart Contract & Decentralized Application Platform” in 2014. The idea that he presented in this paper show us that this technology, apart from cryptocurrencies, is also used in business applications. Since then, the application of blockchain technology has been gaining momentum and examples of research and application in various fields, like production, education, tourism and other business segments, are appearing (Rohith et al., 2019). In the meantime, new distributed networks coordination models have been developed, which made it possible to reduce the consumption of electricity and speed up the consensus process, as well as to reduce the time needed to perform transactions. The accelerated development of new work models made it possible to develop smart contract technology and to introduce new terms such as DeFi (decentralized finance) and CeFi (centralized finance), which represent two ways of managing and trading cryptocurrencies.

## LITERATURE OVERVIEW

Ever since the creation of the blockchain technology, its development and application have been intensively monitored by the media, but also by researchers in an abundance of scientific papers with



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the idea of studying and perfecting its application. Special attention has been paid to identifying the main characteristics of this technology with the aim of better understanding the problems and solutions it can offer in the business environment. The first papers on the topic of the possibility of applying blockchain technology in business environments were published by (Zhao et al., 2016; Zheng et al., 2017), in which they analysed the potential of this technology. Considering that the blockchain can be connected with other technologies, the connection of IoT (Internet of Things) into a distributed network is analysed in the paper by (Fernández-Caramés et al., 2018). The application of blockchain technology in tourism (Abderahman, 2019) soon became a topic on which papers have been published and potential applications analysed.

The connection of blockchain technology with neural networks in manufacturing processes was published in a paper entitled "Neural Network Insights of Blockchain Technology in Manufacturing Improvement" by (Kwok, 2020). Thus, the authors (Nuttah et al., 2023) analyse why, how and in what way the use of blockchain technology helps to better understand the Industry 4.0 related problems. The possibilities of connecting artificial intelligence and blockchain technology are analysed in their paper entitled "Blockchain Intelligence: When Blockchain Meets Artificial Intelligence" (Zheng et al., 2020). What has been noticed is that most of the papers show the advantages of applying blockchain technology, while the problems that can potentially arise are little represented in actual research activities. Thus (Castellon et al., 2019) published a paper entitled "Blockchain Security, A Framework for Trust and Adoption", where potential problems that may arise during the implementation of this technology are analysed. In the same year, a paper entitled "Blockchain Economy: The New Era of Digital Economy" appeared, where the potential impact of this technology on the economy was analysed (Lim, 2019). Blockchain in e-government is one of the segments that is often analysed in the literature.

## QUESTIONS WHEN CHOOSING BLOCKCHAIN TECHNOLOGY

Interest in this technology has been intense since its appearance as a cryptocurrency, but since 2017, the number of scientific papers dealing with research in the domains of application of this technology and possibilities for its implementation in business systems has increased significantly, and numerous companies from different fields are starting to experiment with it. The main problem faced by companies is that it is still a new concept, and experience in this domain is not vast enough to indiscriminately approach the implementation of these solutions in business.

When analysing the possibilities of applying blockchain technology, three basic questions must be answered:

The first question is who and in what cases needs this technology, for what purposes and why this data is important for further business (Treiblmaier, 2022). Here, the starting point is to specify whether permanent data storage is necessary, in what form and who needs this data. If the answer to this question is positive, it is necessary to analyse in how many places data processing is performed, who the users are and whether confirmation from a third, confidential party is required to confirm the transaction. Finally, it is necessary to determine whether all participants are known and whether they have conflicting interests that may lead to data entry problems. The starting point for the second question emerges from the first analysis.

The second question is how to organize the blockchain: as public, private or hybrid. In the public blockchain anyone who wants to access the network only needs to have a computer or mobile phone and no permission, or any verification is required. The transactions that have been carried out on this network are visible, and the efficiency in work is directly dependent on the number of participants and the number of transactions. The only



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thing expected from these transactions is the proof of work of the consensus algorithm on updating the system (PoW, PoS). The Bitcoin cryptocurrency is based on this principle, where participants do not have to trust each other, but the blockchain provides all the evidence. Anonymity when working with a public blockchain is ensured by the fact that everyone can read the data that has been entered, but the owner's identity is secured through a key (code), so it can be said that it is pseudo-anonymity because it is possible to read the data, but it is not known who the owner is. In principle, with a public blockchain, two variants are possible: that all participants can read and write (example: Bitcoin, Ethereum) or that one group of users is allowed to read data and another to write (Akgiray, 2019).

A private blockchain implies that there is a central body that assigns authority and decides who and what has the right to do in the network. A private blockchain can be said to be a centralized network since it is fully controlled by a single organization. A private blockchain is fully controlled by one organization which determines the final consensus. When it comes to the immutability of data, it should be emphasized that it is significantly worse than the public blockchain because it is controlled by a central authority and, as a rule, has a limited number of participants in the network. In contrast to public blockchains, private ones have much better efficiency in operation and transactions are performed much faster.

The third possible form of organization is hybrid, which is a combination of the previous two models. This form of organizing the blockchain has great prospects for mass use. In this model, only a small number of nodes on the network are selected to establish consensus.

The third question is which blockchain coordination model to apply in business. In practice, it has been shown that certain coordination models have certain shortcomings and problems in their work, so different algorithms have appeared as a solution. These shortcomings are in the domains of energy use, scalability, security and privacy, and before deciding on which consensus algorithm model to apply, it is necessary to study them in detail.

The list of the most used consensus algorithms is:

- proof of Work – PoW,
- proof of Stake – PoS,
- proof of Burn – PoB,
- proof of Authority – PoA,
- practical Byzantine Fault Tolerance – PBFT,
- proof of elapsed time – PoET,
- proof of Location – PoL,
- proof of Capacity – PoC.

It follows from the above that before deciding where and how to implement blockchain technology, it is necessary to analyse in detail all the elements and requirements that need to be harmonized organizationally and technologically with the needs of the business where this technology is implemented.

### **Potential problems when working with blockchain technology**

When working with blockchain technology, there is a whole series of problems that can arise, such as: technical, economic, environmental and safety concerns. Considering that it is still a new technological



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solution, working with blockchain is complicated, work models are insufficiently known and what is the biggest drawback is the lack of trust that arises due to the lack of experience from earlier periods.

### **Technical problems when working with blockchain technology**

So far, several blockchain platforms have been developed and each has its own standards and protocols, so the possibility of data exchange is significantly reduced. This problem can slow down or even prevent faster development and integration of different systems. When planning the transition to blockchain technology, it is necessary to first pay attention to the performance that the system should provide. It primarily refers to the response time of the system, the number of transactions per second that the system should provide, the type of blockchain and the complexity of the protocol, as well as the expected growth of the distributed ledger (database) itself.

The main book (open ledger) is at the base of the system. It is used to enter data after reaching a consensus. The choice of the node that will complete the chain with a new block is different: in the bitcoin system, there is a competition to solve the crypto task faster. All nodes in the network do the same job, and only the one who solves the problem first gets financial compensation. The transaction enters the open ledger, and everyone else accepts it, so all transactions become available to all participants in the game. The Ethereum algorithm grants individual nodes the right to form a chain based on invested funds. All other consensus mechanisms have their own algorithm for choosing who will form a new block in the chain.

The basic requirement of blockchain technology is that everything is written in a unique book (database, open ledger), which is stored on all nodes on the network. This further means that this ledger will constantly grow and require more and more space to accommodate the huge amounts of data. If it is known that the current size of the Bitcoin block chain is 435 GB (11/05/2023) and we multiply this number by the number of nodes (miners), we get a staggering amount of disk space required worldwide to store the data. With the Ethereum system, there is an even bigger problem with data storage. In just six months of active use, the network accumulated 200 GB of historical data in the blockchain. Until now, the development of disk capacity has allowed such a large amount of data to be recorded, but when it is known that these record books will only grow indefinitely, a serious question of storage possibilities arises. On the other hand, it is known that 80% of discs fail (Backblaze, 2023) in a time interval of 3-5 years, which further means that after each disc failure, the entire book will have to be downloaded, which can be a serious problem in terms of time given the amount of data which needs to be downloaded. To avoid this problem, a replica of the data is also created, in some cases at two additional locations.

A serious problem in working with blockchain technology is the speed of transactions. The formation of the block chain and the consensus algorithm take place on all nodes in the network (PoW, PoS...), which requires a considerable amount of time to pass to record the transaction and form the block chain. On the example of the Bitcoin network, the response time of the system is 500 seconds (it is uncertain whether it will be complete) and the throughput is 3-7 transactions per second, which is a problem when it is used in a real environment. As a result, it can take up to 60 minutes to transfer Bitcoin transactions from one wallet to another. With the Ethereum system, the response of the system is approximately 360 seconds, and the throughput is 15-25 transactions per second. This problem of transaction speed must be taken into consideration when planning the implementation of blockchain technology in business.



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Table 1. Number of transactions per second and average time to confirm transactions

Cryptocurrency	Transaction per second	Average time for transaction confirmation
Bitcoin	3-7	60 min
Ethereum	15-25	6 min
Ripple	1500	4 sec
Bitcoin Cash	61	60 min
Stellar	1000	2-5 sec
Litecoin	56	30 min
Monero	4	30 min
IOTA	1500	2 min
Dash	10-28	15 min

*Source: Shihab, Qusay, 2020*

From the table above, it can be clearly seen that Bitcoin has 3-7 transactions per second, Ethereum has 15-35, while for example VISA has 50,000 transactions per second, so the argument of speed and throughput of transactions does not support the application of blockchain technology.

Despite taking long to transfer data from one wallet to another, it is still much faster than transferring money through banks, which takes from 12 hours to a couple of days, if there are intermediary banks. For each individual application, the required transaction speed must be studied in detail and the effectiveness of the application of blockchain technology must be analysed.

A significant problem when working with these technologies is that they are complex and that users are expected to have a certain level of knowledge and expertise to be able to implement and maintain these systems. Such requirements represent a problem for companies that want to implement these solutions because they must hire highly skilled staff and additionally train existing employees to work with these systems. Since the existing systems are complex to operate, this can lead to additional errors and problems in business. This shortcoming will probably be overcome with the next generations of software by simplifying the work process and adapting the interface to users who will not be expected to have highly specialized knowledge.

## ECONOMIC PROBLEMS WHEN WORKING WITH BLOCKCHAIN TECHNOLOGY

The main problem when deciding whether to implement this technology or not is that all solutions in this area are practically at the beginning of their development and have appeared in the previous few years. The solutions implemented so far have had frequent corrections and refinements, which creates distrust among potential users. The legal regulations have not yet fully defined how to work with these systems, so this is one of the factors preventing faster implementation.

The main disadvantage of faster development and implementation of blockchain technology is the complexity of working with these systems (GetSmarter, 2022). On the other hand, past experiences



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indicate that these systems are slower in operation compared to existing solutions. These are problems that must be taken into consideration when making the decision to switch to a new technical solution.

A serious problem with the application of this technology is that not everyone is interested in this technology being applied on a large scale. An example is banks that lose significant profits from money transfers because international payments in cryptocurrencies are far cheaper and do not take place through standard banking channels. Bank commissions for money transfers are high (over 10% in Africa) and represent serious income for the banking sector, so they do not look favourably on the expansion of these systems (Tapscot, 2020).

## SECURITY OF BLOCKCHAIN TECHNOLOGY

Blockchain technology is relatively new and arguably still in the experimental stage in many areas of business application. When analysing the security of this technology and where it is applied, it cannot be said that it is without problems. The block chain is considered immutable, but in practice so far it has been proven that if someone takes over 51% of the network, they can manipulate the data that has been entered and change it. Taking over 51% of the network when it comes to public blockchains where there are millions of connected computers is really a problem. However, the same cannot be said for private and hybrid networks of connected computers, as their number is expected to be significantly smaller.

Previous experience on the example of the Bitcoin network has shown that it can happen that the network itself gets divided into two parallel chains, which happens when the rules of operation within the blockchain are changed. This case happened with Bitcoin and caused serious problems for both users and crypto exchanges.

The basis of blockchain technology are keys (public and secret), which are the basis for secure operation. The possibility of personal data theft is a potential threat in all information systems, so even this technology is not immune to this form of threat. Storing keys on a computer in an unprotected form always poses a serious problem for unauthorized persons to download and abuse them. A hardware security module (HSM) must be used to securely store the keys. These can be set so that keys cannot be exported or copied from the HSM, and key usage can be more reliably logged. This further complicates working with blockchain technology and requires the user to have additional knowledge of working with HSM.

On the other hand, it is possible for attackers on a blockchain network to form multiple fake identities or nodes on the network to take control of the network to manipulate transactions, waste time, or deny services to legitimate users. Such attacks can be prevented by implementing verification mechanisms that ensure identification or by ranking the nodes based on their previous behaviour on the network. All these mechanisms additionally consume resources and further complicate work.

Eclipse Attack was released in 2015 for Bitcoin (Van Wirdum, 2017) and in 2016 for Ethereum (Gervais, 2016). The idea is to download all incoming and outgoing connections of the victim's blockchain node. This is how an attacker can change the victim's view of the blockchain and take control.

Hacking is one potential threat. Hacker attacks are always a potential threat, so standard protection is assumed on all nodes on the network. In systems where many computers are connected, this is more difficult to achieve, but in systems where there is a small number of nodes, there is a real threat.

Operational risks arise because it is necessary to have safe and reliable partners. If the hosting is with a service provider (outsourcing) or in the cloud, the question of their reliability and security arises.





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Phishing and SIM swapping are potential threats that are on the rise (Chainalysis, 2020). This form of fraud is based on the social engineering of obtaining a duplicate card from the system operator by impersonation. So far, many such frauds have been recorded, and blockchain wallets are mostly installed on mobile devices, so the potential danger of this type of fraud is high.

When analysing the security of blockchain technology and the user's trust in it, as well as interest in its application, it should be emphasized that there is insufficient data in the databases on the vulnerability of the system. This fact creates hesitation and uncertainty with potential candidates interested in implementing blockchain solutions in their businesses. Because this technology is still relatively new and in many cases in an experimental phase, the Common Weakness Enumeration (CWE) and the National Vulnerability Database (NVD) contain almost no data.

## THE IMPACT OF BLOCKCHAIN TECHNOOLOGY ON THE ENVIRONMENT

When Bitcoin first appeared, few people paid attention to electricity consumption, the number of computers in the network was relatively small, and mining was done on standard computers. Soon, specialized devices for 'mining' (Application-Specific Integrated Circuit – ASIC) appeared, which significantly accelerated the work process. Each new generation of mining equipment required more electricity and processing power to increase the likelihood of making a profit (O'Dwyer, 2014).

When the number of ASIC devices on the network increased significantly, it became clear that the electricity consumption was extremely high. According to the Cambridge Bitcoin Electricity Consumption Index, the annual electricity consumption for the operation of the bitcoin system is 138.8TWh. This further means that Bitcoin consumes 703.25 KWh for one transaction. Such a large consumption of energy could not but provoke a response from state authorities, so in September 2022, the Republic of China banned the mining of cryptocurrencies on its territory. In response to such high energy consumption, Ethereum switched from the PoW system to the PoS model in the same year and thus managed to reduce electricity consumption by 99%. This is an example of how changing the coordination model in a blockchain network can significantly improve business.

It should be noted that all the electrical energy used for mining is converted into thermal energy that must be dissipated so that the equipment does not overheat. The operating temperature of ASIC devices ranges from 70°-80°C, while it is necessary that the temperature of the environment where the device is installed be from 10°C to +35°C (softwaretestinghelp. 2023), which means that they must be in air-conditioned rooms. The electricity consumption of one device depends on the type and manufacturer and ranges from 3300 W to 3500 W for better ones (softwaretestinghelp.2023). When planning the installation of a blockchain network, it is necessary to consider the sum of electricity for the operation of ASIC devices and the required amount for cooling and air conditioning of the space where the equipment is installed.

In the operation of the blockchain network, especially in the PoW model, the nodes on the network compete in speed and computing power to solve the hash algorithm and get the reward. For devices to have maximum performance, it is necessary to renew them and use models with the best performance. Considering that ASIC devices are specialized only for mining, it is not possible to use them for other jobs, so at the end of their working life they cannot be used for other jobs. This means that after a certain time they become obsolete (18-24 months) and must be replaced because their work does not meet the calculation speed of the algorithms. The number of ASIC devices varies and can only be estimated.



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From the previous analysis, it follows that when planning the implementation of blockchain technology, it must be considered how it will affect the living environment. The choice of organizational business model and coordination model can significantly contribute to saving energy, which is in short supply in the world, and on the other hand, reduce the amount of electronic waste.

## DISCUSSION

The main obstacle to the faster acceptance of blockchain technology is the opinion formed by the media, which claims it is too unreliable to be applied for serious purposes, because in practice it has often been used in illegal activities. Successful and useful applications of any technology are not interesting enough to be published in the mass media, but when problems arise, then they become interesting enough to be publicly announced. This is also the case with blockchain technology.

The problem of trust in this technological solution is particularly pronounced because, in current practice, crypto currencies are most often applied in speculative businesses. Bitcoin and other currencies are bought and sold most often with the aim of making a profit in the trading of this currency, while the use for payment is minimal. Their application in payment systems is at a marginal level in relation to the total number of transactions carried out by these payment systems.

In the crypto-currency business, these payments have most often been made on the dark web, an illegal part of the Internet, where illegal materials and content are traded. This data is already causing discomfort to the company's management, so they must think hard about whether it is necessary to accept the technology that is applied for these purposes or not.

The next negative application is during blackmail and hacker attacks, i.e. when hackers encrypt the user's computer. Users are then required to transfer crypto currency, usually Bitcoin, to a specific wallet so that the user can get their data back. This form of blackmail attack on computer systems has long captured the interest of the media, creating a general impression of problematic technology.

A serious problem with the application of this technology is its mass application in money laundering and its use for financing terrorist activities. In addition, the bankruptcy of large crypto exchanges, which were even connected to the laundering of large amounts of money and participated in corruption affairs at a high state level, have had a very negative impact on the public.

In the business world, the abovementioned has created a negative image that the blockchain technology is a problematic and unreliable technology that is used on the margins. This attitude of decision-making business circles has given rise to the opinion that it is necessary to carefully approach the decision of implementing this technology in business. This delay in the development and application of this technology by large and powerful systems is good for beginners and 'start-up' companies that can, through the application of new technological solutions, provide a competitive advantage.

A serious problem preventing a faster development of this technology is the lack of legal regulations and standards in this area. Given that legal regulations are always developed based on already installed new business solutions, it is to be expected that legislators will become more intensively involved in these matters.

All these negative phenomena associated with this technology have a great impact on business structures. In addition, our knowledge about these technological solutions is still at a relatively low level, which represents a significant limiting fact.



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### CONCLUSION

Blockchain is a technology that has great potential for application in various areas of business. New projects and technological solutions are being developed, but mass implementation and interest in practical application are still at a relatively low level. There are many reasons for this situation. Problems of mistrust and deficiencies in legal regulation represent the biggest obstacle to a faster development of these systems. Considering that this is still a new technology with which legislators have no experience in practice, the laws that are passed are generally restrictive.

The fact is that technological solutions based on blockchain technology must be redesigned (Bitcoin, Ethereum, etc.) because in this form they cannot provide speed, security and decentralization at the same time at a sufficiently high level. If decentralization and security are ensured, then the response speed of the system drops significantly. In other combinations, only two of these three requirements can be provided, and that is not enough for application in all cases.

The problems and issues in this paper must be further analysed and a suitable solution found before deciding to apply this technology in business. Overcoming negative prejudices about the reliability and safety of this technology might be resolved in the future when certain experience has been gained.

### REFERENCES

- Arcel, K.M., Ogudo, K., Bondo, E. (2022). Evolution of Blockchains based on the Architecture and Consensus Algorithms used on Blockchains. [www.preprints.org](http://www.preprints.org)
- Wirdum, V. (2017). Segregated Witness Activates on Bitcoin: This is What to Expect. <https://bitcoinmagazine.com/articles/segregatedwitness-activates-bitcoin-what-expect/>
- Rejeb, K. (2019). Blockchain Technology in Tourism: Applications and Possibilities. *World Scientific News*, 137, 119-144.
- Malanov (2017). Six myths about blockchain and Bitcoin: Debunking the effectiveness of the technology. Six main disadvantages of Bitcoin and the blockchain. Kaspersky official blog
- Backblaze (2023). How Long Do Disk Drives Last, How Long Do Disk Drives Last? ([backblaze.com](http://backblaze.com))
- Bitinfocharts Bitcoin, Ethereum, Dogecoin, Litecoin stats ([bitinfocharts.com](http://bitinfocharts.com)) (2023). Accessed: 20.11.2023)
- Buterin, V. (2014). A Next Generation Smart Contract & Decentralized Application Platform. White Paper.
- Castellon, N., Cozijnsen, P., Tjerk, V. G. (2019). Blockchain Security A Framework for Trust and Adoption. [www.dutchblockchaincoalition.org](http://www.dutchblockchaincoalition.org)
- Chainalysis (2020). Fighting Back Against SIM Swap Attacks with Blockchain Analysis. <http://www.chainalysis.com/blog/sim-swap-attacks/>
- Consumption index (2019). Cambridge Bitcoin Electricity Consumption Index. ([ccaf.io](http://ccaf.io))
- Digiconomist. Bitcoin Electronic Waste Monitor. Available at: <https://digiconomist.net/bitcoin-electronic-waste-monitor/>



## Conference Proceedings

- Tapscot, D.C.M. (2020). These are the challenges blockchain faces in 2020. World Economic Forum, 3 key challenges for blockchain in 2020. (weforum.org)
- Khalifa, E.(2019). Blockchain: Technological Revolution in Business and Administration Future Center for Advanced Research and Studies. American Journal of Management, 19(2).
- Ethereum Whitepaper. (2023). [www.ethereum.org](http://www.ethereum.org)
- Fromdev (2023). 6 Major Security Threats to Blockchain Technology and How to Mitigate Them. <https://www.fromdev.com/2023/05/6-major-security-threats-to-blockchain-technology-and-how-to-mitigate-them.html>
- GetSmarter (2022). Can Blockchain Solve Economic Problems? Blockchain and the Economic Problems it Could Solve. <https://www.getsmarter.com/blog/market-trends/the-economic-problem-blockchain-could-solve/>
- Karl, W., Gervais, A.(2016). Ethereum Eclipse Attacks, ETH Library. <https://doi.org/10.3929/ethz-a-010724205>
- Muntaser, N.M., Roma, P., Nigro, G.L., Perrone, G. (2023). Understanding blockchain applications in Industry 4.0: From information technology to manufacturing and operations management. Journal of Industrial Information, 33, 100456.
- Kwok, O.J., Koh, S.G.M. (2020). Neural Network Insights of Blockchain Technology in Manufacturing Improvement. IEEE 7th International Conference on Industrial Engineering and Applications, Proceedings, pp. 932-936.
- Parker, L. (2015). Timestamping on The Blockchain. <https://bravenewcoin.com/news/timestamping-on-the-blockchain/>
- Porru, S., Pinna, A., Marchesi, M., Tonelli, R. (2017). Blockchain-oriented software engineering: challenges and new directions. In: 39th IEEE International Conference on Software Engineering Companion, Proceedings, pp. 169-179.
- Rohith, P., George, B.L., Peterson, O.Y., Beam, D.L., Dibbell, J.M., Moore, R.C. (2019). Blockchain for business. Journal of Investment Compliance, 20(1), 17-21.
- Nakamoto, S. (2009). Bitcoin: A Peer-to-Peer Electronic Cash System. <https://bitcoin.org/bitcoin.pdf>
- Softwaretestinghelp (2023). 10 Best ASIC Miners For Mining Cryptocurrency In 2023. (softwaretestinghelp.com).
- Fernández-Caramés, T.M., Fraga-Lamas, p. (2018). Review on the Use of Blockchain for the IoT. IEEE ACEES.
- Akgiray, V. (2019). The Potential for Blockchain Technology in Corporate Governance. OECD Corporate Governance Working Papers. Paris.
- Zhao, J.L., Fan, S., Yan, J. (2016). Overview of business innovations and research opportunities in blockchain and introduction to the special issue. Financial Innovation, 2(1), 28.
- Zheng, Z, Xie, S., Dai, HN., Chen, X., Wang, H. (2017). An overview of Blockchain technology: architecture, consensus, and future Trends. In: 6th International Congress on Big Data, Proceedings, pp. 557-564
- Zibin, Z., Hong-Ning, D. J. W. (2020). Blockchain Intelligence: When Blockchain Meets Artificial Intelligence. <https://arxiv.org/pdf/1912.06485.pdf>



## Conference Proceedings

Hin, L.H. (2019). Blockchain Economy: The New Era of Digital Economy. IJSRST, 6(4).

Hsu, C.S., Tu, S.-F., Huang, Z.J. (2020). Design of an E-Voucher System for Supporting Social Welfare Using Blockchain Technology. Sustainability, 12, 3362.

Szostek, D. (2019). Blockchain and the Law. <http://dnb.d-nb.de>

Hazari, S.S., Mahmoud, Q.H. (2020). Improving Transaction Speed and Scalability of Blockchain Systems via Parallel Proof of Work. Available at: [https://www.researchgate.net/publication/343246803\\_Improving\\_Transaction\\_Speed\\_and\\_Scalability\\_of\\_Blockchain\\_Systems\\_via\\_Parallel\\_Proof\\_of\\_Work#fullTextFileContent](https://www.researchgate.net/publication/343246803_Improving_Transaction_Speed_and_Scalability_of_Blockchain_Systems_via_Parallel_Proof_of_Work#fullTextFileContent)



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# THE ROLE OF FINANCIAL CONTROL AND MANAGEMENT IN THE PUBLIC SECTOR IN RS

Branka Savić<sup>1</sup>

DOI: 10.5937/EEE24012S

JEL: H00, H61

Review Scientific Paper

### ABSTRACT

*The public sector in the broadest sense of the word implies to all institutions and organizations in which income is generated from budget funds, i.e., those that are "entrusted" with citizens' funds for spending, i.e. revenue collected from the budget users. Financial management and control include all financial and non-financial processes and activities in the business of the entity, and those are performed in all organizational units and on all levels of the entity and include the funds of the entity, including funds obtained from other sources. In accordance with the above, financial management and control include the following interconnected elements, which are defined in accordance with the international standards of internal control: control environment, risk management, control activities, information and communications, monitoring and evaluation of the system. Financial management and control are based on the management accountability at all levels, whereby the heads of the entities are responsible for the establishment and proper functioning of financial management and control in the organization they manage. On the other hand, financial management and control help managers in performing their tasks, i.e. provide support for the organization to achieve its goals by operating in a correct, economical, efficient, effective and public manner.*

### KEYWORDS

*public sector, financial management, control, risk management, information and communication, monitoring.*

## INTRODUCTION

The Law on the System of Internal Financial Controls in the Public Sector of the Republic of Srpska ("Official Gazette of the Republic of Srpska" No. 91/16) is the basis for the financial management and control as a system of internal controls. The system of internal controls establishes and has the responsibility of the entity's manager, who by managing risks, undertakes all activities to achieve the entity's goals, while ensuring that budget and other funds are used legally, economically, efficiently and effectively.

According to this Law, financial management and control is introduced for the purpose of improving financial management and decision-making in the realization of the set goals of the entity, and in particular for:

- conducting business in accordance with laws, by-laws and internal acts,

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- ensuring reliable, complete and timely financial and business reporting,
- proper, economical, efficient and effective use of funds and protection of property, liabilities and other resources from losses that may arise from inappropriate management, unjustified spending and use, as well as from irregularities and fraud.

Financial management and control include all financial and non-financial processes and activities in the business of the entity, which are carried out in all organizational units and at all levels of the entity and include all funds of the entity, including funds obtained from other sources.

In accordance with the above, financial management and control include the following interconnected elements, which are defined in accordance with the international standards of internal control:

1. control environment,
2. risk management,
3. control activities,
4. information and communications,
5. monitoring and evaluation of the system.

## FINANCIAL CONTROL AND MANAGEMENT IN THE PUBLIC SECTOR

The Law on the System of Internal Financial Controls in the Public Sector of the Republic of Srpska is the primary regulation that governs the area of financial management and control and internal audit in the Republic of Srpska, as elements of the system of internal financial controls in the public sector of the Republic of Srpska.

In addition to the Law, by-laws from this area were also adopted, which enabled further activities in the development of the concept of financial management and control in the entities of the public sector of the Republic of Srpska, namely:

- Instructions on the manner and procedure of establishing and implementing the financial management and control system ("Official Gazette of the Republic of Srpska", No. 99/17);
- Rulebook on the content of reports and the manner of reporting on the financial management and control system ("Official Gazette of the Republic of Srpska", No. 112/17);
- Manual for the establishment and development of financial management and control (published on the website of the Ministry of Finance of the RS);
- Standards of internal control in entities of the public sector of the Republic of Srpska (published on the website of the Ministry of Finance of the RS).

The adoption of the Instructions on the method and procedure for establishing and implementing the financial management and control system and the Manual for the establishment and development of financial management and control helps in the practical implementation of the steps required for the establishment of financial management and control in the public sector of the Republic of Srpska.



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The Rulebook on the content of reports and the method of reporting on the financial management and control system prescribes the method and deadlines for reporting by public sector entities to the Ministry of Finance of the Republic of Srpska and the Ministry of Finance to the Government of the Republic of Srpska.

Financial management and control is a system of internal controls that establishes and for which the head of the entity is responsible, and which, by managing risks, provides reasonable assurance that budgetary and other funds will be used legally, economically, efficiently and effectively in achieving the goals of the entity. Financial management and control is distinguished in different ways as a specific area of responsibility in public sector entities. The characteristic of the area of responsibility of financial management and control is reflected in the fact that unlike other significant areas of responsibility of the public sector, such as the budget process, fiscal system, management of the borrowing process, payroll, public procurement and other most commonly established areas of responsibility of public entities sector, financial management and control are embedded in all processes and activities and are the integral part of them.

Financial management and control are based on internationally accepted management principles and control standards. The specificity of financial management and control is that there is no model from a country or entity that could be copied to another country or entity. What is common to all models of financial management and control are common management principles and standards. Each model of financial management and control is the result of understanding and applying a different combination of a large number of internal control standards and the conditions under which they are established and applied.

The public sector of each country differs both in terms of the organization of the entities that build the public sector, and in terms of the regulations, which direct it. Therefore, it is important to know the existing management models in order to be able to make the necessary adjustments to the principles and standards of financial management and control.

Financial management and control are carried out in accordance with international standards of internal control, which also include changes and introduction of new standards.

The Central Unit for Harmonization of Financial Management and Control and Internal Audit (CJH), which is an integral part of the Ministry of Finance, has unified and translated internal control standards with all new details.

Financial control and management are based on internal control standards.

The basic standards of internal control in the public sector, according to which the financial control and management are performed, are integrity and ethical values, professional and expert competences, delegation of authority, mission and goals, planning, risk management, policies and management of control activities, separation of duties and property protection.

In the functioning of financial control and management, the accounting and revision profession have the most important role. From the ranks of accountants and auditors, personnel for coordination and management of financial control are delegated.

No less important is the internal audit and comprehensive audit activity.

Internal audit is an independent, objective opinion and advisory activity that aims to improve the entity's operations and help the entity to achieve its goals by providing a systematic and disciplined approach to evaluating and improving the effectiveness of risk management, controls and management processes.

The internal audit is performed in order to provide an objective professional opinion and advice on the adequacy of the financial management and control system in order to improve the business of the entity.





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Internal audit contributes to the achievement of the entity's goals with the application of a systematic and disciplined approach in evaluating the entity's operations:

- 1) by planning audit work, identifying and assessing the nature and level of risk in connection with each activity at the subject,
- 2) assessing the adequacy and efficiency of the financial management and control system in relation to:
  - a) identification, assessment and risk management by the entity's managers,
  - b) business compliance with laws and other regulations, work instructions, internal acts and contracts,
  - c) accuracy, reliability and completeness of financial and other business information,
  - d) efficiency, effectiveness and economy of business,
  - e) protection of funds and information,
  - f) execution of tasks and achievement of goals, and
- 3) by giving recommendations to the subject for improving the financial management and control system.

Internal audit can have an advisory role for special unplanned tasks initiated exclusively by the head of the entity, whose goal is to improve the management, risk management and control processes, whereby internal auditors are not responsible for the implementation of given recommendations.

The aim and scope of the advisory role referred to in paragraph 4 of this article is being agreed between the head of the entity and the head of the internal audit unit. Internal audit work includes the following stages:

- 1) risk assessment,
- 2) audit planning,
- 3) conducting an audit,
- 4) reporting and
- 5) monitoring the implementation of given recommendations.

Types of internal audit are:

- 1) system audit,
- 2) compliance audit,
- 3) audit of business success (performance audit),
- 4) financial audit, and
- 5) audit of information systems.

An internal audit is performed by an objective assessment of evidence from the internal auditor, with the aim of providing an objective, independent opinion or conclusion related to the process, system or other area covered by the audit.

The basic principles and rules of ethics that internal auditors must apply and respect are:

- integrity,
- objectivity,



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- independence,
- competence (professional qualification) and
- confidentiality.

The basic management principles of the management system and internationally recognized internal control standards include the principles of accountability and transparency.

## ACCOUNTABILITY

Accountability is the process by which organizations and employees are held accountable for decisions and activities, including the management of public funds, as well as for all aspects of work performance, which may be subject to external scrutiny.

Persons in charge of making decisions about the purpose and manner of using public funds are held responsible for insurances of the results of their work which should be measured and that all cases of significant irregularities and possible suspicions of fraud are determined.

Adequate application of the principle of responsibility provides the basis for the application of appropriate sanctions for all established significant irregularities and suspected fraud.

The application of the principle of accountability in the management of public funds, in the most general sense, implies to the responsibility in establishing of such a management model that will ensure on the required hierarchical level that the following goals are defined; strategic, operational and program timely; that output results and indicators of the achieved performance and set goals are identified.; to monitor the realization of performance and goals, and to assess and report on everything on time.

Each activity, program and project of the budget user functions within two systems. One system is the operating system, which is established for achieving the organization's mission and goals. The second system is the control system, which includes the entire operating system, together with policies, procedures, rules and instructions, which ensure the achievement of the goals of the operating system in accordance with the principles of good management.

The control system is particularly important in public sector entities, in which managers in most cases are not in the position personally to supervise everything for which they are responsible.

Therefore, in order to establish an adequate and effective control system through the appropriate degree of delegation of authority and responsibility, managers at all levels in the organization have the following duties:

- To encourage an environment that promotes control - this means that the behavior and attitude of managers towards control should be such that they demonstrate high ethical values and personal standards, integrity, diligence and honesty. Such behavior and attitudes will create an environment that encourages adequate and effective processes in the sphere in which managers have influence.
- To identify risks, i.e. exposure to losses and assess risks related to conducting business - this means to identify exposure to losses with respect to each activity, department and/or system in a specific public sector organization. The exposure is evaluated after in relation to the impact it will have on the organization and the likelihood of occurrence. Managers make decisions about controlling that exposure, balancing risk and controls and taking into account the costs of implementing controls.



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- To design and establish a "basic operations infrastructure" - which includes the organization, policies, procedures and standards, plans and budgets that address the identified exposure and reduce it to an acceptable level.
- To design and execute control processes that direct employees to perform tasks in a way that enables the achievement of positive results.
- To design and implement continuous monitoring programs in order to determine the effectiveness through which the control processes achieve the planned purpose, and to report on this.
- To constantly improve techniques in the area of the financial management and control system and perform regular audits of procedures and systems that must be in line with current trends and recommendations from the European Commission".

The frequency and scope of the audit of the control system is established by the head of internal audit in the organization in the public sector, based on the risk assessment and in agreement with and with the approval of the head of the organization in the public sector.

## TRANSPARENCY

Another internationally accepted management principle is transparency. The organization should establish a transparent management model that will enable all interested parties to access information that is important to them.

For the implementation of the principle of transparency, it is of great importance that decision makers ensure the identification, preparation and timely publication and access of all relevant information to interested users. Given that public sector entities use taxpayer funds in their work, they are obliged to make their work and the results of their work available to the public as the end user of services.

The transparency of the way public sector entities are managed and the availability of the services they offer through their mission and reasons for existence should ensure to the interested public that information. It should be based on the quality and availability of services that are evaluated, as well as the effectiveness of the management model and the level of achievement of the set goals of the public sector entities.

## CONCLUSION

With the adoption of the Law on the System of Internal Financial Controls in the Public Sector of the Republic of Srpska, in 2016, assumptions were made for a more significant development of the system of financial management and control in the public sector of the Republic of Srpska.

Key points related to financial management and control include the following:

- Financial management and control affect all aspects of the organization in the public sector (all employees, processes, activities, programs and projects in the organization);
- Represent a basic element that runs through the entire organization, and not an additional part of the organization;



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- Imply the quality of good management;
- They depend on employees; they can be successful or unsuccessful, depending on the attention of the employees;
- Are effective only if all employees and the environment work together;
- Provide reasonable assurance regarding the likelihood that organizations in the public sector will achieve their goals;
- Help organizations in the public sector achieve their mission.

All employees in an organization in the public sector are responsible for internal control. However, the key responsibility rests with the head of the organization over the internal control system.

Especially important financial managers and their employees, whose control activities are intertwined, in the direction of management and towards other organizational units.

People responsible for financial management and control are of special importance, who, with their knowledge and activities, need to establish financial control in a way that serves to achieve the goals of the organization. Of course, their activities are intertwined with the activities of internal auditors and accountants. Therefore, the person responsible for financial management and control must have knowledge about the operations of organization and goal of the employees and institution. This person will be responsible for coordinating activities related to the establishment and development of internal control and is appointed by the head of the organization. This responsibility is in addition to the usual duties of the appointee, and is aimed at improving the management of the institution.

All employees are responsible for the efficient execution of the tasks assigned to them. Practically, all employees prepare certain information that can be used in the internal control system, that is, they undertake the actions necessary for the implementation of the control. In addition, all employees are required to notify their superiors of any problems, failures, errors, weaknesses in activities and operations, non-compliance with rules and procedures, or other violations of policies or illegal actions.

The Central Unit for Harmonization in the Ministry of Finance has a special place in the financial control system. The general mission of the Central Harmonization Unit is to coordinate and harmonize the methodology and guidelines related to financial management and control, and internal audit, at the level of the entire public sector. The role and functions of the Central Unit for Harmonization are detailed in the Law on the System of Internal Financial Controls in the Public Sector of the Republic of Srpska.

Internal auditors play an important role in assessing the adequacy and effectiveness of the control system, and contribute to the ongoing effectiveness of that system. Considering the organizational position and powers that the internal audit function has in the organization in the public sector, it often plays an important role in the process of monitoring and evaluating internal control.

## REFERENCES

Ministry of Finance of Republic of Srpska (2011). Finance managing and control. Banja Luka.

Ministry of Finance of Republic Srpska (2018). The Handbook for establishing and finance management and control developing. Central Unit for Harmonization, Banja Luka.



## Conference Proceedings

Ministry of Finance of Republic Srpska (2017). The Code of professional ethics for internal auditors in the public sector of Republic of Srpska. Banja Luka.

The Law on System of Internal Finance controls in the Public Sector of Republic of Srpska. "Official Gazette of Republic of Srpska", No. 91/16.



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# EFFICIENT MARKETING COMMUNICATIONS OF ENTREPRENEURSHIP, SHAPED BY THE SEMIOTICS

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DOI: 10.5937/EEE24013K  
JEL: M21, M31, M37  
Review Scientific Paper

### ABSTRACT

*Effective advertising of entrepreneurship is important for its quality and development. Semiotics (the science of sign systems) can help a lot in this respect. One of the main reasons for this is that every semiotic concept is also an efficient communicative approach or a communicative strategy. In this article, its author analyses advertising of entrepreneurship from the standpoints of four semiotic branches - alphabetic, semantics, syntactics and pragmatics. Visual metaphors are central part in these analyses - due to the fact, that the adpersons produce more than 90 percent of creative ads with their help. Ad appeals are the most important part of marketing pragmatics. The author thoroughly studies the eco appeals and the appeals for support (assistance), that are some of the most significant for entrepreneurial marketing communications. The article is important from the perspective of entrepreneurial advertising and provides valuable practical advice on how the adpersons can use semiotic concepts as effective communicative approaches and strategies.*

### KEYWORDS

*business, semiotics, alphabetic, semantics, syntax, pragmatics, visual metaphor, advertising appeal*

## INTRODUCTION

Entrepreneurial advertising, often referred to as entrepreneurial marketing, is a dynamic approach that blends innovative marketing strategies with entrepreneurial thinking. This perspective is particularly valuable for small and medium enterprises (SMEs) that may lack the resources for traditional marketing methods. Entrepreneurial marketing places a strong emphasis on understanding and engaging with customers. Namely, unlike traditional marketing, which can be rigid and slow to change, entrepreneurial marketing is highly adaptable. Entrepreneurs can quickly pivot their strategies in response to market feedback and emerging trends. In line with this, leveraging the latest technologies and digital tools is crucial. This includes using data analytics to understand customer behavior, employing AI for personalized marketing, and utilizing digital platforms for broader reach (Radović-Marković et al., 2024).

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By adopting these principles, entrepreneurs can effectively navigate the challenges of the modern business environment and create impactful advertising campaigns that resonate with their target audience.

A marketing war comes from comparative advertising which is one company specifically mentioning a competitor by name for the express purpose of showing why the competitor's product is inferior to the product naming it. We also see that many companies over the years have waged in marketing wars, but one to take note of and still ongoing is the battle between Apple and Microsoft. We also see how Apple began this marketing war with a full front onslaught comparing Microsoft to being in the dark ages. Microsoft has met Apple blow for blow, and both companies have grown and tired making the most innovative product. One of the most important components of marketing strategies in SMEs is necessity to evaluate business goals weekly, monthly, quarterly and annually. This will give consistent information we can follow and allow us to make any adjustments along the way that we may need to ensure success, (Radović-Marković et. al., 2011).

Entering the third world market offers exponential room for growth as the country continues to develop and modernize; however, this also offers several challenges. The "developing" world still does not adhere to western ideals. So, products that may sell in the United States may not be as successful elsewhere. For example, Coca Cola had to invest a lot of time and money in marketing in Asia as, culturally, cold beverages are thought to cause illness. While it was worth it for them, it just as easily could have failed.

Accurate marketing communication is essential for building trust, ensuring customer satisfaction, minimizing errors, making informed decisions, enhancing brand reputation, and driving sales and growth.

## LITERATURE REVIEW

### Entrepreneurship Theory

The authors of the book "Entrepreneurship and Work in the Gig Economy -The Case of the Western Balkans" analyse companies during the COVID crisis. According to the authors, the firms' competitiveness depends on a large extent on their digital culture and skills, on the introduction of various educational programs and the interaction between industry and virtual universities (Radović et al., 2021).

The authors of the book "Entrepreneurial Perspective of Homestay Operators: A Qualitative Study from Emerging Tourism Industry" examine important aspects of tourism homestay operators in Sarawak, Malaysia. A key finding in this case is the following - for these operators the hospitality and of social connectedness dominate over the wish of economic profit. This is a typical example of not-commercial hospitality and of the host families' strong connection to their positive culture (Shoaib and Marković, 2017).

John Bessant and Joe Tidd study in their book "Entrepreneurship" the concept of "successful entrepreneurship" from the perspectives of business communicators, creativity, innovation, convergent thinking, etc. Some of the main highlights of the book are about "entrepreneurial thinking", "venture financing", "financial resources", "financial relationships", business model, business plan, competition, crowdsourcing, etc. (Bessant and Tidd, 2018).

Identifying business opportunities, creating an enterprise, financing and managing it, are some of the most important concepts in the book of Anil Kumar "Entrepreneurship Development". The author also



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analyses important aspects of concepts “social responsibility”, “business ethics” and legal aspects of entrepreneurship (Kumap, 2008).

Scott Shane - the author of the book "A General Theory of Entrepreneurship. The Individual-opportunity Nexus" evaluates in depth the different elements of the entrepreneurial process. The author focuses on the professional competences of people who are engaged in it. “Entrepreneurship” and the “entrepreneurial practice” are some of the most important concepts in this book (Shane, 327).

In his article "Entrepreneurship theory, process, and practice in the 21st century" Donald Kuratko analyses key aspects of entrepreneurship education. The author explores some significant achievements in this regard. He also analyses three important components in relation with entrepreneurship education (Kuratko, 2011).

The characteristics of entrepreneurship vary across cultures. Stephen Roper in his book "Entrepreneurship. A Global Perspective" explores in depth entrepreneurship from an intercultural perspective. Due to this, the book is very useful for entrepreneurs from different cultures. With its help they can better understand their counterparts from other cultures and due to this, to be more effective (Roper, 2012).

"The Handbook of Research on International Entrepreneurship” is also quite useful from an intercultural perspective. Its authors are some of the best-known experts in the field of intercultural entrepreneurship. They analyse the different cultural characteristics of entrepreneurship in China, Canada, Sweden, Israel and some other countries (Dana (Ed.), 2004).

## Theory of Semiotics

M. Faizan in his article "The Role of Semiotics in Advertising: Communicative Approach" analyses the books of two of the world's leading semioticians - Ferdinand de Saussure and Charles Peirce and how the adpersons can apply the main concepts from these important semiotic theories in advertising (Faizan, 2019).

M. Džanić in his article "The semiotics of contemporary advertising messages: decoding visuals" examines key aspects of denotation and connotation. Some of the highlights are about the transformations of denotation into connotation in advertising and about the signs with mythological meaning (Džanić, 2013).

G. Mick in his article "Toward a Semiotic of Advertising Story Grammars" explores chief aspects of the theory of narratives, their basic components, their structure, and their application into TV commercials (Mick, 1987).

The book of C. Goddard "Cross-linguistic Semantics" explores how the representatives of different cultures interpret (actualise) one and the same extra-linguistic phenomenon depending on their different national characteristics. The adpersons can use the same approach in advertising. The reason is that adpersons communicate one and the same good differently – depending on the heterogeneous consumers (Goddard, 2008).

## RESEARCH AND MARKETING COMMUNICATION OF ENTREPRENEURSHIP

Marketing communications begin with research about the values and other important phenomena of relevant goods (service, object or idea) for its customers. Good example in this respect is the service



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Kimola Cognitive – a tool for customer feedback analysis. It examines online the feedback in 26 languages and helps companies to develop their business, using valuable information about their customers.

In this case, the creative adpersons used this research method to build the company's ad campaign. It is entitled “We are all researchers.” and the campaign had been launched in 2023 in Turkey and in the US. This title highlights the company's commitment to provide research not only for big, but also for small and medium-sized enterprises.

The adpersons based each decision on thousands reviews in the World Wide Web – for example:

- choosing the perfect dress - in Etsy,
- discovering the best Sunday breakfast bakery - in Tripadvisor,
- choosing the best vacation home - in Airbnb, etc.

The researchers have collected the information about the best ski resort from Booking.com (Figure 1).



Figure 1. Collected informations from Booking.com

## ENTREPRENEURSHIP' BRANDING

Marketing communicators start to brand the goods after they gathered and analysed the relevant information. Branding means that they create the permanent signs (the communicative constants) for the respective company.

For example, Coca Cola's communicative constants are the red colour, the specific logo, the shape (design) of the bottle, Santa Claus, polar bears and some others.

The following images are good examples about branding signs for entrepreneurial summit.

We can analyse the brand signs of this summit from the standpoints of:

- semiotics;
- narratives;
- archetypes;



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- consumer psychology;
- technology, etc.

From the point of view of semiotics, the main signs in this case are:

- the specific font;
- the metaphorised lamp (both a sign of creativity and of technology)
- the specific blue and orange colours;

The designer demonstrated how these signs look on different ad vehicles - badges, bags, mugs, etc. The designer also must show how the permanent signs (communicative constants) will look on electronic media - lap tops, tablets and mobile phones.

It is excellent that the designer has also branded the billboard (the glorification place) - against which the participants take pictures and therefore glorify themselves.

This is the most important place of summit in terms of heroic narratives and heroic myth theories. It transforms the ordinary participants into almost exceptional beings, ascribing to them the semi-divine status.

## ADVERTISING AND MARKETING COMMUNICATIONS OF ENTREPRENEURSHIP FROM THE STANDPOINTS OF SEMIOTICS

The branding is the basis for the creation of advertising and other marketing communications. We can analyse them from different perspectives - in this case, from semiotics' standpoints.

Semiotics is the science of sign systems and some scientists structure it in 4 parts:

- **Alphabetic** – it analyses the different sign systems (natural signs, colours as a sign system, animals as a sign system, etc.) and the structure alphabets of these different and numerous signs.
- **Semantics** – it analyses semantic concepts (semantic field, zero morpheme, intertextuality, diachrony/synchrony, semiotic translation, liminality, continuum, etc.) and stylistic figures (similes, metaphors, metonymies, hyperboles/litotes, personifications, etc.).
- **Syntactics** – it analyses the numerous connections of signs, the texts, the contexts, etc.
- **Pragmatics** – it studies people's attitudes to reality and the different signs for one and the same thing - depending on our changed attitudes to it.

The key thing in this case is that every semiotic concept can also an efficient communicative approach or strategy.

A typical example in this respect is a poster for annual start-ups' summit in Athens (Figure 2).

The artist created the poster on the basis of some concepts form alphabetic and semantics:

From the perspective of alphabetic - the owl is part of sign system of animals and from a Greek and European perspective it signifies wisdom.



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From semantic point of view, this owl is a typical metaphor because the artist attributed technological features to it - the signs for postmodern start-ups.



Figure 2. Poster for annual start-ups' summit

Metaphor is the most common (frequent) stylistic figure of transfer. With its help we transfer (attribute) characteristics of one thing to another on the basis of similarity. At the same time, this metaphorised owl is also a typical example of semantic notion "synchrony/diachrony".

"Synchronic" is the contemporary part of the owl – the metaphorized technological half. Diachronic (historical) is the classical part of the owl – as probably the artists depicted this bird during ancient Hellenic civilization.

All this proves the fact that the adpersons use semiotics to create highly effective marketing communications.

Visual metaphor is the most common stylistic figure in creative ads. Probably more than 90 percent of them are created with the help of visual (pictorial) metaphors.

A typical example in this respect is a print advertisement (print, ad) with the following headline "Communicating the social role of a business between sustainability and prosperity" (Figure 3).



Figure 3. "Communicating the social role of a business between sustainability and prosperity"

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The ad communicates company that combines financial success with ecology. The ad persons expressed financial success with an ascending abstract graph of success that metaphorically grows (continues) into a green tree. It stands as sign for the ecology and sustainability.

In an ad for another environmentally friendly company, the ad persons used personification (Figure 4).

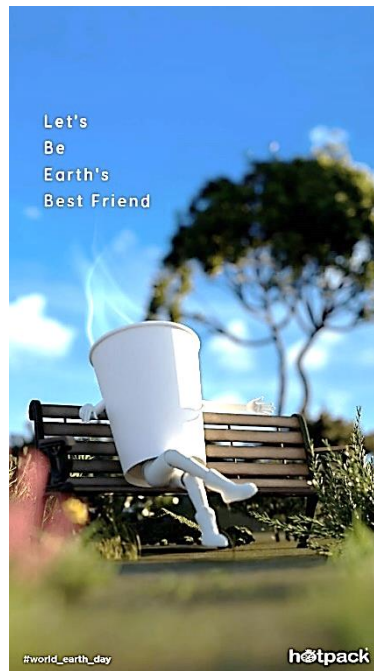


Figure 4. Personification

Personification is the stylistic figure by which communicators attribute characteristics of people to inanimate phenomena (things). The artist ascribed to a paper cup characteristics of man sitting on bench. The reason is that the company Hotpack – the manufacturer of these cups, produces sustainable and environmentally friendly packaging. The ad also expressed the Earth Day.

## COMMUNICATIVE STRATEGIES FROM STANDPOINTS OF SYNTACTICS

Syntactics studies the various and multiple connections of signs and the texts. Context (what surrounds the signs) is also important syntactic concept.

We can use connections and context as communicative approaches. One of the most common syntactic strategies is that of Ambient. Ambient is ad communicative strategy that is based on environment.

Ad agency Bud executed a green campaign for Shri Vinayaka Enterprises with the help of biodegradable posters with eco-friendly straws across Bangalore (Figure 5). This company used biodegradable posters with eco-friendly straws in juice shops in Bangalore.

The consumers took the straws from the posters to drink the juices. The straws' ad campaign is ambient because it happened in the context of juice shops.



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Figure 5. Green campaign for Shri Vinayaka Enterprises

## COMMUNICATIVE STRATEGIES INTO THE FRAME OF PRAGMATICS

Pragmatics is the fourth semiotic unit. Ad appeals are one of the most important constituents of marketing pragmatics because they express the attitude of customers towards reality. Ad appeal is the basic motivational drive that attracts the customers to the advertised goods.

In the previous ads (prints), the main appeals were these of ecology. They are of key significance to all post-modern businesses, including the entrepreneurial sector. Other important appeals are these of support.

Egyptian ad in traditional media and in social media (Figure 6) demonstrates how to help microenterprise owners to grow their businesses and to contribute to the development of Egyptian economy.



Figure 6. Egyptian ad in traditional media and in social media



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# FINDINGS AND CONCLUSIONS

Accurate marketing communications are important for the effective enterprises. We can create effective marketing communications with the help of semiotics. The reason is that semiotics is by no means an abstract and difficult to understand academic discipline, however quite friendly and easy to understand practical science. Every semiotic concept is both a communicative approach or even a communicative strategy. That is why the experienced communicators and entrepreneurs can use semiotics to create effective ad campaigns. The eloquent proofs of this are the ads in this article.

## REFERENCES

- Bessant, J. R., Tidd, J. (2018). *Entrepreneurship*. Wiley, Hoboken.
- Dana, L. P. (ed.). (2004). *Handbook of Research on International Entrepreneurship*. Edward Elgar Publishing Inc, Cheltenham Glos.
- Džanić, M. (2013). The semiotics of contemporary advertising messages: Decoding visuals. *Jezikoslovlje*. 14(2-3), 475-485
- Faizan, M. (2019). The Role of Semiotics in Advertising: Communicative Approach. *Language in India*, 19(2), 135 – 142
- Goddard, C. (2008). *Cross-linguistic Semantics*. John Benjamins Publishing Company, Amsterdam.
- Kumap, S. A. (2008). *Entrepreneurship Development*. New Age International, New Delhi.
- Kuratko, D. F. (2011) Entrepreneurship theory, process, and practice in the 21st century. *International Journal of Entrepreneurship and Small Business*, 13(1), 8-17.
- Mick, D. G. (1978). Toward a Semiotic of Advertising Story Grammars. *Marketing and Semiotics: New Directions in the Study of Signs for Sale*. pp. 249-278. <https://doi.org/10.1515/9783110853254.249>
- Radović Marković, M., Djukanović, B., Marković, D., Dragojević A. (2021). *Entrepreneurship and Work in the Gig Economy – The Case of the Western Balkans*. Routledge, London.
- Radović-Marković, M., Ouyang , Y., Kabir, M. S. (2024). *Globalization and Entrepreneurship: Cases from China, Japan and Bangladesh*. Routledge, London. Forthcoming.
- Radović-Marković, M., Grozdanić, R. (2011). Managing communication in changeable business environment. In book: "Organizational behaviour and culture: Globalization and the changing environment of organizations", VDM Verlag Dr. Müller, Saarbrücken (pp 49-73.)
- Roper, S. (2012). *Entrepreneurship. A Global Perspective*. Routledge, London.
- Shane, S. (2003). *A General Theory of Entrepreneurship. The Individual-opportunity Nexus*. E. Elgar, Cheltenham Glos.
- Shoaib, F.M., Radović Marković, M. (2017). *Entrepreneurial Perspective of Homestay Operators: A Qualitative Study from Emerging Tourism Industry* (pp. 55-70). Compass Publishing, Manchester.



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# FORENSIC ACCOUNTING - THE RESPONSE OF THE ACCOUNTING PROFESSION TO THE FALSIFICATION OF FINANCIAL STATEMENTS

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DOI: 10.5937/EEE24014C  
JEL: M41, M42  
Review Scientific Paper

## ABSTRACT

*Financial statements, as the final product of the accounting process, should present information that provides an objective view of the financial position and performance in accordance with applicable legal and professional regulations. Users of financial statements expect to find reliable, objective, and truthful data to realistically assess the financial and profitability position of a given business entity. In the modern business world, where financial statements are the basis for making key business decisions, the transparency and accuracy of these statements become crucial. However, financial reporting is susceptible to manipulations and illegal activities, resulting in false reports. Numerous accounting frauds have seriously shaken the trust of investors and the accounting public in the quality and reliability of financial reporting, dealing a severe blow to the accounting profession. As a response to numerous accounting frauds, forensic accounting has developed as a separate branch of accounting. This is a specialized discipline that provides solutions for investigating falsified financial statements. The aim of this paper is to highlight the role and importance of forensic accounting in detecting and preventing anomalies in financial statements. The key role of forensic accounting in preserving the integrity of financial statements and protecting the interests of all stakeholders is the main topic of this paper.*

## KEYWORDS

*financial statements, falsification, fraud, forensic accounting*

## INTRODUCTION

Financial statements are an important and indispensable source of information for a large number of users (state institutions, investors, creditors, business partners, employees, the general public, etc.) in the decision-making process. Their primary purpose is to present objective, relevant, reliable, and comparable financial information about the operations of a business entity, given that numerous users of financial statements make important investment and business decisions based on the information

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contained in them. The quality of these decisions is highly correlated with the quality of financial reporting. Financial statements should be prepared and presented in accordance with legal and professional regulations because they represent the "blood picture" of the reporting entity/company. They show how healthy a company is, its ability to grow, and continue its operations successfully. On the other hand, they indicate the segments of the business where there are problems, based on which certain business decisions should be made to overcome current difficulties and continue to achieve business goals permanently.

Since financial statements provide users with information about all aspects of the business, many authors agree that financial statements are the "identity card" of a company in terms of building its financial reputation throughout its business life. If the reports are prepared in accordance with applicable legal, professional, and internal regulations, they present an objective picture of the company, allowing users to make high-quality business and financial decisions. However, due to different goals and motives of the individuals involved in the financial reporting chain, this picture can often be distorted. Management, responsible for preparing financial statements, uses these reports to increase or decrease financial results. Manipulations with data in financial statements and accounting documentation negatively affect the quality of financial reporting. At the same time, financial statements are a valuable resource in the fight against financial manipulations.

Research results by ACFE (Association of Certified Fraud Examiners)<sup>1</sup>, show that companies lose 5% of annual revenues due to fraud. According to this research, the three main forms of fraud are embezzlement, corruption, and financial statement falsification. Analysts of this association believe that although financial statement falsification is the most sophisticated and rarest (around 9%) form of fraud, it is also the most harmful. According to this research, even 12% of fraud perpetrators are employed in the accounting sector (ACFE, 2022). The precise amount of losses and frequency is difficult to determine because many frauds are not identified or discovered. False financial reporting is always a fraudulent act, while not every fraud is related to financial statement falsification, as some frauds leave no trace in accounting documentation.

The fact that financial statement frauds are the least detected indicates that the process of uncovering and especially preventing this type of fraud, which individually creates the greatest financial loss, is very important for both business entities and the broader social community of each country due to the possibility of financial losses spreading. Falsifying financial statements can lead to loss of investor confidence, falling stock values, legal sanctions, and damaging business reputation, causing severe consequences for companies, investors, and the entire economy.

Numerous corporate scandals at the end of the 20th and the beginning of the 21st century, such as the cases of Enron, WorldCom, and Parmalat, have highlighted serious shortcomings in traditional accounting and auditing practices, emphasizing the need for experts who can recognize and investigate complex financial statement manipulation schemes. As a result, forensic accounting has become a key component in preserving the integrity of financial markets and protecting investor interests. It is an interdisciplinary field that combines accounting, auditing, and legal skills to identify and analyze financial fraud. Forensic accountants use sophisticated techniques and methods to detect irregularities in financial statements, analyze complex transactions, and collect evidence that can be used in court

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<sup>1</sup> ACFE (Association of Certified Fraud Examiners) is an independent, scientific and professional multi-disciplinary society covering a large number of forensic disciplines or similar fields including forensic accounting. With more than 85,000 members worldwide, the association has contributed to the development of the accounting profession by providing professional members with independence, objectivity and integrity when analyzing financial statements. The organization's headquarters is in Austin, Texas, and it was founded in 1988 (you can learn more about the organization itself on the official website <https://www.acfe.com>)





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proceedings. Their expertise is crucial for uncovering frauds that can have far-reaching consequences for companies and the wider economic community.

## IMPORTANCE AND DETERMINANTS OF THE QUALITY OF FINANCIAL REPORTING

The foundation of financial reporting worldwide consists of the balance sheet and the income statement as traditional reports.<sup>1</sup> In Serbia, in addition to these two reports, legal regulations mandate several other reports. Financial statements are prepared to provide information about the financial position (balance sheet and statement of changes in equity), business results (income statement, cash flow statement, and statement of changes in equity), and cash flows (cash flow statement) to a large number of different users. Financial statements also show how well management has managed the resources entrusted to them by shareholders. The primary responsibility for the accuracy of financial statement presentation lies with the company's management.

According to the Framework of International Financial Reporting Standards, the primary goal of accounting is to "provide information about the company's ability to generate cash and cash equivalents, as well as information about assessing the timing and certainty of cash generation" (IASB: 7). When considering the objectives of financial reporting, the basic purpose of financial statements and the financial information they provide is taken into account. The primary goal of financial reporting, and therefore accounting, which compiles and presents financial statements as the final result of its work, is to make all transactions that occur in the company's business transparent and to clearly present their effects on the company's property, financial, and profit position in the financial statements (Škarić-Jovanović, 2007).

The significance of financial statements stems from the fact that the accounting system, within which financial statements are produced, is the only complete system of numerical analysis about the company. Of course, this does not mean that the accounting system is the only source of information or that accounting information is the only important one. It means that these are the only complete reports that are prepared regularly and have a public character, thus being available to a broader circle of users (Šljivić et al., 2023).

The basic assumptions on which financial reporting is based today are:

- the occurrence of a business event (the accrual basis requires that the consequences of all actual business events be recognized in the financial statements, which are accounted for in the period when the business transaction occurred) and
- the going concern of the business entity (in the financial reporting process, it is assumed that the company will continue to operate, and if there is no evidence for continuity, this fact must be highlighted) (Stančić, 2007).

The primary purpose of financial reporting is to create information useful for making financial decisions. Primarily, it considers the decisions of investors, creditors, and other users (Stefanović, 1995, p.723). They have different informational needs depending on the nature of the decisions they make based on the received information. Investors are interested in forming a portfolio composed of investments that

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<sup>1</sup> According to Article 29 of the Law on Accounting, financial statements include: balance sheet, income statement, statement of other results, statement of changes in equity, statement of cash flows and notes to financial statement ("Sl. glasnik RS", br. 73/2019 i 44/2021 - dr. zakon)



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direct capital to areas of its most profitable use. Creditors need information to monitor whether their loans and associated interest will be serviced on time. Suppliers and other creditors must have insight into the business entity's ability to meet its obligations on time. Governments and their agencies use information on business operations to define tax policies and conduct numerous statistical analyses. Finally, the public is interested in the trends and development of the business entity, which contributes to the development of the local economy through its activities (Hajnrih, Suljović, 2010).

The quality of financial reporting necessarily relies on the professional ethics and education of the profession, i.e., professional accountants. Financial reporting is the most efficient way to indicate the financial position of the company and the success of its operations to various users. To meet the diverse informational needs of numerous users, financial statements, in accordance with the provisions of the Conceptual Framework for Financial Reporting of the International Accounting Standards Board (IASB), must have qualitative characteristics. These characteristics, which the information contained in them should have to be considered useful for decision-making, are categorized according to the Conceptual Framework for Financial Reporting into two categories (Dimitrijević, 2013:

1. Fundamental qualitative characteristics, which include relevance and reliability, and
2. Enhancing qualitative characteristics, i.e., characteristics that enhance the fundamental qualitative characteristics, which include comparability, verifiability, timeliness, and understandability.

These characteristics of accounting information are one of the key reasons for the significant informational importance of financial statements. Their use value is indisputable not only for internal management needs but also for external users (primarily investors), the capital market, and the national economy. The quality of financial reports refers to the accuracy, completeness, relevance, and transparency of information and can be defined as the degree of divergence (distance) of the information contained in the reports from economic reality. Poor quality reporting causes numerous harmful consequences, with the most affected being: the owners and shareholders of the company; creditors; employees; the state; the capital market; the national economy; and the accounting and auditing profession in terms of loss of credibility and trust. A low level of trust in the reliability and objectivity of financial reporting discourages investors and increases their caution, which significantly reduces the efficiency of financial markets and the national economy.

## FALSE FINANCIAL REPORTING

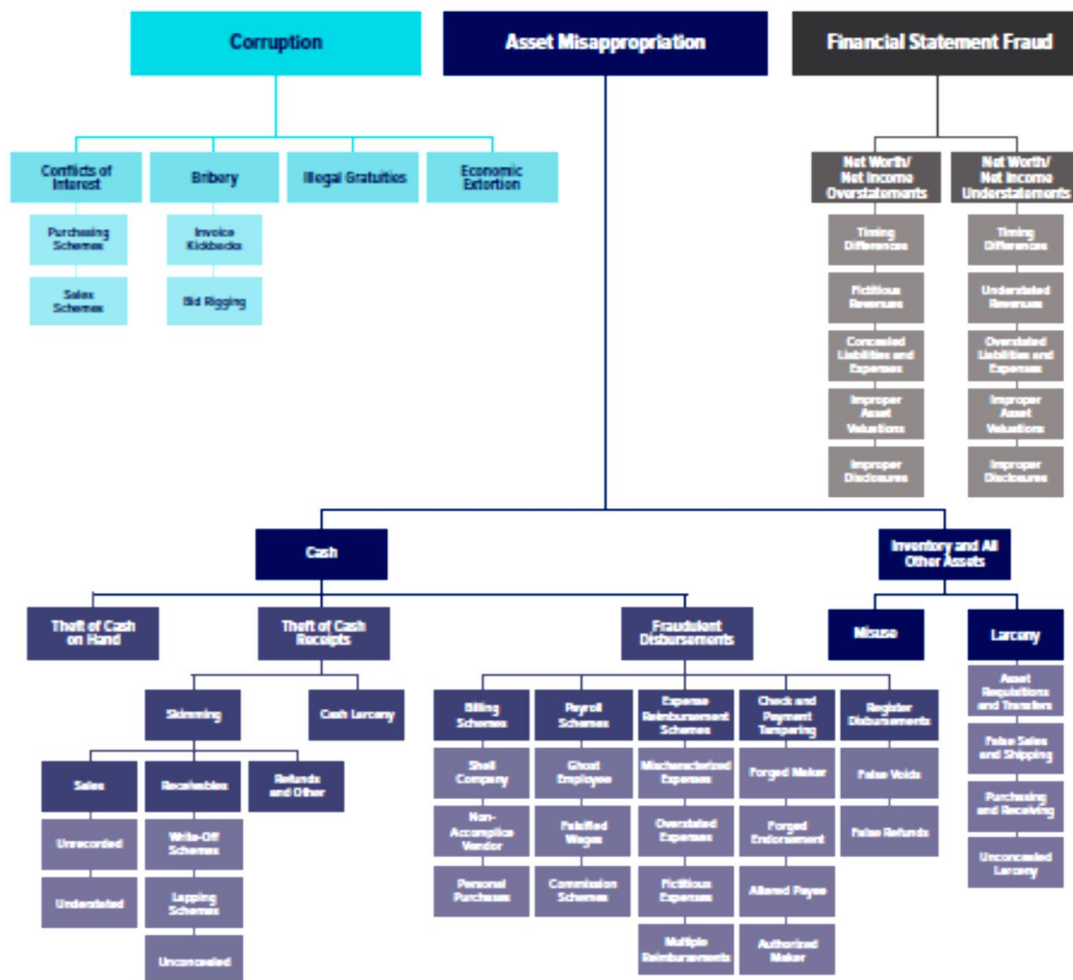
From the perspective of researching false financial reporting, the conceptual definition of fraud and its categorization is particularly significant for understanding it. Fraud encompasses a wide range of manifestations characterized by intentional deception or misrepresentation, aiming to achieve unlawful gain for an individual or organization, where the perpetrator of the fraud can be either outside or within the organization. Regarding fraud, there are many different definitions in the literature. One of them is that "fraud in the business environment is intentional deception, misuse of the company's assets, or manipulation of its financial data for the benefit of the perpetrator." Fraud can also be defined as "an intentional act that results in material misrepresentation" (Knežević, et al., 2019). In general terms, fraud is the intentional manipulation of the truth for financial, material, or personal gain. It is widespread in many parts of the world and exists even in those areas where people are generally considered to uphold high ethical standards. Any society or organization can be affected by fraud, with the potential to lose

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assets and reputation as a result of improper actions by its own employees and external parties. There is no society or organization that has entirely eradicated fraudulent actions.

Research conducted by the Association of Certified Fraud Examiners (ACFE) shows that businesses in a significant number of countries worldwide and the global economy face three forms of fraud: corruption, asset misappropriation, and fraudulent financial reporting (ACFE, 2022). ACFE has presented a classification of occupational fraud that takes on a characteristic shape known as the "fraud tree" (Picture 1), which depicts the types of fraud within a business entity or the criminal scheme of occupational fraud. This model categorizes fraud into categories, subcategories, and micro-categories.

Picture 1. Categories of Occupational Fraud(The fraud tree)



Source: ACFE Occupational Fraud, 2022

The ACFE, aside from categorizing occupational fraud by its forms, has also provided unique characteristics for the three main categories of fraud to facilitate the application of audits and investigations of fraudulent activities, as well as programs aimed at their prevention. Occupational fraud involves using one's professional position for personal enrichment through the deliberate misuse of an organization's resources or assets, and it can be committed by management or employees. In essence, occupational fraud encompasses four basic categories: secrecy, breach of fiduciary duties by employees



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within the organization, obtaining direct or indirect financial benefits by employees, and ultimately causing harm to the organization itself.

The "fraud tree" branches into three key types of fraud: corruption, asset misappropriation, and fraudulent financial reporting. Within each of these categories, there are specific subcategories. Under corruption, we identify bribery, conflicts of interest, illegal gratuities, and economic extortion. Asset misappropriation includes various forms of fraud such as cash theft, fraudulent disbursements, inventory fraud, equipment fraud, inventory theft, sales fraud, and asset misuse. A distinct type of occupational fraud is fraudulent financial reporting, which most commonly manifests in five interrelated forms (Wells, 2004):

- fictitious revenues;
- improper timing differences;
- concealed liabilities and expenses;
- improper disclosures; and
- other techniques of fraudulent financial reporting.

All previously mentioned categories and forms of fraud are subject to investigation by various forms of control (internal and external audit, forensic accounting, governmental tax authorities, etc.), and each type of fraud has its severity and damage it causes. However, in this paper, greater attention will be directed towards fraudulent financial reporting, as it is the most frequently investigated form of fraud.

Fraudulent financial reporting involves the intentional misrepresentation or omission of amounts or disclosures in financial statements to mislead financial statement users, which can result in administrative, civil, and criminal proceedings. Fraudulent financial reporting has existed as long as financial reporting itself. Manipulative or fraudulent financial reporting has been a long-standing issue that has escalated in recent times. Financial statement fraud, or fraudulent financial reporting, is the most sophisticated and rare (about 9%) form of fraud but simultaneously the most damaging. According to this research, 12% of fraud perpetrators are employed in the accounting sector (ACFE, 2022).

According to international auditing standards, fraudulent financial reporting constitutes a criminal act characterized by the intentional misstatement or omission of certain data or disclosures in financial statements (Škarić-Jovanović, 2011). The American Institute of Certified Public Accountants (AICPA) defines fraudulent financial reporting as "intentional inaccuracies or omissions of amounts or disclosures in financial statements to deceive financial statement users" (Dimitrijević, 2015).

From the perspective of investigating financial statement fraud, so-called creative accounting is of particular significance for understanding these frauds. Creative accounting involves using or abusing accounting techniques and principles to present financial results that deliberately deviate from fair and true representation (Oregon, 2006). In practice, creative accounting usually has negative connotations such as „tax smoothing“, „earnings management“, „financial statement forgery“, „cosmetic accounting“, or financial engineering (Knežević et al., 2013).

The fraud tree clearly indicates that there are two subcategories of schemes related to financial statements: financial (high frequency) and non-financial (low frequency). Due to their frequency, it is necessary to explain the financial subcategory in more detail. This subcategory can have five schemes (Singleton, 2010):

1. **Timing differences (improper revenue recognition)** – methods to create schemes for this method and overstate revenues include:



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- Channel stuffing – if there is excess inventory, it is shipped out and treated as sold inventory (even though it is known in advance that the goods will be returned in the next period);
  - Directing excess inventory to individuals who conduct sales;
  - Premature revenue recognition – when there is a long-term contract, the entire revenue is recognized immediately, affecting the financial status of future years. This often leads to non-compliance with generally accepted accounting and other principles.
2. **Fictitious revenues** – this scheme involves recording sales that never occurred and thereby revenue that can include actual or fictitious customers. As a result, income, profit, and assets increase. The most common criminal activities of these schemes are used in insurance companies where they create fictitious insurance policies in large quantities and amounts.
  3. **Concealed liabilities (improper recording of liabilities)** – in this scheme, liability recording is delayed. This way, the current year shows fewer expenses, while the incurred liability is recorded in the first month of the following year. Therefore, checks of timing differences and invoice reviews with dates from the year under audit, but recorded in the first month of the next year, are common; also, checks if the company has transferred liabilities to independent entities where no audit is conducted or is conducted by another audit firm to conceal the criminal activity. Companies with branches worldwide often resort to this scheme.
  4. **Improper disclosures** – if the board of directors is unaware of connections with special purpose entities or if some obligations are "accidentally" omitted, criminal activities executed by management can be concealed.
  5. **Improper asset valuation** – "increasing the quantity of assets (mainly through receivables, inventories, and long-term assets), capitalizing expenses or reducing certain accounts (provision for doubtful and disputed receivables, depreciation, amortization, etc.)" financial data show greater capital and profit than actual (Singleton, 2010, p.123). If an expense is treated as an asset, the income statement suddenly looks much better (Eremić Đodić, 2017).

Fraudulent financial reporting can manifest in two directions: a) presenting a worse financial position and lower financial results, and b) presenting a better financial position and higher financial results. The goal of fraudulent financial reporting is to mislead financial statement users through inaccurate representation of the financial and income position of the enterprise, thereby obtaining benefits for the company at the expense of investors, creditors, and other financial statement users. In other words, financial statement fraud occurs for financial gain, concealment, and misappropriation of assets or to satisfy interested parties under different circumstances.

The mentioned forms of fraud cause significant direct losses, primarily suffered by investors, but also irreparable loss of trust from which the accounting profession and the financial reporting system are still recovering. The fact is that fraudulent financial reporting, although less frequent, causes disproportionately greater harm to users than asset misappropriation. It harms investors, creditors, lenders, and society as a whole by leading to a loss of trust in financial reporting, increasing the cost of capital, slowing the development of financial markets, and thus the economy as a whole.

Detecting fraudulent financial reporting requires specific knowledge and experience, and forensic accountants/auditors investigate these anomalies in business reporting. To uncover and prevent fraudulent activities, investigators must thoroughly understand their forms and execution methods.



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# FORENSIC ACCOUNTING: CONCEPT AND TOOLS IN COMBATING FRAUDULENT FINANCIAL REPORTING

As a response by the accounting profession to the significant number of frauds, particularly fraudulent financial reporting, and the consequences these have caused in the economy on both micro and macro levels, as well as society at large, forensic accounting has developed as a distinct branch of accounting. The primary reasons contributing to the emergence of forensic accounting include the protection of existing assets and the detection of criminal activities. It is evident that forensic accounting, as a specialized discipline, has emerged as a necessary reaction to various forms of fraud that have occurred throughout history.

Forensic accounting involves the use of accounting expertise to prevent and detect various types of fraudulent activities within enterprises, as well as to gather evidence that will be valid in court proceedings. This refers to a specific area of investigations and assessments in the domain of criminal and other illegal business occurrences and states in the functioning of society. The focus of research is on assessing the true and fair interpretation of economic categories and documentation, business books, and financial reports for business, legal, and other needs. The evidence from forensic analysis is collected in a manner acceptable to the court processing the offenders. Therefore, forensic accountants and their specialized knowledge become a link that complements and makes the fight against financial crime even more effective.

Among the many definitions existing in the professional literature dealing with forensic accounting, the most accepted and comprehensive is the one formalized by the Association of Certified Fraud Examiners (ACFE). According to this definition, forensic accounting is the use of accounting skills in potential or actual civil or criminal disputes, including generally accepted accounting and auditing principles, to determine lost profits, revenues, assets, or damages, assess the effectiveness of internal controls, detect fraud, or carry out other activities that require the involvement of accounting expertise in the legal system (Čudan, Cvetković, 2019).

Detecting fraudulent financial reporting can be challenging—but not impossible. While, in general, fraud prevention is a better solution, appropriate activities and measures should be considered to help detect fraud. During the investigation of potential frauds, forensic accountants face a large amount of data that needs to be entered, compared, and analyzed. Forensic accountants combine their accounting knowledge with auditing, investigative techniques, and other skills, all aimed at detecting fraud.

During the investigation of potential fraud, forensic accountants use various techniques to analyze the relationships between elements of financial statements. These analyses are used for subsequent detailed analysis of business transactions if the initial analysis of the elements of financial statements indicates the possibility of fraud. Analytical procedures in forensic accounting are typically applied in phases, graded from the most general to the most direct. Each segment of the analysis has its specific objectives, such as (Group of Authors, 2021):

- Preliminary (preparatory) analytical procedures, as the most general, are used to identify areas of high fraud risk, gain insight into the nature and timing of manipulations, and assess the necessity of applying appropriate forensic procedures to prove them.
- Independent analytical procedures are used to gather evidence through comparisons and reconciliations of specific data, determining the authenticity (accuracy) of documentation, postings, and calculations.



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- Final analytical procedures, as the most direct, serve to draw conclusions about the impact of problematic transactions on financial statements.

The detection of financial manipulations represents a complex challenge, leading to the development of various models and methods to uncover potentially dishonest practices in financial statements. The most common techniques used by forensic accountants are based on various financial analysis techniques or data analysis presented in financial statements, such as:

- Horizontal analysis – compares items in financial statements from the current period with the same items from the previous period.
- Vertical analysis – compares the percentage shares of individual items in financial statements.

Comparison of detailed items in financial statements with the same or similar items from previous periods.

- Ratio analysis – in financial statements in areas of profitability, liquidity, solvency, activity, and value creation.

In addition to the aforementioned traditional accounting techniques used in the process of investigating fraud in financial statements, forensic accounting intensively applies some specific techniques:

- Benford's Law – shows the probability that a digit appears in a certain position in a number. The essence of Benford's Law is that certain digits occur more frequently than others in data sets.
- Beneish Model – used to assess the potential degree of fraud in financial statements based on eight variables (indices). This model measures the likelihood that a company has manipulated its reporting by calculating various indices indicating the degree of change between certain financial statement positions. A higher M-Score value indicates a higher likelihood of manipulation in financial statements.
- Computer-Assisted Audit Techniques (CAATS) – represents the practical application of information technologies in forensic auditing of financial statements.
- Data Mining Techniques – a set of techniques designed for the automatic search of large amounts of data to find information that will help detect fraud. Using this technique in their fraud investigation, forensic accountants can conduct in-depth examinations of irregularities in all data, not just samples.
- Ratio Analysis – has a significant analytical role in forensic investigation. Each ratio provides a fairly reliable clue in detecting potential fraudulent activities. Ratio indicators from different reporting periods on performance visible in the income statement and balance sheet can signal potential problems. Results indicate the position where the problem is most likely, making ratio analysis useful in detecting fraudulent activities in financial statements.
- Altman Z-Score Model – this model combines multiple financial indicators to assess the likelihood of a company's bankruptcy. Although different from the Beneish M-Score model, both models share a common goal—identifying potential risks based on financial indicators.
- DuPont Analysis – breaks down the overall return on equity into multiple components to identify key factors contributing to financial performance. This method can help detect inconsistencies and potential manipulations in financial statements.



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- Statistical Methods – statistical methods, such as anomaly analysis and regression analysis, are also used to detect potential financial manipulations. These methods can identify irregularities in the relationships between different financial indicators.
- Accounting Audit Procedures – accounting audit procedures, such as trend analysis, ratio analysis, and certainty testing, are part of standard procedures applied by accounting auditors to identify potential manipulations.

The approach to investigation and the choice of forensic tools and techniques depend on whether it is a preventive investigation or an investigation of already detected fraud. In the first case, forensic accountants conduct preventive examinations to detect possible irregularities. If unusual trends are found in general checks, the forensic accountant continues testing suspicious balance positions and conducts detailed examinations to gather relevant evidence that would confirm or refute the suspicion of fraud. On the other hand, investigating suspected fraud involves a more direct approach, focusing immediately on finding evidence in a specific area. Forensic accounting has experienced rapid expansion with the development of information technology (analyzing large amounts of data is impossible without the use of computers), globalization of business, and the increase in the internationalization of economic activities.

It's important to note that forensic methods and financial statement analyses do not, in themselves, incriminate anyone or prove the existence of accounting fraud and manipulations. Instead, they serve as indicators of potential financial irregularities in one or more areas of business. They are not absolute indicators of manipulations but provide an indication of the presence of fraud in financial statements.

## CONCLUSION

Falsifying financial statements is a serious issue that can have far-reaching consequences for companies, investors, and the state. Effective prevention and detection of this type of fraud require comprehensive approaches that include strong internal controls, auditing procedures, and regulatory oversight. Increasing awareness of the importance of transparency and integrity in financial reporting is a crucial step towards maintaining trust in the business system and protecting the interests of all stakeholders.

Forensic accounting is an essential tool in maintaining the integrity of financial statements and protecting the interests of all stakeholders. In an era where financial frauds are becoming increasingly sophisticated, forensic accountants are on the front line of defense, using their knowledge and skills to detect and prevent irregularities that can have profound consequences for the global economy. Their role in modern business is invaluable, making forensic accounting an indispensable response to the challenges of falsifying financial statements.

Forensic accounting is a field that combines expertise in accounting, auditing, and law to identify and analyze fraudulent financial reporting. Forensic accountants use various techniques and methods to detect irregularities in financial statements, analyze complex transactions, and gather evidence that can be used in court proceedings. Through detailed analyses, sophisticated methods, and close cooperation with judicial authorities, forensic accounting provides necessary protection against financial fraud, ensuring transparency and accountability in business operations.

The key message of this paper is to promote the role of forensic accounting as a distinct branch of the accounting profession in combating fraudulent financial reporting and to highlight the importance of forensic-accounting investigations of manipulations in financial statements, which cause significant harm to enterprises, companies, investors, and the overall economy.





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### REFERENCES

- ACFE Occupational Fraud (2022). A Report to the Nations. Association of Certified Fraud Examiners. Available at: [www.ACFE.com](http://www.ACFE.com). Accessed on May 5.
- Čudan, A., Cvetković, D. (2019) Forenzičko računovodstvo u funkciji ekonomsko finansijskog veštačenja. *Žurnal za bezb(j)ednost i kriminalistiku*, 2, 41-53.
- Dimitrijević, D. (2015), Otkrivanje i sprečavanje manipulacija u bilansu stanja i izveštaju o novčanim tokovima. *Ekonomski horizonti*, 17(2), 137-153.
- Dimitrijević, D. (2013). Forenzičko računovodstvo – sredstvo zaštite kvaliteta finansijskog izveštavanja. Doktorska disertacija, Ekonomski fakultet Kragujevac.
- Eremić Đodić, J., Laban, B., Tomić, A. (2017). Forenzička revizija – sprečavanje, Otkrivanje i odgovornosti za finansijske kriminalne radnje u kompanijama. *Poslovna ekonomija*, 2, 224-246.
- Grupa autora (2021) Forenzičko računovodstvo, istražne radnje, ljudski faktor, primenjeni alati. Fakultet organizacionih nauka, Beograd.
- Hajnrh, J., Suljović, E. (2010). Kvalitetno finansijsko izveštavanje kao pretpostavka funkcionisanja finansijskog tržišta. *Analiza ekonomskog fakulteta u Subotici*, 23, 187-198.
- International Accounting Standards Committee (IASC).
- Knežević, G., Stanišić, N., Mizdraković, V. (2013). Analiza finansijskih izveštaja. Univerzitet Singidunum, Beograd.
- Knežević, S., Mitrović A., Cvetković, D. (2019). The role of auditing profession in detecting frauds in financial statements. *NBP, Journal of Criminalistics and Law*, 24(2), 97–109.
- Oregan, P. (2006) *Financial Information Analysis*. 2nd edition. John Wiley & Sons, London.
- Singleton, W. T. , Singleton, J. A., Bologna, J., Lindquist, R. (2010). *Fraud Auditing and Forensic Accounting*. John Wiley & Sons, Inc., London.
- Stančić P. (2007). Podobnost finansijskih izveštaja kao informacione osnove za upravljanje finansijama preduzeća, U: Čanak, J. (ur.), *Izazovi poslovno finansijskog izveštavanja u funkciji menadžmenta preduzeća i banaka* (str. 7-25). Savez računovođa i revizora Srbije, Beograd.
- Stefanović, R. (1995). Računovodstvena načela i standardi finansijskog izveštavanja. *Finansije*, 11-12, 722-729.
- Škarić-Jovanović, K. (2007). Kreativno računovodstvo - motivi, instrumenti i posledice. u: Mjesto i uloga računovodstva, revizije i finansija u novom korporativnom okruženju, XI kongres, Zbornik radova, Savez računovođa i revizora Republike Srpske, str. 1-14.
- Škarić-Jovanović, K. (2011) *Finansijski izveštaji kao instrument prevare*, VI Kongres računovođa i revizora Crne Gore, Podgorica.
- Šljivić S, Vojteški Kljenak D., Milićević, R. (2023). *Finansijsko izveštavanje i menadžment kontrola*. Visoka škola za poslovnu ekonomiju i preduzetništvo, Beograd.
- Wells, T.J. (2004). *Corporate Fraud Handbook*. John Wiley & Sons, New Jersey.
- Zakon o računovodstvu ("Sl. glasnik RS", br. 73/2019 i 44/2021 - dr. zakon).



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# LEADERSHIP SKILLS ASSESSMENT IN TECHNICAL-VOCATIONAL INSTITUTION MANAGEMENT

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DOI: 10.5937/EEE24015J

JEL: M12

Review Scientific Paper

### ABSTRACT

*With numerous challenges for leaders of educational institutions, it is important to identify and develop the necessary skills for a leader to bring one's organization to fulfill its mission, vision and objectives for success. This study identified which among the 21st century leadership skills are expected to be had by educational leaders as perceived by their subordinates. Faculty members and staff were asked to rate 21<sup>st</sup> century leadership skills of educational leaders in general and specific to their own management. All 21st century leadership skills, as well as identified culturally contextualized characteristics, are necessary factors for educational leaders. . The results will help leaders adapt to these expectations to gain the support and to motivate their employees towards organizational productivity and effectiveness. This study as well develops and tests a leadership quality assessment tool.*

### KEYWORDS

*leadership, skills, TVET, management*

## INTRODUCTION

With numerous technical and vocational institutions in the industry today, there are various challenges and opportunities to manage and operate such enterprises. As leaders are an institution's models, their work attitudes, beliefs and actions are reflected into the beliefs and values of the school, which will affect the organization's performance. Staff satisfaction and company performance will be affected by a leader's manner of managing varying concerns and issues. It can make or break a company.

Given this situation, what makes a great leader? What specific qualities should a leader have, one might ask. Typically, the basis for leader qualities and characteristics might be assumed from his or her educational background and work experiences. Another basis might simply be how the previous leaders were and how they managed their institutions. However, with the ever changing environment and the challenges of the 21st century, more and more qualities are necessary to achieve an institution's mission and vision amidst changes and demands from the customers and the industry. The skills of the past may no longer be enough to perform in the world today. How then will we know what these are and how do we assess whether are leaders are in fact fit for these times?

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This study aims to answer the question- With the challenges of the 21st century, while aiming for the fulfillment of an institution's mission and vision, how is the leader expected and perceived to be as having the right leadership skills for today and the future? Is he or she the right one?

The objectives of the study then are the following:

- To determine which among the 21st century leadership skills employees look for in their leaders;
- To find the gaps between staff expectations from educational leaders and staff perceptions from their specific educational leader to provide a proper leader assessment;
- To develop a leader's qualification assessment tool for technical vocational institutions for use in their operations.

The study will be able to help identify the leadership qualities are important factors for employees to be motivated and for organizations to perform well. The establishment of a leader qualification assessment tool will also guide current and future administrators in developing and maintaining their leaders.

For the limitation of the study, data was collected from only one technical vocation institution in the province of Pampanga in the Philippines. Respondents of the study were both from the administrative and academic departments and covers the entire population of the institution, although statistical minimum count was not met. Results and conclusions of this study then reflect this limitation.

## REVIEW OF RELATED LITERATURE AND STUDIES

Leadership and organizational development go hand in hand. As educational administrators go about their daily tasks, their actions and modes of decision making can be seen by all and be used as a basis of their performance. Staff then look up to their superiors as models and their leaders' actions will motivate or demotivate them toward working productively. Their characteristics as well will be the basis for personal and professional development for other potential future leaders in the organization. Together with this ever changing external environment and internal challenges, a leader must have a certain set of leadership skills to be able to adapt and perform accordingly.

By definition, Leadership is "The ability to influence a group toward achievement of goals" (Stephen P. Robbins, 2015). The person in position then must be able to steer his or her team into the direction of which the institution must go towards to, to be successful.

Also, according to the study of Day and Sammons (2016), in Australia, the thematic results for educational leaders would be to have influencing, learning, facilitating and creative skills. However, it did not present specific definitions and skill sets for each. Irish (2014) also identified the type of leadership by educational administrators. These were to be a visionary leader, an instructional leader, a situational leader, a collaborative leader, a persistent leader, among others. Still, no specific skill sets per type. Another research also presented the responsibilities of administrators, specifically principals, as someone shaping an institutional vision, creating a hospitable climate, cultivating leadership, improving instruction and managing people. These, however, defined more the type of leadership and responsibilities rather than the specific skill sets.

Referencing from thinkstrategicforschools.com (2015), it suggested a list of qualities for the 21st century educational leader. It states that there are 9 essential set of characteristics for this time.



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These are:

1. 21st Century School Leaders are visionary.
2. 21st Century School Leaders are emotionally intelligent.
3. 21st Century School Leaders master self-leadership.
4. 21st Century School Leaders embrace change and innovation.
5. 21st Century School Leaders welcome and value diversity.
6. 21st Century School Leaders develop a 21st Century Mindset.
7. 21st Century School Leaders are learners.
8. 21st Century School Leaders are connected with the world.
9. 21st Century School Leaders take action.

Based on this then, it can be seen that for the 21st century, there are a lot of specific skills and characteristics needed by leaders to be responsive to the needs of this time. This list could be the basis for a theoretical framework for assessing an educational leader on their readiness and performance.

In the Philippines, studies on educational leaders focused on what has to be done or what the challenges are to be able to manage an educational institution. A study by Brooks and Sutherland (2014) mentioned that principals in the public school system must establish and maintain networks, practice ethical leadership, create communication channels and be transparent in implementing programs. Although this touched on certain skills and characteristics, skills sets in relation to the 21st century setting was not mentioned. Furthermore, they talked about how kinship and emotional relationships should be managed by principals. This shows certain skills needed in the context of the Filipino culture. Another study mentioned that certain skills like listening skills are important in the Filipino context. "Listening is a skill that principals need to nurture. This skill makes the principal's decisions needs-based. As a skill to be practiced by principals, listening is a two-way endeavor that makes a school a caring community" (de Guzman & Guillermo, 2007). Further it mentions that skills are generally just learned and determined as they become immersed in the job. No such identification of leadership skills then has been presented in detail.

In situations where there are gaps found in the leadership skills of educational leaders, professional training methods, typically done by organizational development organizations, are the interventions suggested. For example, Leslie (2016) suggests the following steps in determining leadership gaps: reviewing the organizational strategy, identifying competencies needed to drive the successful execution of the organizational strategy, reviewing and finalizing a list of competencies needed, deciding which managers to survey and collecting their opinions. In doing so, an organization can try assessing their leaders themselves. Training companies as well may offer services in determining leadership gaps, such as the center for creative leadership, among many others. In the Philippines, where there are gaps in leadership skills in educational leaders, not a lot of studies have been done nor any specific methods suggested to deal with such.

A considerable amount of research has been done about leadership qualities in educational institutions and its impact on organizational performance. However, not much has been done to study the specific 21st century leadership skills needed, especially in the Philippines. Also, not much studies have been done about determining the leadership gaps nor a tool for identifying and assessing them. Are the 21st century characteristics necessary leadership qualities in the Philippines and how are the gaps identified? Can a tool be crafted to help in identifying the gaps in expected and perceived skill sets from educational leaders?



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# FRAMEWORK

In the services industry, a quality gap model was crafted by Parasuraman, Zeithaml and Berry (1988) to measure the level of quality in the service sector. Based on a number of categories with specific definitions, the difference between the average ratings of service expectations of customers from a generic service institution type against their perceptions of a specific service provider are computed. The results then determine whether there are gaps in the quality of the service and as to which categories these are. From here, an institution can then identify programs and projects to implement to increase their level of service quality.

Similarly, since leadership is an interaction between a provider (leader) and a receiver (employees), it may be considered as a service. Thus, the manner of identifying any gaps in leadership qualities may be based on general expectations of educational leaders of the staff and the perceptions of subordinates of a specific educational leader.

The leadership quality framework will provide a way to be able to identify the leadership qualities that employees expect from educational leaders and how different it may be from an assessment of a particular leader. A comparison relationship should be reflected (greater than, equal, or less than) to show where the gaps are. Using the 21st century leadership skills as the categories, as such, from the results, leaders will be guided as to which characteristics they have to maintain or develop to positively affect the worker's performance at work.

Expectations from educational leaders (general)	Measure Less Than (-) Equal (0) Greater Than (+)	Perceptions from an identified educational leader (specific)
Visionary.	<, =, >	Visionary
Emotionally intelligent	<, =, >	Emotionally intelligent
Master self-leadership	<, =, >	Master self-leadership
Embrace change and innovation	<, =, >	Embrace change and innovation
Welcome and value diversity	<, =, >	Welcome and value diversity
Develop a 21st Century Mindset	<, =, >	Develop a 21st Century Mindset
Learners	<, =, >	Learners
Connected with the world	<, =, >	Connected with the world
Take action	<, =, >	Take action

# METHODOLOGY

All 10 employees (administrative staff and full time faculty members) were asked to answer a questionnaire to find out the following:



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- What 21st century leadership skills are expected from all educational leaders (expectations)?
- What 21st century leadership skills are perceived to be seen in the institution's leader, specifically its Managing Director (perceptions)?

These questions were answered by giving a list of the 21st century skills definitions as listed above and the staff were asked to rank them with values between 1 and 7, 7 being the highest. The first set asks them to rate leaders in general and the second set asks them to rate the particular institution's Managing Director.

Upon collation of the questionnaires, the average rating was computed per set of statements corresponding to each of the 21st century leadership skills for both the generic (expectations) and specific (perceptions) sets. Further, based on the average ratings between the perceptions and expectations, the gaps were computed by getting the difference between expected and perceived values. This gap value will be known as the Leadqual rating.

$$\text{Leadqual} = \text{Perception score} - \text{Expectation score}$$

**Positive result = specific leader exceeds the expectations from educational leaders**

**Negative result = specific leader does not meet the expectations from education leaders**

Also, rankings on the 21st century leadership skills were identified, especially to present which ones are the high and low characteristic values.

Further, open-ended questions, such as the following were also asked:

1. What characteristics, actions and/or habits of your educational leader motivate you to do your work?
2. What characteristics, actions and/or habits of your educational leader demotivate you to do your work?

These open ended questions were used to identify other skills or characteristics that are not part of the 21st century leadership skills list, if there are any.

## RESEARCH SUBJECTS

The school is a technical and vocational educational and training institution in the province of Pampanga in the Philippines. It has produced graduates productively working and placed in various industries locally and internationally. It is a registered school offering various qualifications under the areas of Hospitality and Tourism, Information Technology, and the Retail and Wholesale Sector. It offers two-year diploma courses to its clientele.

The Managing Director is a college graduate and considers himself as an entrepreneur. For over 25 years, he has experience in various businesses such as in Real Estate, Banking, Health and Wellness and Education, among others. He is also an active contributing member to the local community by holding various positions in civic organizations. He has held the position in the institution since its inception back in 2005.



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### PRESENTATION AND ANALYSIS OF DATA

All the questionnaires answered by the staff were encoded and collated. As mentioned, ratings for each 21st century leadership skill were averaged for both expectations and perceptions. Further, a gap score (leadqual) was computed. Below is the summary of the results of the survey, categorized by source-overall, administrative staff and faculty members.

Table 1. Results (Overall)

SKILL	PERCEPTION Score	EXPECTATION Score	Leadqual
1.	6.775	6.4	0.375
2.	6.525	6.25	0.275
3.	6.575	6.125	0.45
4.	6.55	6.625	-0.075
5.	6.57	6.4	0.17
6.	6.575	6.425	0.15
7.	6.425	6.4	0.025
8.	6.5	6.45	0.05
9.	6.475	6.375	0.1

Overall, the highest leadqual rating is Skill 3: 21st century leaders master self-leadership. This means that the leaders are driven by a purpose of making a difference in the lives of others, more than their own ego or for profit. Considering the institution is in the service of education, this seems fitting. One staff actually mentioned, "I like it or agree with him (the leader) that even with a small number of students, we can make a difference." Another mentioned, "He (the leader) wants the world to be a better place." Also, this skill assumes the leaders have grit and commitment to see tasks through, conquering any fears or limiting thoughts.

On the other hand, the lowest leadqual rating is Skill 4: 21st Century School Leaders embrace change and innovation. The expectation here is that the leaders see opportunities and possibilities in everything, manages organizational change and the desire to innovate their teams. One comment says, "Always saying 'no' rather than 'I'll think it over'" is a contributing factor to this finding. One other comment says, "No support for personal growth and concern for sustainability of the company". By these statements, the vigor for change and openness to development is clearly perceived to be by the staff.

Table 2. Results (Administrative Staff)

SKILL	PERCEPTION Score	EXPECTATION Score	Leadqual
1.	6.875	6.5	0.375
2.	6.875	6.6875	0.1875
3.	6.8125	6.375	0.4375
4.	6.9375	6.8125	0.125
5.	7	6.75	0.25
6.	6.9375	6.9375	0
7.	7	6.8125	0.1875
8.	6.9375	6.875	0.0625
9.	7	6.6875	0.3125

Based on the average rating of the administrative staff, the highest leadqual rating is Skill 3: 21st century leaders master self-leadership. This is consistent to the overall rating discussed above.



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On the other hand, the lowest leadqual rating is Skill 6: 21st Century School Leaders develop a 21st Century Mindset. This means that the leaders has a positive, growth mindset, thinking outside the box and pushing themselves outside that box while using data analysis for decision making. Contributing to this, one staff says, “Quickly to judge based on what they feel” rather than what might is possibly objective or based on data findings. Also, a concern on “sustainability of company” may reflect the lack of thinking strategically and a lack of the growth mindset. It may appear that there a certain sense of comfort with the current status of the organization.

Table 3. Results (Faculty Members)

SKILL	PERCEPTION Score	EXPECTATION Score	Leadqual
1.	6.7083	6.3333	0.375
2.	6.2917	5.9583	0.3334
3.	6.4167	5.9583	0.4584
4.	6.2917	6.5	-0.2083
5.	6.2778	6.1667	0.1111
6.	6.3333	6.0833	0.25
7.	6.0417	6.125	-0.0833
8.	6.2083	6.1667	0.0416
9.	6.125	6.1667	-0.0417

Based on the average rating of the faculty members, the highest leadqual rating is Skill 3: 21st century leaders master self-leadership. This is consistent to the overall rating discussed above, similar to that of the administrative staff.

On the other hand, there are three negative leadqual ratings. These are Skill 4: 21st Century School Leaders embrace change and innovation, Skill 7: 21st Century School Leaders are learners and Skill 9: 21st Century School Leaders take action. Skill 4 is consistent to the overall rating discussed above. However, for Skill 7, it assumes that leaders learn for themselves and their organizations, seek different perspectives and are reflective lead learners. A comment related goes, “rigid in making decisions” and “always in a hurry- no time to check what is happening”. It may appear that physically moving up and about may be perceived as related to a leader’s manner of decision making. Further, it might be assumed that since the result comes from the faculty members, there are higher expectations towards further studies and higher learning. Finally, Skill 9, requires solving problems efficiently, operates with a strong results focus and creates the future. One staff commented, “Inconsistency (sometimes his decisions are being compromised).” Another mentioned about “no concrete plans for the future.” Thus, with this lack of focus and vision planning as perceived by the faculty members, it appears that they feel not much action is being done.

## RESULTS: OTHER CHARACTERISTICS

- Humor and warmth as well are important for leaders to have.
- “Love” and Harmonious relationships between leaders and staff are also given importance.
- Leaders who understand you always and who is sensitive as ‘words and actions sometimes hurt’.





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Besides the list of the 21st century leadership skills, additional leadership characteristics were identified. It appears that there is a set of personal relational skills expected. Leaders are expected to show more feelings of warmth and “love” towards their staff. The “family” treatment seems to be appreciated together within a professional environment. Staff members are not simply people one works with, but a part of a small knit community. Also, feelings of the staff members seem to be important to be managed by the leader. The leader must be sensitive to a staff’s personal situation, even if certain situations can be dealt with objectively. It appears then that the staff take things “personally” even in a professional environment. There is obviously a fine line between personal and professional realms of work. This may be a cultural nuance as Filipinos tend to mix their personal lives into their professional practices.

In summary, the implication is that most, if not all, the 21st century leadership skills are found to be important factors for employees for their leaders to have or practice. Furthermore, additional characteristics beyond the list have been mentioned as well, which may reflect a cultural aspect of the respondents of this study. It is now a challenge to leaders to be able to imbibe and to practice all 9 21st century leadership skills and more to bring their institution to higher productivity.

## CONCLUSION AND RECOMMENDATION

With the challenges of the 21st century for leaders of educational institutions, it is important to practice and develop the necessary skills to bring one’s organization to meet its vision and objectives for better performance. The study focused on identifying which 21st century leadership skills are applicable to their specific educational leader and if there are any other characteristics expected. This in the end will help leaders adapt to such expectations to gain the support and to motivate their employees towards organizational productivity and effectiveness.

Staff members were asked to rate qualities of educational leaders in general and specific to their Managing Director. It was deduced that all 9 21st century leadership skills are necessary factors to them. In fact, there were even additional characteristics identified based on a cultural context. This poses a challenge to educational leaders as to how they will be able to oversee the operations and manning the ship of their institutions as they voyage to the future.

Furthermore, below are some other findings and further recommendations of the study.

Findings	Conclusion	Recommendation
All the 21st century leadership skills were rated between 6.125-6.625 (88% - 95%). Highest is: Skill 4: 21st Century School Leaders embrace change and innovation. Lowest is: Skill 3: 21st Century School Leaders master self-leadership.	The 21st century leadership skills are applicable characteristics for an educational leader as expected by employees of a TVI. Even in the local context, the 21st century leadership skills are a must.	For HR policies to incorporate ways to find these characteristics in leaders in their hiring process and develop programs for leadership development in their training.
Overall results show that our leader is negative in only one skill. This is: Skill 4: 21st Century School Leaders embrace change and innovation	It appears that the leader is meeting if not exceeding most of the expectations from the staff. This can serve as an example or model for other leaders of TVIs.	HR should regularly evaluate their leaders based on the 21st century leadership skills to determine ways to develop and/or maintain skills as



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<p>Faculty member results have 3 negative skills while administrative staff have none. These are: Skill 4: 21st Century School Leaders embrace change and innovation. Skill 7: 21st Century School Leaders are learners. Skill 9: 21st Century School Leaders take action.</p>	<p>Faculty members and administrative staff have differing expectations from their leaders. These may stem from the varying levels of their scope of work and their level of interaction with the leader.</p>	<p>expected by employees for organizational performance. Leaders should be given leadership assessments for them to adapt and practice identified skills that they do well at and improve on those that they are weak at. They should be aware of how these can be practiced based on the type of work and interaction with various staff.</p>
<p>Faculty members and administrative staff expected their educational leaders to be more relational and personal with their relationships.</p>	<p>Other skills expected from leaders were identified aside from the list based on a cultural context.</p>	<p>The list of skills for educational leaders should include the Filipino contextualized skills. Human Resources should adapt correspondingly as mentioned above and the Leadership Quality tool should include it in its list as well as will be discussed below.</p>
<p>The Leadership Quality Tool provided results of any gaps between expected skills in an educational leader and perceptions of a specific leader.</p>	<p>The Leadership Quality Tool can be used to assess leadership skill sets based on 21st century leadership skills and the Filipino context.</p>	<p>Similar studies should be done in other TVIs using the tool for comparison of results and tool evaluation.</p>

## REFERENCES

- Leadership for 21st Century Learning. RSS. Available at: <http://www.oecd.org/edu/cei/leadershipfor21stcenturylearning.htm>. Accessed: January 30, 2024.
- Bentea, C. C., Anghelache, V. (2012). Teachers' motivation and satisfaction for professional activity. *Procedia - Social and Behavioral Sciences*, 33, pp. 563-67. doi:10.1016/j.sbspro.2012.01.184.
- Brooks, J. S., Sutherland, I. E. (2014). Educational Leadership in the Philippines: Principals Perspectives on Problems and Possibilities for Change. *Planning & Changing*, Vol. 45, no.3-4, pp. 339-355.
- Brooks, J. S., Sutherland, I. E. (2013). School Leadership in the Philippines: Historical, cultural, and policy dynamics. *Advances in Educational Administration*, 20, 199-213.
- Day, C., Sammons, P., Gorgen, K. (2016). Successful school leadership. Education Development Trust, Berkshire.
- Dessler, G. (2010). Human Resource Management. Prentice Hall, New Jersey.
- Driscoll, M. (2016). 9 Essential 21st Century Leadership Skills. Think Strategic for Schools. Available at: <http://thinkstrategicforschools.com/9-essential-21st-century-leadership-skills/>. Accessed January 30, 2024.



## Conference Proceedings

- Heizer, J., Render, B. (2013). Operations Management. Upper Saddle River, Prentice Hall, New Jersey.
- Irish, S. C. (2024). Leadership Qualities Necessary for Educational Leaders to Become Effective Turnaround Principals: A Grounded Theory Study. Dissertation, Liberty University.
- Krassnoff, B. (2015). Leadership Qualities of Effective Principals. Northwest Comprehensive Center. Portland.
- Leadership Gap Indicator. (n.d.). Retrieved from <https://www.ccl.org/lead-it-yourself-solutions/team-organizational-assessments/leadership-gap-indicator/>
- Leslie, J. B. (2016). How to Identify Leadership Limitations Through a Gap Analysis. Training Mag. Available at: <https://trainingmag.com/how-identify-leadership-limitations-through-gap-analysis/>. Accessed January 30, 2024.
- Nader, R. Leadership and Motivation. Available at: [www.btcrd.gov.nl.ca/regionaldev/ccb/leadership/ccb\\_leadershipguide.pdf](http://www.btcrd.gov.nl.ca/regionaldev/ccb/leadership/ccb_leadershipguide.pdf), Accessed January 30, 2024.
- Parasuraman, A, Ziethaml, V., Berry, L. L. (1988), SERVQUAL: A Multiple- Item Scale for Measuring Consumer Perceptions of Service Quality. Journal of Retailing, Vol. 64. No. 1, pp. 12-40.
- Robbins, S., Judge, T. (2013). Organizational behavior. Pearson, Boston.



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# STRATEGY OF ENTREPRENEURIAL LEARNING – LEGAL FRAMEWORK OF THE EUROPEAN UNION AND THE REPUBLIC OF SERBIA

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DOI: 10.5937/EEE24016K  
JEL: D83, L26  
Review Scientific Paper

### ABSTRACT

*The paper provides an analysis of the legislative framework of the European Union and the Republic of Serbia regarding entrepreneurial education and training. Entrepreneurship, entrepreneurial innovation, and flexibility are the main characteristics of entrepreneurial management, regardless of whether it is a large or small enterprise, a production or service organization, a governmental or non-governmental institution. Entrepreneurship, as a dynamic process of continuous change in both economic structure and efficiency, requires competent personnel who are creative, innovative, and capable of assuming the risks associated with business actions. For all these reasons, entrepreneurial education becomes a key factor for advancing innovative capabilities and fostering economic growth, both at the individual level and in the broader societal context. The analysis has shown that entrepreneurship is an indispensable factor in the development of national and other economies and that entrepreneurial learning is an integral part of the strategic and legal documents across various sectors.*

### KEYWORDS

*education, entrepreneurship, legal regulation, entrepreneurial education*

## INTRODUCTION

In the European Charter for Small Enterprises, education and training for entrepreneurship are defined as key activities that needed to be systematically addressed to accelerate the path towards the quality development of small enterprises in the EU. The direction of action and recommendations in this context focused on the following: "Europe will nurture entrepreneurial spirit and new skills from an earlier age. General knowledge about business and entrepreneurship needs to be taught at all school levels. Specific business-related modules should be made an essential ingredient of education schemes at secondary level and at colleges and universities. We will encourage and promote youngsters' entrepreneurial endeavors and develop appropriate training schemes for managers in small enterprises" [1].

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Table 1. European charter for small enterprises: Lines for action

1. Education and training for entrepreneurship	6. More out of the Single Market
2. Cheaper and faster start-up	7. Taxation and financial matters
3. Better legislation and regulation	8. Strengthen the technological capacity of small enterprises
4. Availability of skills	9. Successful e-business models and top-class small business support
5. Improving online access	10. Develop stronger, more effective representation of small enterprises' interests at Union and national level

*Source: authors*

Entrepreneurial education is an essential process for every successful business. There are several definitions of entrepreneurial education. What they have in common is the process of acquiring knowledge, skills, and attitudes that are not limited solely to starting one's own business, but are applicable in any area of life and work. Innovation, as a key factor in entrepreneurship, is applied within the creative context of designing new business ventures, or within an existing enterprise, where employees will know how to apply the adopted entrepreneurial philosophy, use entrepreneurial processes, and understand the significance of business opportunities, resources, and teams. This latter interpretation is also known as corporate entrepreneurship, where employees are corporate entrepreneurs with the vision and ability to generate new ideas and turn them into profitable products or services.

According to authors Kisić & Petković, entrepreneurial education is viewed in a broader context as a process of developing an entrepreneurial mindset, entrepreneurial skills, and personal qualities that have universal application [2]. Author Vidić interprets entrepreneurial education as a lifelong process that begins in elementary school and extends through all subsequent levels of education, including adult education [3]. The expert body of the European Commission stated that entrepreneurial education "should not be confused with general business and economic studies; its goal is to promote creativity, innovation, and self-employment, and it may include the following elements: the development of personal attributes and skills that form the foundation of entrepreneurial spirit and behavior (creativity, initiative, risk-taking, independence, self-confidence, leadership, teamwork, etc.); raising students' and pupils' awareness of self-employment and entrepreneurship as potential career options; working on concrete entrepreneurial projects and activities; providing specific business skills and knowledge on how to start and successfully run a business"[4].

The educational system plays a significant role in the process of entrepreneurial education. In the Republic of Serbia and European Union countries, entrepreneurial education is systematically regulated by a specific group of adopted documents. One of the fundamental documents is the Oslo Agenda for Entrepreneurship Education in Europe, which, among other things, includes: "Better integrate entrepreneurship programmes and activities in the established curriculum for schools at all levels (primary, secondary, vocational), as a horizontal element in all fields of study (entrepreneurial mindset) and as a subject in its own right (entrepreneurial skills); In its broader definition (fostering attributes like creativity, autonomy, initiative, team spirit, etc.) entrepreneurship should be also included in the curriculum for primary schools. Especially at this level of education it is important to convince schools, teachers and parents that entrepreneurship is a key competence for all, and it does not aim to turn all pupils into businessmen" [5].

The following section provides an overview of the legal framework for entrepreneurial education in the countries of the European Union and the Republic of Serbia. All activities are aimed at developing students' key



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skills and competencies for entrepreneurial education. This includes a range of activities: introducing entrepreneurship-related subjects into curricula, applying modern teaching methods, fostering cooperation between schools and local businesses, organizing entrepreneurship fairs, and more.

### **LEGAL FRAMEWORK OF ENTREPRENEURIAL EDUCATION IN EUROPEAN UNION COUNTRIES**

In Lisbon, in 2000, the European Union adopted a development strategy, known as the Lisbon Strategy. The strategic goals were as follows: "By 2010, the EU should become the most competitive and dynamic knowledge-based economy in the world, capable of achieving sustainable economic growth with more and better jobs, and stronger social cohesion." At the heart of this document was the development and improvement of knowledge, which required increased investment in education and professional development, scientific and technological research, and innovation [6]. However, despite the EU's efforts to become the most competitive knowledge-based economy globally, significant delays occurred in achieving the goals of the Lisbon Strategy. The reasons for the deviation were partly due to the worsening global economic situation and the growing competition from new economic powers, but also due to the slow progress of reforms within the EU countries themselves. For this reason, in 2005, the European Council redefined the broad goals set in Lisbon and focused priorities on growth and employment. The EU adopted the "Revised (New) Lisbon Strategy," reaffirming that knowledge, innovation, and the optimization of human capital are key to development. [7].

After the Lisbon Strategy, a series of documents were adopted that more precisely define the development guidelines for both entrepreneurial education and education as a whole. In 2001, the report *The Concrete Future Objectives of Education Systems* was adopted. It emphasized the importance of education and training for acquiring the necessary entrepreneurial skills in starting and developing innovative businesses. The role of education in fostering entrepreneurial skills and an entrepreneurial mindset is immeasurable [8]. In the 2003 document *Green Paper on Entrepreneurship in Europe*, education and training were highlighted as significant potential for entrepreneurial business. The *Green Paper* argues that entrepreneurship is important because it contributes to job creation, economic growth, and competitiveness [9]. The next document, considered fundamental for entrepreneurial learning, is the *Recommendation of the European Parliament and of the Council on Key Competences for Lifelong Learning* from 2006. Competences are described here as a blend of knowledge, skills, and attitudes suited to the context. Key competences are those that every individual needs for personal fulfillment and growth, active participation in society, social inclusion, and employment. [10].

Table 2. The Reference framework sets out eight key competences

1. Communication in the mother tongue	5. Learning to learn
2. Communication in foreign languages	6. Social and civic competences
3. Mathematical competence and basic competences in science and technology	7. Sense of initiative and entrepreneurship
4. Digital competence	8. Cultural awareness and expression

*Source: authors*

All key competences are considered equally important, as each can contribute to success in a knowledge-based society. Many of these competences overlap and are interconnected. Literacy, numeracy skills,



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and knowledge of information and communication technologies form the foundation for further learning, while the competence of "learning how to learn" is crucial for all forms of education. There are a range of skills applicable within the Reference Framework, such as critical thinking, creativity, initiative, problem-solving, risk assessment, decision-making, and constructive emotional management—these are present in all eight key competences. Communication in one's mother tongue involves the ability to express and interpret thoughts, feelings, facts, and opinions clearly and accurately, both orally and in writing. It also includes the ability to engage in appropriate linguistic interaction across a wide range of social and cultural contexts, such as education, work, home life, and leisure. Communication in a foreign language shares key aspects with communication in the mother tongue: it is based on the ability to understand and express thoughts, feelings, facts, and opinions, verbally or in writing, in various social and cultural contexts. Additionally, it requires skills such as cultural mediation and intercultural understanding. Mathematical competence involves the ability to apply mathematical thinking and skills to solve everyday problems. It is not limited to arithmetic knowledge but also encompasses problem-solving processes and logical, spatial thinking. Scientific competence pertains to the use of scientific methods and knowledge to explain natural phenomena, while technological competence involves applying this knowledge to meet human needs. Both domains include an understanding of the effects of human activities on nature and society, as well as individual responsibility [10].

Digital competence encompasses the critical and safe use of information technologies in everyday life, at work, and in leisure activities. This competence is based on fundamental skills in using ICT for searching, evaluating, storing, and sharing information, as well as for online communication. The competence of "learning how to learn" enables individuals to develop the ability for lifelong learning, both independently and in groups. This competence involves awareness of personal learning needs, the ability to find opportunities for further development, and overcoming obstacles. Motivation and self-confidence are key elements of this competence. Social and civic competences include personal, interpersonal, and intercultural skills, allowing individuals to participate effectively in social and professional life. Civic competence, based on knowledge of political and social structures, empowers individuals for active participation in democratic life. Initiative and entrepreneurship relate to an individual's ability to turn ideas into reality, including creativity, innovation, and a willingness to take risks. These skills enable individuals to plan and implement projects in everyday life and at work, making them more capable of recognizing opportunities and achieving business goals. Additionally, there is an important emphasis on ethical values and responsible business practices. Cultural awareness and expression pertain to understanding and appreciating the importance of creatively expressing ideas, experiences, and emotions through various media, such as music, visual arts, literature, and performance [10].

Following the adoption of the Oslo Agenda for Entrepreneurship Education in Europe, two documents were issued: The Helsinki Communiqué on Enhanced European Cooperation in Vocational Education and Training from 2006 and The Bordeaux Communiqué on Enhanced European Cooperation in Vocational Education and Training from 2008. The first document indicates that Europe needs investment in vocational education and training and that education and training play a central role in responding to the challenges faced [11]. According to the second document, the Bordeaux Communiqué, entrepreneurial learning is an integral part of vocational education and training, representing a primary competence in secondary vocational education and training [12].

The Small Business Act (SBA) was adopted in 2008 and represents a strategic document in the field of small and medium-sized enterprises. The main priorities of the SBA are to promote entrepreneurship, improve access to finance, reduce the regulatory burden, and enhance access to markets and internationalization. These priorities are outlined in ten principles designed to guide the design and implementation of policies at the EU and national levels:



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1. create an environment in which entrepreneurs and family businesses can thrive and entrepreneurship is rewarded;
2. ensure that honest entrepreneurs who have faced bankruptcy quickly get a second chance;
3. design rules according to the "think small first" principle;
4. make public administrations responsive to the needs of small and medium-sized businesses (SMEs);
5. adapt public policy tools to SMEs' needs: facilitate SMEs' participation in public procurement and better utilize state aid possibilities for SMEs;
6. facilitate SMEs' access to finance and develop a legal and business environment supportive of timely payments in commercial transactions;
7. help SMEs benefit more from the opportunities offered by the EU's single market;
8. promote the upgrading of skills in SMEs and all forms of innovation;
9. enable SMEs to turn environmental challenges into opportunities; 10. encourage and support SMEs to benefit from market growth" [13].

The Europe 2020 Strategy, adopted by the European Commission in 2010, focuses on three interrelated priorities:

- "smart growth—developing a knowledge-based and innovative economy;
- sustainable growth – simultaneously promoting competitiveness and production that uses resources more efficiently; and
- inclusive growth—better participation in the labor market, combating poverty, and social cohesion" [14].

One of the main objectives set by the European Commission is employment, specifically that 75% of the population aged between 20 and 64 should be employed.

Following the Strategy, additional documents were adopted that directly recognize the importance of entrepreneurial education and training at all levels, as well as the role of entrepreneurial experience through education: the Strategic Framework for European Cooperation in Education and Training from 2009 [15], Rethinking Education: Investing in Skills for Better Socioeconomic Outcomes from 2012, the Entrepreneurship 2020 Action Plan from 2013 [16], national strategies on entrepreneurial education, and more.

## NATIONAL INSTITUTIONAL FRAMEWORK FOR ENTREPRENEURIAL EDUCATION

In the Republic of Serbia, a number of documents have been adopted that define entrepreneurial education and training at all levels. Among the most important are: the Law on the Foundations of the Education System, the Law on Primary Education, the Law on Secondary Education, the Law on Adult Education, the National Youth Strategy for the period 2015–2025, the Education Development Strategy in Serbia until 2030, and the Strategy for the Development of Small and Medium-sized Enterprises for the period 2023 to 2027.





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"The Law on the Foundations of the Education System regulates the basics of preschool, primary, and secondary education and training, as well as adult education, including: principles, goals, outcomes, education and training standards, knowledge, skills, and attitudes, methods and conditions for conducting preschool education and training, primary and secondary education and training, types of education and training programs, establishment, organization, funding, and oversight of educational institutions, as well as other issues relevant to education and training" [17].

The goals of education and training encompass, among other things: the development of key competencies for lifelong learning, interdisciplinary competencies, and professional competencies in accordance with occupational requirements, labor market needs, and advancements in modern science and technology; fostering self-awareness, creativity, critical thinking, motivation for learning, teamwork abilities, self-assessment skills, initiative, and the expression of personal opinions; and developing competencies for navigating and actively participating in a changing modern society. The outcomes of education and training clearly state what is expected of students in terms of knowledge, understanding, capability to initiate and embrace change, assuming responsibility, and having an entrepreneurial approach with a clear orientation towards achieving goals and attaining success.

The Law on Primary Education and Training regulates primary education and training as part of a unified system of education and training. General interdisciplinary competencies are based on key competencies, developed through the teaching of all subjects, applicable in various situations and contexts when solving different problems and tasks, and essential for all students for personal achievement and development, participation in social processes, and employment, forming the foundation for lifelong learning. Initiative and an entrepreneurial orientation, data and information handling, problem-solving, collaboration, and digital competence are general interdisciplinary competencies expected by the end of primary education and training in the Republic of Serbia. This law facilitates the establishment of student cooperatives to foster entrepreneurial spirit, promote a positive attitude towards work among students, connect education with the world of work, and support professional orientation [18].

The Law on Secondary Education and Training mandates that school programs must include activities that promote the development of skills such as problem-solving, communication, teamwork, initiative, and entrepreneurship. Additionally, schools are required to form career guidance and counseling teams, whose role is to assist students and their parents in exploring opportunities for further education and employment. These teams provide support in identifying, selecting, and utilizing information related to professions, careers, and continued education [19].

The Law on Adult Education regulates education and lifelong learning for adults as part of a unified education system in the Republic of Serbia. Adult education provides individuals with the opportunity to acquire the competencies and qualifications necessary for personal and professional development, work, and employment, as well as for socially responsible behavior. It is based on plans and programs that enable adults to gain key and professional competencies, as well as qualifications essential for personal and professional growth, work, and employment, while encouraging socially responsible conduct. These programs assist in enhancing knowledge, skills, abilities, and attitudes. Both formal and non-formal adult education include, among other things, programs in entrepreneurship and management [20].

The National Youth Strategy for the period 2015–2025 establishes fundamental principles for improving the social status of young people in Serbia and creating conditions for the realization of their rights and interests in all areas. It aims to provide an environment that enables youth to fully reach their potential and actively participate in society, contributing not only to their own development but also to the development of society as a whole. One of the main goals of the National Youth Strategy is to create a favorable environment for youth development by providing access to education, employment, health



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services, and cultural content. Through these aspects, the strategy seeks to support young people in achieving their personal and professional goals while empowering them for active participation in society. Education is a key segment of the strategy, playing a central role in shaping future generations. The aim is to improve the quality of education and adapt it to the needs of the modern labor market, including the promotion of entrepreneurial education and skills.

The strategy also emphasizes the importance of employment and economic inclusion for youth. Support measures for employment, retraining, entrepreneurship, and training are designed to reduce unemployment rates among young people and create conditions for sustainable economic growth. In the area of health, the strategy aims to ensure that young people have access to quality health services and information necessary for leading a healthy life, including the promotion of mental health and the prevention of risky behaviors. Culture and sports also play an important role in the strategy, contributing to the development of creativity, identity, and social inclusion among youth. By supporting cultural and sporting activities, the strategy creates space for youth expression and active participation in social life [21].

The Strategy for the Development of Education in Serbia until 2030 is aligned with numerous national and international documents significant for the education sector. The vision for the development of education and upbringing in the Republic of Serbia is based on the continuous creation of a knowledge-based society that promotes values such as critical thinking, creativity, curiosity, solidarity, and mutual respect. This vision involves fostering personal integrity, responsibility, and respect for diversity, as well as strengthening inclusive education that ensures access to quality education for all. The goal is for the educational system to contribute to the development of a competitive economy capable of competing in the European and global markets.

The strategy emphasizes the importance of adapting the educational system to the actual needs of the labor market to ensure the relevance and effectiveness of education. Students should gain not only theoretical knowledge but also practical skills that are directly applicable in work environments. Through close cooperation with the business sector, educational institutions can identify specific skills needed and adjust their programs accordingly, enabling students to be better prepared for employment upon graduation. In this way, education becomes a tool for strengthening the economy and reducing unemployment, as young people acquire competencies that allow them to enter the labor market more quickly. Additionally, the strategy highlights the importance of dual education, a model that combines theoretical learning in schools with practical training in workplaces. This system allows students to gain real work experience during their education, making them more competitive in the job market. Dual education not only develops practical skills but also professional habits and work ethics, while employers have the opportunity to train future employees according to their needs. Such an approach allows for better alignment of supply and demand in the labor market, increasing efficiency and productivity [22].

The Strategy for the Development of Small and Medium Enterprises for the period 2023-2027 consists of several segments, starting with an analysis of the current state of small and medium enterprises, changes achieved through the implementation of the strategy, analysis of options for achieving goals, measures to achieve those goals, and an analysis of their effects, as well as a risk analysis. Among the highlighted action directions are: promoting entrepreneurial spirit and supporting business newcomers, intensifying support for greater inclusivity in development. Based on the analysis of the results achieved from previous public policy documents, it can be observed that the strategic goal related to the continuous development of human resources—higher education and training—was not achieved during the planned period of 2015-2020. The SWOT analysis identifies strengths such as a relatively qualified and educated workforce and dynamic development of innovative and IT entrepreneurship, while weaknesses include insufficient commitment to developing human resources, soft skills, and knowledge.



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Threats include the formal educational system not sufficiently encouraging an entrepreneurial mindset. From all of the above and the detailed overview of the Strategy, it is clear that special attention is paid to the development of human resources from the perspective of education, and that there is room for improvement in education and training in the coming period [23].

The Social Inclusion and Poverty Reduction Team of the Government of the Republic of Serbia provided a comparative overview of educational policies, models, and practices in the country in 2016. The useful analysis, conducted research with students, and the conclusions drawn serve as a solid foundation for monitoring activities related to entrepreneurial education [24].

From the previously analyzed documents, it can be concluded that the importance of entrepreneurial education and training has been recognized in the Republic of Serbia. Entrepreneurship and entrepreneurial learning are integral components of the strategic, legal, and sub-legal acts of various ministries and sectors, and are part of the national education system. This aims to achieve the goal of creating a competent workforce that is trained and prepared to face changes in the environment, which will contribute to new employment opportunities and, more broadly, to national economic growth through their own ideas and projects.

Entrepreneurship is a field of social activity that contributes to the development of society in all other segments. Entrepreneurship is the driving force of modern society. Although it has roots in the distant past, entrepreneurship now has a more important role than ever. Entrepreneurship is developing in parallel with technological development. It follows current trends in innovative technologies. The reason for this is the fact that the essence of entrepreneurship makes creativity and innovation [25].

## CONCLUSION

The analysis of the legislative regulations of the European Union and the Republic of Serbia regarding entrepreneurial education and training shows that entrepreneurship is a key element in the development of national and global economies. Entrepreneurship is a dynamic process of continual change in economic structure and its efficiency, wherein individuals assume risks related to the outcomes of business actions. Entrepreneurial education is an indispensable process for every successful business; it involves acquiring knowledge, skills, and attitudes that are applicable not only to starting one's own business but also in various areas of life and work.

Entrepreneurial learning is integrated into the strategic and legal documents of various sectors. The development of the education system in the context of entrepreneurship in Serbia follows a comprehensive approach that links education, the labor market, and innovation. By introducing entrepreneurial education, strengthening ties with the economy, and implementing dual education, conditions are created for the development of young entrepreneurs capable of responding to the challenges of the modern market and contributing to the economic growth of the country. Innovations are crucial for economic development and competitiveness, and the education system plays a central role in fostering them. Education provides the foundation for developing creative and critical thinking, problem-solving, and research skills. The use of modern technologies in teaching enables students to master digital tools and resources, which are essential for innovations across various industries.

In this research, we established and emphasized that the Republic of Serbia, as a candidate country for EU membership, aligns its legislation and educational reforms with European standards, including entrepreneurial education as an important aspect of the education system. This paper examines the existing legal regulations, strategic documents, and initiatives from both sides, taking into account the



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challenges in implementing these strategies in Serbia. Through the analysis of entrepreneurial learning policy, the aim of this work is to identify key guidelines for further improvement of legislation and practices in the Republic of Serbia, in accordance with European norms.

The expansion of research and development capacities within educational institutions is of great significance. Support for scientific projects, scholarships for young researchers, and collaboration with industry create an environment that fosters scientific research and technological innovations. In this way, educational institutions become centers for creating new ideas and technologies, contributing to the development of new products, services, and business models that are crucial for economic growth. The Strategy for the Development of Education and Upbringing in Serbia provides a framework for transforming the education system to meet the modern needs of society and the economy. Strengthening the connection with the labor market and promoting innovation are key to building a society that values knowledge, creativity, and entrepreneurship, contributing to the sustainable development and prosperity of the country.

## REFERENCES

1. European Charter for Small Enterprises. Available at: [https://europa.rs/upload/documents/key\\_documents/EU%20SME%20charter\\_en.pdf](https://europa.rs/upload/documents/key_documents/EU%20SME%20charter_en.pdf). Accessed July 22, 2024.
2. Kisić, S., Petković, S. (2019). Preduzetničko obrazovanje u funkciji razvoja veština za četvrtu industrijsku revoluciju. *Ekonomika preduzeća*, vol. 67, br. 1-2, str. 147-166.
3. Viduka, B. (2021). Preduzetništvo mladih – Značaj obrazovanja iz preduzetništva za razvoj preduzetničkih težnji. Fakultet za projektni i inovacioni menadžment Beograd, Educons Univerzitet, Sremska Kamenica, str. 45.
4. IPA program Evropske unije za više korisnika (2021). Preduzetničko učenje-pristup ključnim kompetencijama. Centar za preduzetničko učenje Jugoistočne Evrope, Zagreb, str. 21-22.
5. Oslo Agenda for Entrepreneurship Education in Europe (2006).
6. European Council (2000). Presidency conclusions, Lisbon, 23-24 March.
7. Mičić, V. (2009). Lisabonska strategija i njena revizija. *Ekonomski horizonti*, 11(1), 97–117.
8. European Commission (2001). The Concrete Future Objectives of Education Systems. Available at: <https://eur-lex.europa.eu/EN/legal-content/summary/concrete-future-objectives-of-education-systems.html>. Accessed July 21, 2024.
9. Green Paper on Entrepreneurship in Europe (2003) Available at: <https://publications.parliament.uk/pa/ld200203/ldselect/ldcom/142/142.pdf>. Accessed July 22, 2024.
10. Recommendation of the European Parliament and of the Council on key competences for lifelong learning (2006). Available at: <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A32006H0962>. Accessed July 22, 2024.
11. The Helsinki Communiqué on Enhanced European Cooperation in Vocational Education and Training (2006). Available at: [https://www.cedefop.europa.eu/files/helsinkicom\\_en.pdf](https://www.cedefop.europa.eu/files/helsinkicom_en.pdf). Accessed July 21, 2024.



## Conference Proceedings

12. The Bordeaux communiqué on enhanced European cooperation in vocational education and training (2008). Available at: [https://www.cedefop.europa.eu/files/3972-att1-1-The\\_Bordeaux\\_Communique.pdf](https://www.cedefop.europa.eu/files/3972-att1-1-The_Bordeaux_Communique.pdf). Accessed July 22, 2024.
13. Small Business Act (2008). Available at: <https://eur-lex.europa.eu/EN/legal-content/summary/a-small-business-act-for-european-smes.html>. Accessed July 24, 2024.
14. Strategija Evropa 2020 (2015). Fond za otvoreno društvo i Evropski pokret Srbija, Beograd.
15. Strategic framework for European cooperation in education and training (2009). Available at: <https://eur-lex.europa.eu/legal-content/EN/ALL/?uri=celex%3A52009XG0528%2801%29.-> Accessed July 23, 2024.
16. Entrepreneurship 2020 Action Plan (2013). Available at: <https://www.eesc.europa.eu/sites/default/files/resources/docs/entrepreneurship2020---action-plan.pdf>. Accessed July 20, 2024.
17. Zakon o osnovama sistema obrazovanja i vaspitanja ("Sl. glasnik RS", br. 88/2017, 27/2018 - dr. zakon, 10/2019, 27/2018 - dr. zakon, 6/2020, 129/2021 i 92/2023).
18. Zakon o osnovnom obrazovanju i vaspitanju ("Sl. glasnik RS", br. 55/2013, 101/2017, 10/2019, 27/2018 - dr. zakon, 129/2021 i 92/2023).
19. Zakon o srednjem obrazovanju i vaspitanju ("Sl. glasnik RS", br. 55/2013, 101/2017, 27/2018 - dr. zakon, 6/2020, 52/2021, 129/2021, 129/2021 - dr. zakon i 92/2023).
20. Zakon o obrazovanju odraslih ("Sl. glasnik RS", br. 55/2013, 88/2017 - dr. zakon, 27/2018 - dr. zakon i 6/2020 - dr. zakon).
21. Nacionalna strategija za mlade za period 2015–2025. ("Sl. glasnik RS", br. 22/2015).
22. Strategija razvoja obrazovanja u Srbiji do 2030. godine. ("Sl. glasnik RS", br. 63/2021).
23. Strategija za razvoj malih i srednjih preduzeća za period od 2023. do 2027. godine. ("Sl. glasnik RS", br. 97/2023).
24. Tim za socijalno uključivanje i smanjenje siromaštva Vlada Republike Srbije (2016). Preduzetničko obrazovanje – Komparativni pregled obrazovnih politika, modela i prakse. Available at: [https://socijalnoukljucivanje.gov.rs/wpcontent/uploads/2016/03/Preduzetnicko\\_obrazovanje%E2%80%93Komparativni\\_pregled.pdf](https://socijalnoukljucivanje.gov.rs/wpcontent/uploads/2016/03/Preduzetnicko_obrazovanje%E2%80%93Komparativni_pregled.pdf). Accessed July 22, 2024.
25. Kastratović, E., Dragić, M. (2015). Research on entrepreneurial students tendencies, IV International Scientific Conference "Employment, Education and Entrepreneurship – Creative education for employment growth", Thematic proceedings, Faculty of Business Economics and Entrepreneurship, Belgrade, pp. 206-218.



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# THE INFLUENCE OF DIGITAL MARKETING STRATEGIES ON PERFORMANCE OF SMALL AND MEDIUM-SIZED AGRIBUSINESSES IN NAIROBI COUNTY, KENYA

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DOI: 10.5937/EEE24017B  
JEL: Q13  
Review Scientific Paper

## ABSTRACT

*The digital transformation of agribusiness has become a critical driver of success in the modern agricultural landscape. This study investigated the digital marketing strategies employed by small and medium-sized agribusinesses in Nairobi city County, Kenya and their impact on business performance. The anchoring theories included the Resource-Based View (RBV) by Barney (1991) and the Technology Acceptance Model (TAM) by Davis (1989). The study adopted descriptive survey design research design targeting 61 agribusinesses. The data was analyzed using descriptive statistics and regression analysis. The study found that certain digital marketing strategies are highly prioritized by agribusinesses. Advertisement had the highest mean score ( $M=3.9184$ ) followed by communication of products ( $M=3.7959$ ) and Customer Interaction and feedback ( $M=3.1863$ ). The study found that Internet Marketing Strategies impacted positively on performance of the agribusinesses. The intensity and direction of the link between Internet Marketing Strategies and Performance are indicated by the standardized beta coefficient of 0.255 which is significant at 0.05 ( $p=0.007 < 0.05$ ). This finding aligns with a wealth of existing research emphasizing the vital role of internet marketing in enhancing business performance.*

## KEYWORDS

*agribusinesses, digital transformation, internet marketing*

## INTRODUCTION

The digital revolution has profoundly transformed the business landscape, including the agribusiness sector, which encompasses various activities related to agricultural production, processing, and distribution. Agribusiness companies are realizing that, in order to effectively reach and engage their target audience, they must make use of digital marketing methods, since customers are increasingly depending on digital platforms for information and purchase decisions. Digital marketing is the practice of promoting goods and services and increasing brand awareness through online platforms and technologies like social media, email marketing, content marketing, and engine optimization (SEO). In recent years, researchers and practitioners have paid close attention to how well digital marketing techniques drive performance outcomes like higher sales, customer loyalty, and market share (Smith, 2020).

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According to a study by KPMG (2020), the agriculture and food industry has witnessed a significant shift towards digital marketing strategies, driven by factors such as changing consumer preferences, increased internet penetration, and the need for targeted marketing approaches. This shift has necessitated agribusiness firms to explore innovative digital marketing strategies to effectively engage with their target audience, enhance brand visibility, and ultimately improve their performance in the market.

The agribusiness industry in Kenya has shown resilience and steady growth. The sector has demonstrated its potential to contribute to the country's GDP and foreign exchange earnings. The National Bureau of Statistics for Kenya claims that (KNBS), the agricultural sector accounted for about 34% of the country's GDP in 2020, with significant contributions from crop production, livestock, and horticulture. Furthermore, the agribusiness sector has been a significant source of employment, particularly for rural populations engaged in farming and related activities.

Promoting goods and services using digital channels including websites, search engines, social media platforms, email marketing, and mobile applications is the broad scope of digital marketing efforts. Constantinides and Fountain (2008) claim that as the internet became more and more popular in the late 1990s, the idea of digital marketing began to take shape. At first, it concentrated on search engine optimization and online advertising. But as social media platforms and mobile technology proliferated, so did digital marketing, which now encompasses a wider range of approaches and techniques meant to influence and interact with customers online.

According to Chaffey and Smith (2017), digital marketing gives companies the chance to reach a worldwide audience, customize marketing messages, and track the effectiveness of campaigns in real time. Additionally, digital marketing gives companies the ability to use customer insights and data analytics to maximize their marketing efforts and raise overall efficacy. Utilizing digital marketing strategies has become essential for businesses looking to stay competitive, improve consumer engagement, and spur growth in an increasingly digitalized environment.

Search engine optimization (SEO), search engine marketing (SEM), social media marketing, content marketing, email marketing, and mobile marketing are some of the essential elements of digital marketing (Ryan, 2016).

Advancements in agribusiness practices and technologies have contributed to the evolution of firm performance in the sector. Modern agribusinesses have embraced innovative techniques and technologies, such as precision agriculture, biotechnology, and data analytics, to improve productivity, reduce costs, enhance product quality, and meet evolving consumer demands. These advancements have led to improvements in operational efficiency, supply chain management, and resource utilization, ultimately impacting overall firm performance. Furthermore, as noted by Mishra and Bhatt (2020), advancements in agribusiness have facilitated market access, enabling firms to expand their reach, penetrate new markets, and forge strategic partnerships. Agribusiness firms that effectively leverage these advancements have the potential to achieve sustainable competitive advantages and superior performance outcomes.

Kenya's agricultural sector has seen tremendous growth and has been essential to the socioeconomic development of the nation, enhancing many facets of the national economy and standard of living.

According to Mwai et al. (2019), the evolution of the agribusiness industry in Kenya can be attributed to several factors, including advancements in technology, improved infrastructure, increased access to finance, and supportive government policies. The adoption of modern farming practices, such as irrigation, mechanization, and use of high-yielding crop varieties, has increased production and aided in the expansion of the nation's agricultural industry. Additionally, the development of agro-processing



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industries, cold storage facilities, and improved transportation infrastructure has facilitated value addition and enabled farmers to access higher-value markets both domestically and internationally.

The agribusiness industry in Kenya has undergone significant changes and advancements, particularly in the context of digital marketing. Digital marketing strategies have emerged as crucial tools for agribusiness firms to enhance their performance, connect with customers, and expand market reach. The evolution of the agribusiness industry in Kenya has been influenced by factors such as increasing internet penetration, rising smartphone usage, and the growing adoption of digital platforms.

Kenya's agriculture industry greatly benefits from the contributions of Small and Medium Enterprises (SMEs) in agribusiness, which create jobs, revenue, and value addition. Gitonga et al. (2017) state that SMEs in the agriculture sector are distinguished by their varied activities along the agricultural value chain, small operational scale, and restricted financial resources.

For businesses of all sizes, including those in the agriculture sector, using digital marketing methods has become more and more crucial in recent years. Due to issues like few resources, a lack of technological know-how, and the particulars of the agricultural industry, small and medium-sized agribusinesses confront particular difficulties when adopting digital marketing tactics. Despite these challenges, the adoption of digital marketing strategies by agribusinesses is crucial to remain competitive in the marketplace and to reach potential customers effectively.

The effect of digital marketing tactics on the performance of agriculture companies has been the subject of numerous studies. For example, Meleddu and Pulina's (2019) study examined how Italian agricultural companies were implementing digital marketing and how that was affecting their bottom line. The study found a positive relationship between companies' financial performance and their use of digital marketing, showing that agribusiness companies who actively adopted digital marketing methods typically saw improved financial results. In a similar vein, Ngek et al.'s study from 2021 examined how digital marketing expertise affected Malaysian agriculture firms' ability to compete. The findings showed a significant positive association between digital marketing abilities and competitive advantage, emphasizing the value of applying these strategies to gain a competitive edge.

Sengupta and Ray (2018) investigated how Indian agribusiness companies were implementing digital marketing tactics. The research findings indicated that digital marketing adoption positively influenced firm performance. The study emphasized the importance of overcoming barriers such as limited digital literacy and access to technology for successful digital marketing adoption in the agribusiness sector. Similarly, Kowo and Adeyeye (2021) focused on the Nigerian agribusiness sector but provides valuable insights applicable to the broader East African region. The usage of digital marketing and business performance were shown to be strongly correlated, according to the findings. Agribusiness companies saw increases in consumer loyalty, better sales, and greater financial performance when they used digital marketing channels like websites, social media, and email marketing. In order to maintain their competitiveness and experience sustained growth, agribusiness companies in the area must make investments in digital marketing capabilities, according to the report.

Locally, Nyamwange and Wachira (2020) looked into how Nairobi, Kenya's agriculture enterprises performed in relation to their usage of digital marketing. The results showed a favorable correlation between firm performance and the adoption of digital marketing. Agribusiness companies that successfully used digital marketing tactics into their marketing campaigns saw improvements in sales revenue, enhanced brand recognition, and higher levels of consumer engagement. Chepkirui, Mugo, and Kahi (2019) investigated how digital marketing affected Kenyan smallholder horticulture farmers' productivity. The findings showed that farmers who used digital marketing techniques had better access to markets, higher sales, and more profitability. In particular, farmers were able to access a larger client





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base and accept direct orders by using social media platforms like Facebook and WhatsApp, which decreased their reliance on middlemen and increased their profit margins. The research emphasized the capacity of digital marketing to revolutionize the marketing landscape for Kenyan smallholder farmers.

Kiplagat et al. (2020) have emphasized the necessity for evidence-based insights and guidelines to lead the creation of digital marketing strategies that are specific to the requirements and features of Kenya's agribusiness sector. This study thus sought to investigate the influence of digital marketing strategies on the performance of small and medium-sized agribusinesses in Nairobi County.

## LITERATURE REVIEW

This study is anchored in the Technology Acceptance Model (TAM) and the Resource-Based View (RBV). Acceptance Model (TAM) as advanced by Davis' (1989) has been extensively used to foresee and explain people's acceptance and adoption of new technology inside enterprises Accordingly, Perceived utility and perceived ease of use are the two primary factors that influence users' behavioral intentions to accept a technology, A person's assessment of a technology's usefulness is based on how much they believe it will enhance their ability to perform their duties more efficiently or effectively.

Digital marketing tactics in small and medium-sized agribusiness enterprises can benefit from the application of the Technology Acceptance Model (TAM), which offers insightful information on people's acceptance and uptake of new technologies. Perceived usefulness plays a crucial role in the context of digital marketing, as agribusiness firms need to perceive that these strategies can effectively promote their products or services, attract potential customers, and ultimately contribute to business growth. Furthermore, the perceived ease of use of digital marketing tools is significant, as it determines the level of simplicity and convenience in implementing and managing these strategies within agribusiness firms.

On the other hand, Resource-Based View (RBV) centers on how a firm's capabilities and resources contribute to its ability to gain and maintain a competitive advantage. According to the RBV, enterprises can gain a long-term competitive advantage from resources that are valuable, rare, unique, and non-substitutable (VRIN) (Barney, 1991). The RBV's proponents contend that it provides an insightful viewpoint for comprehending how businesses can make the most of their special resources to attain exceptional success. It emphasizes the importance of internal factors, such as organizational knowledge, skills, technology, and reputation, in driving competitive success (Barney, 1991; Teece et al., 1997).

When applied to the context of digital marketing strategies and performance of agribusinesses, the RBV offers valuable insights into how organizations can leverage their resources to enhance their digital marketing efforts and improve overall performance. Proponents of the RBV argue that a firm's resource endowments, such as technological infrastructure, data analytics capabilities, brand reputation, and customer relationships, can contribute to the effectiveness and efficiency of digital marketing strategies (Barney, 1991). By leveraging these resources, agribusinesses can develop targeted and personalized digital marketing campaigns, improve customer engagement, and gain a competitive edge in the digital marketplace.

## EMPIRICAL REVIEW

Numerous studies have examined various aspects of digital marketing strategies and their effects on different performance outcomes, such as sales, customer engagement, and brand reputation. For



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example, Smith and Sanchez (2018) showed that digital marketing strategies, in particular, social media marketing and online advertising, – positively influenced sales performance in their research of American agriculture enterprises. Similar to this, Hinson et al. (2020) found a favorable correlation between customer engagement levels and digital marketing activities when they looked into how digital marketing affected consumer participation in Ghana's agriculture sector.

Nderitu et al. (2020) investigated the usage of digital marketing platforms by small-scale horticultural businesses and its effects on market access and profitability in a study carried out in Kenya. The results showed that these local agribusinesses' financial performance and market access were greatly enhanced by using digital marketing tools like social media and online marketplaces.

Even while empirical research on digital marketing techniques and agriculture performance has advanced, there are still a number of unanswered research questions. First and foremost, further research is required to determine the precise mechanisms and procedures by which digital marketing tactics affect performance outcomes in the agriculture industry. Legislators and practitioners can gain important insights into creating successful digital marketing strategies by comprehending the underlying mechanisms.

## RESEARCH METHODOLOGY

The study adopted a descriptive cross-sectional survey research design SMEs working in Nairobi County's agriculture sector made up the research population for this study. The focus was on the total number of SMEs enlisted by the Kenya Climate Innovation Center (KCIC) under the umbrella of agribusiness and innovation. As of 2022, KCIC had enlisted a total of 61 SMEs under its umbrella. This populace was therefore be the focus of this study. Primary data from a questionnaire were used in data collection. Data was analyzed using descriptive and inferential statistics.

## STUDY FINDINGS

Of the 61 questionnaires issued, 49 were filled out and returned, yielding a response rate of about 80.3%. Majority of the respondents (79.6%) were male, while 20.4% were female. Among the respondents, 40.8% had at least a university-level education, while 42.9%, reported having a professional education. Only 16.3% indicated having a college-level education. 42.9%, of the participating micro and small Agribusiness (MSA) operators had 1-10 employees, while 30.6% of the agribusinesses had 11-20 employees. 26.5% of the agribusinesses 21-30 employees. The data reveals that a significant portion (51%) of the participants have worked in their respective firms for 1-5 years, indicating a relatively significant experience. Additionally, a substantial number (20.4%) of participants reported having 11-15 years of service, signifying a group of more experienced individuals. Their long tenure within the firms might indicate a deep understanding of the company's operations, which could affect the integration of digital marketing strategies with broader business goals. Furthermore, the presence of respondents with less than one year of service (10.2%) and those with 6-10 years of service (18.4%) reflects the diversity of experiences within the sample, which may lead to variations in digital marketing knowledge, practices, and their impact on Small and Medium Agribusiness (SMA) performance.

Micro and Small Agribusiness (MSA) respondents. (59.2%) of the agribusinesses had been in business for six to ten years, followed by 22.4% with one to five years and 12.2% with fifteen to twenty years.



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Only 6.1% of the companies have been in business for more than 15 years. The study found that the agribusinesses adopted various digital marketing strategies as indicated in Table 1.

Table 1. Manifestation of Digital Marketing Strategies

Strategies	Mean	Std. Deviation
Conveying information about products	3.7959	.95698
Engaging with customers and obtaining their feedback (Customer relationship management)	3.8163	.05423
Promoting products or services	3.9184	.01728
Venturing into new markets	3.5918	.01895
Streamlining the tracking of individual employees' sales	3.8163	.85813
Enhancing products or services based on client input	2.8571	.27475
Enhancing communication with other stakeholders	2.6939	.38750
Observing and assessing results	2.8163	.36433
Minimizing operational turnaround time	3.0816	.38198
Enhancing visibility for the firm	3.4694	.08209
Concentrating on specific target customers	3.2449	.25051
Aggregate Valid N (listwise)	3.3729	.1497

Source: Research data, 2023

The strategy with the highest mean score was Promoting products or services information ( $M = 3.9184$ ,  $SD = .01728$ ) followed by Engaging with customers and obtaining their feedback ( $M = 3.8163$ ,  $SD = .05423$ ) and Streamlining the tracking of individual employees' sales ( $M = 3.8163$ ,  $SD = .85813$ ). Communication of products information ( $M = 3.7959$ ,  $SD = .95698$ ) was also found to be quite popular with the firms. Past research has consistently emphasized the pivotal role of communication in marketing, especially in the digital realm, where customer engagement is key (Churchill, 2019). Further, Customer Interaction and feedback underlines the paramount importance of maintaining strong customer relationships in the digital marketing landscape, aligning with prior studies highlighting its positive impact on business performance (Gatobu, 2018).

Several performance indicators were assessed as shown in Table 2.

Table 2. Manifestation of Firm Performance

	Mean	Std. Deviation
Enhanced financial performance	3.7959	.06553
Expansion of market presence	3.5306	.00212
Stimulated market growth	3.6531	.46934
Enhanced customer allegiance	3.5306	.06266
Elevation of the company's reputation	3.7347	.47416
Augmented competitive edge	3.6939	.93995
Entry into new market segments	3.9592	.09915
Valid N (listwise)		

Source: Research data, 2023



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The findings related to performance variables shed light on how small and medium agribusinesses are faring in the context of their digital marketing strategies. Increased Profitability, with a mean of 3.7959, (SD = 0.06553) reflects a slightly higher than average performance. . With a mean of 3.6531, which is somewhat higher than the aggregate mean, Increased Market Growth indicates a considerable degree of performance improvement. The comparatively large standard deviation of 0.46934 suggests some variation in the responses.

Firm's Image Enhancement, with a mean of 3.7347, slightly above the aggregate mean, showcases a moderate level of performance in enhancing the firm's image. The standard deviation of 0.47416 implies some variation in the perceived impact. Increased Competitive Advantage, with a mean of 3.6939, falls in line with the aggregate mean. The large standard deviation of 0.93995 indicates that there are more divergent views regarding the extent of competitive advantage. Agribusinesses have effectively entered new market niches through their digital marketing activities, as evidenced by a mean of 3.9592, (SD = 0.09915).

Regression analysis was done to show the influence of internet marketing Strategies on Performance of the agribusinesses. The results are shown in Table 3, 4 and 5.

Table 3. Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.655 <sup>a</sup>	.54	.045	.68756
a. Predictors: (Constant), Internet Marketing Strategies				

Source: Research data

An evaluation of the model's goodness of fit can be done using the key statistics provided by the model summary. The regression model had a R-squared value of 0.54, which shows that Internet Marketing Strategies account for around 54% of the variance in performance of small and medium-sized agribusinesses.

Table 4. ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	1.547	1	1.547	3.272	.047 <sup>b</sup>
	Residual	22.218	47	.473		
	Total	23.765	48			
a. Dependent Variable: Performance						
b. Predictors: (Constant), Internet Marketing Strategies						

Source: Research data, 2023

The ANOVA table offers crucial information on the statistical significance of the regression model. Internet marketing tactics are the indicated predictor, while performance is the dependent variable. The results show a statistically significant correlation between small and medium-sized agriculture performance and Internet marketing strategies. The model appears to be significant overall, and the F-statistic ( $p = 0.047$ ) indicates that the independent variable (Internet Marketing Strategies) contributes to the explanation of variation in the dependent variable (Performance).



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Table 5: Table of coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	2.712	.555		4.885	.000
	Internet Marketing Strategies	.293	.162	.255	1.809	.007
a. Dependent Variable: Performance						

*Source: Research data*

The intensity and direction of the link between Internet Marketing Strategies and Performance are indicated by the standardized beta coefficient of 0.255 which is significant at 0.05 ( $=0.007 p < 0.05$ ).

## CONCLUSIONS

In conclusion, this study has explored the digital marketing strategies employed by small and medium-sized agribusinesses and their impact on business performance. Through a thorough analysis of descriptive statistics and a simple linear regression, the research has unveiled critical insights. The findings highlight the significance of strategies such as effective communication, advertising, and internet marketing in the agribusiness sector, underscoring their positive influence on performance. The study emphasizes the pivotal role of Internet Marketing Strategies and their potential to enhance performance. Moreover, the variation in respondents' opinions regarding different strategies and their impact offers avenues for further exploration and fine-tuning of digital marketing efforts in this sector.

Furthermore, these findings align with and extend the insights garnered from prior studies in the field. The positive Beta value of 0.255 not only confirms the positive link amid Internet Marketing Strategies and Performance but substantiates this relationship is consistent with the trends identified in previous research. This convergence with existing literature not only reinforces the credibility of the study's results but also supports the relevance and generalizability of findings within the broader landscape of digital marketing research. The standardized coefficient, coupled with the statistically significant p-value, collectively underscores the pivotal role of Internet Marketing Strategies in shaping digital marketing performance, providing practical implications and validating the robustness of the research outcomes.

## RECOMMENDATIONS

First and foremost, it is crucial for these businesses to prioritize the development and implementation of effective Internet Marketing Strategies. Since there is a positive link amid internet marketing and performance, agribusinesses can enhance their online presence by utilizing digital platforms, content marketing, social media, and search engine optimization. In order to be competitive in the always changing online environment, this also entails keeping up with the most recent developments in digital marketing trends and technologies.



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Second, agribusinesses should focus on improving their communication and customer interaction strategies. The high mean scores for "Communication of products" and "Customer Interaction and feedback (Customer relations)" highlight the importance of effective engagement with customers. Establishing robust communication channels, actively seeking customer feedback, and responding promptly to inquiries and concerns can foster stronger customer relationships and, in turn, boost loyalty and brand perception. Furthermore, agribusinesses should take into account the specific needs and preferences of their target customer segments, as emphasized by the "Focusing on target Customers" strategy. To enhance their digital marketing efforts, businesses must consider segment-specific approaches in their campaigns and tailor their content to better resonate with their intended audience.

## SUGGESTIONS FOR FURTHER STUDIES

The study suggests that further research could focus on a longitudinal research for a more thorough understanding of the dynamics of the variables being studied, in order to reveal how the effectiveness of these strategies evolves over time and how external factors influence these relationships. Similarly, comparative studies can assess how digital marketing strategies and their impact on agribusiness performance vary across different types of agribusinesses (e.g., crop-based vs. livestock-based). Such studies could shed light on the nuances of digital marketing in the diverse agribusiness landscape. Lastly, future research should consider including external variables such as economic conditions, regulatory changes, and technological advancements to better assess their influence on agribusiness performance. A more comprehensive model could be developed to capture the complex interplay between internal digital strategies and external factors.

## REFERENCES

- Chaffey, D., Smith, P. R. (2017). *Digital Marketing Excellence: Planning, optimizing and integrating online marketing*. Taylor & Francis, London.
- Constantinides, E., Fountain, S. J. (2008). Web 2.0: Conceptual foundations and marketing issues. *Journal of Direct, Data and Digital Marketing Practice*, 9(3), 231-244.
- Davis, F. D. (1989). Perceived usefulness, perceived ease of use, and user acceptance of information technology. *MIS Quarterly*, 13(3), 319-340.
- Gatobu, J. N. (2018). *Digital Marketing Strategies and Performance of Fashion Industry in Nairobi City County, Kenya* (Doctoral dissertation, Kenyatta University).
- Kenya National Bureau of Statistics (2021). *Economic Survey 2021*. Retrieved from <https://www.knbs.or.ke/publications/>
- Mishra, A. K., Bhatt, R. (2020). Strategic agility and innovation in agribusiness: A systematic review. *Journal of Agribusiness in Developing and Emerging Economies*, 10(2), 125-142.
- Mwai, R. W., Miriti, J. M., Mutua, J. Y. (2019). The evolution of agribusiness industry in Kenya: A review of its development, performance, and challenges. *Advances in Agriculture*, 1-10.
- Ndegwa, J. W. (2015). *Knowledge sharing, organizational learning, firm-level institutions and performance of top medium-sized companies in Kenya* (Doctoral dissertation, University of Nairobi).



## Conference Proceedings

Ng'ang'a, C. M. (2015). Effectiveness of Digital Marketing Strategies on Performance of Commercial Banks in Kenya.

Ngugi, J., Bwisa, H. (2013). Factors influencing growth of group owned small and medium enterprises: a case of one village one product enterprises. *International Journal of Education and Research*, 1(8), 12–24

Ryan, D. (2016). *Understanding digital marketing: Marketing strategies for engaging the digital generation*. Kogan Page Publishers, London.



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## DETERMINANTS OF WHEAT COMMERCIALIZATION IN DAMOT GALE DISTRICT OF WOLAITA ZONE

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DOI: 10.5937/EEE24018A  
JEL: C21,C24, Q12, Q13  
Original Scientific Paper

### ABSTRACT

*Transforming subsistence-farming to market-oriented production as a way to increase household's income and reduce poverty in Ethiopia. The objectives are to identify factors determining wheat commercialization in Damot Gale district of Wolaita zone. Multi-stage sampling techniques were employed to select total sample size of 120 households. Firstly, Damot Gale was purposively selected due to its high production potential of cereal crops. Three Kebeles, namely Wandara Boloso, Woshi Gale and Fate were purposively selected. The sample for each kebele was determined by using probability proportional to size using simple random sampling technique. Both primary and secondary data sources were used to generate qualitative and quantitative data types through structured questionnaire, focus group discussion, personal observation and in-depth interview. Data collected were analyzed using household commercialization index and binary logit model. The household commercialization index showed that 45.9% of wheat producing households were commercialized. From sample households, 72.5% participated in wheat output market. Binary logit regression model result revealed that the sex of household head, education level of household head, market-oriented production, credit utilization, extension services use and market information use, number of oxen owned, annual household income, quantity of wheat produced, use of farm inputs and age of household head. Therefore, market orientated production, farm inputs utilization, demonstrative trainings, MFI services, market information dissemination and functional adult literacy can contribute wheat commercialization of households in the study area.*

### KEYWORDS

*binary logit model, commercialization, Damot Gale, output market participation, smallholder*

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# INTRODUCTION

Wheat (*Triticumaestivum* L.) is one of the globally produced and marketed cereal crop in sub-Saharan African countries, it is also a strategic commodity which generates farm income and improves food security status (Amentae et al., 2017). Many African countries are producing wheat for both consumption and sale, but the level of production and sale is varied between countries. Ethiopia is one of the largest wheat producers in terms of total wheat area cultivated and total production (CSA, 2019). In Ethiopia, wheat and wheat products represent 14% of the total calorie intake in the country which makes wheat the second-most important food behind maize (19%) and ahead of teff (10%), sorghum (11%) and enset (12%) (FAO, 2017). Ethiopia ranks 31<sup>st</sup> in the world with 4.2 million quintals produced on 1.7 million hectares of land (Goshu et al., 2019). Wheat can be produced by both small-scale subsistence farmers and large-scale commercial farms. Teff, wheat, maize and sorghum occupy almost three-quarters of the total area cultivated, and they are the major cereal crop for the country (Tadesse et al., 2018).

In Ethiopia, the wheat commercialization program is aimed at improving the livelihood of different actors engaged in the wheat value chain. Several studies confirmed that wheat commercialization plays an important role in poverty reduction, job creation, income generation, meeting household consumption needs, and ensuring food security (Abate et al., 2021, Mihretie, 2020, Muche, Tolossa, 2022; Tadesse et al., 2022). Wheat commercialization involves a shift from subsistence production to a market-oriented production and consumption system that leads to the strengthening of the linkages between the input and output sides of a market (Rubhara, Mudhara, 2019, Tabe Ojong et al., 2022).

Agricultural commercialization stimulates the economic growth of developing nations like Ethiopia. It is one of the priority areas that the government of Ethiopia has been making reformation in the agriculture sector to stimulate rural development and poverty reduction (Birhanu et al., 2021). However, transforming agriculture from an existing scenario to a market-oriented production system is not an easy task in developing countries like Ethiopia as many factors determine its process. Commercialization of agriculture plays an important role in enhancing economic development and poverty reduction in developing nations, especially countries whose development is based on agriculture (Andaregie et al., 2021).

Wolaita wheat and barley livelihood zone is a mountainous and densely populated area that includes the highland, and midland agro-ecologies of Wolaita administrative zone. It covers parts of Damot Gale, Sodo Zuria, Kindo Koysha, Damot Weyde and Bolosso Sore districts. Damot Gale district is known by higher wheat production potential and endowed favorable climatic and natural resource conditions that can grow diverse annual and perennial crops required for household consumption and for the market. Despite the fact that the district produces agricultural products based on rain-fed. According to Damot Gale district report (2020), the agricultural system is mixed farming. Households grow wheat, enset, barley, sweet potatoes, Irish potatoes, pulses (haricot beans, horse beans and peas) and small amounts of maize. In addition, crops such as taro, yam, beetroot, carrots and cabbages are cultivated in some pocket areas

## METHODOLOGY

Damot Gale district is one of 135 districts in the Southern Nations Nationalities and Peoples Region (SNNPR) state. It is 18 km to the northwest of Sodo town, the seat of Wolaita zone administration. It is at 350 km at South-West of Addis Ababa and 135 km from Hawasa in Southern Nations Nationalities



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and Peoples Region. The study area has three agro-ecological zones, namely highland (11.6%), midland (60.4%) and wet lowland (28%). The area receives rain fall in two main rainy seasons, which rangers from 900mm-1500mm per year. The topography of the area includes plain lands to plateaus, hills and rugged mountain lands. It is located between the altitudes of 1500 – 2900 masl.

There are two main cropping seasons in the area: “Belg” and “Meher”. The “Belg” season begins from late February to early April where maize, haricot bean, “enset,” sweet potato and Irish potato planted. The “Meher” cropping season begins from late June up to the end of September crops like Wheat, Barley, Teff, Sweet potato, Irish potato are planted. The total area of the district is 22,252.75 ha with density per square Km of 750. The total population of Damot Gale is 144,763 of which 49.34% are male headed households and 50.66% are female headed households (DGWARDO, 2020).

Multi-stage sampling technique was used to select the rural Kebeles and sample households. From four wheat producing rural districts of Wolaita Zone, Damot Gale district was purposively selected as it is known by its production potential and lack of studies. In the first stage, out of eight wheat producing Kebeles of Damot Gale, three were purposively selected. The Kebeles selection was done by referring the district`s annual report about wheat production and productivity. In the second stage, the number of sample households was determined using probability proportional to size (PPS) by considering 20% of female households. In the third stage, sample households were selected using simple random sampling.

The household heads of the three Kebeles (Fate, Woshi Gale and Wandara Boloso) were 861, 796 and 1078 respectively. There were a total of 2735 households in the three selected Kebeles. As a result, 120 households were selected for this study. Thus, the sample households selected by using simple random sampling techniques (Table 1).

Table 1. The sample household selection procedure

S. No.	Selected kebeles	Total HHs of kebeles	MHHs of the kebeles	FHHHs of the kebeles	MHHHs Selected	FHHHs Selected	Sample Size
1.	Fate	861	741	120	33	5	38
2.	Woshi Gale	796	630	166	28	7	35
3.	Wandara Boloso	1078	823	255	36	11	47
	<b>Total</b>	<b>2735</b>	<b>2194</b>	<b>541</b>	<b>97</b>	<b>23</b>	<b>120</b>

Source: Own survey, 2020.

In this study primary and secondary data sources were used to gather quantitative and qualitative data. The primary sources were sample households, key informants, field level Development Agents (DAs) and district level experts. Secondary data were obtained from Damot Gale District office of Agriculture and Rural Development Reports, CSA, Bureau of Agriculture and Rural Development, and Bureau of Finance and Economic Development, books, internet browsing and journals focusing on commercialization of cereal crops. Qualitative and quantitative data were collected by using household’s interview schedule and Focus Group Discussion (FGD) with Key Informants Interview (KII) respectively. Semi-structured questions were developed for household’s interview schedule and in-depth interview was deployed for FGDs.



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**Analytical Techniques and Variables Measurements  
Household Commercialization Index (HCI)**

The Household Commercialization Index (HCI) is used to determine household specific level of commercialization (Govereh, Jayne, Nyoro, 1999). This ratio does not incorporate the livestock subsector, which could be more important than crops in some farming systems (EEA, 2018). The index measures the ratio of the gross value of wheat sales by household *i* in year *j* to the gross value of all crops sales by the same household *i* in the same year *j* expressed as a percentage. The index measures the extent to which household wheat production is oriented toward the market. A value of zero would signify a totally subsistence-oriented household and the closer the index is to 100, the higher the degree of commercialization. The advantage of this approach is that commercialization is treated as a continuum thereby avoiding crude distinction between “Commercialized” and “Non-Commercialized” households. This effectively brings subsistence food production to the center of discussions about commercialization.

$$HCI_i = \frac{\text{Gross value of wheat sales } hh_i \text{ year } j}{\text{Gross value of all crops sale } hh_i \text{ year } j} * 100\% \dots\dots\dots(1)$$

Where: HCI<sub>*i*</sub> = household commercialization index  
 hh<sub>*i*</sub> = sample household participated in wheat sale  
 year *j* = selected production year for this study

**Binary Logistic Model Specification**

For models used for dummy dependent variable analysis for the binary response, the binary logit model was used to compute the probability of household wheat output market participation for this study Gujarati (2003). In estimating the binary logit model, the dependent variable is wheat output market participation which takes the value of 1 if a household sell the product in the specific market and 0 otherwise. Review of literature and authors knowledge about wheat commercialization, wheat output market participation, of the study area was used to identify the potential determinants of smallholder’s wheat output market participation. The explanatory variables, their description and measurements are given in Table 2.

The mathematical formulation of Binary logit model is as follows:

$$P_i = \frac{e^{Z_i}}{1+e^{Z_i}}$$

Where P<sub>*i*</sub> is the probability of wheat output market participation for the *i*<sup>th</sup> household and ranges from 0-1.

Z<sub>*i*</sub> is a function of N- explanatory variables which is also expressed as:

$$Z_i = \beta_0 + \sum \beta_i X_i + U_i$$

Where: *i*= 1, 2, 3..... , *n*

$\beta_0$  = intercept

$\beta_i$  = regression coefficient to be estimated or logit parameter

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$U_i$  = is a disturbance term, and  
 $X_i$  = output market participation

The probability of households belongs to non- participation is:

$$1 - P_i = \frac{1}{1 + e^{Z_i}}$$

Therefore, the odds ratio can be written as:

$$\frac{P_i}{1 - P_i} = \frac{1 + e^{Z_i}}{1 + e^{-Z_i}} = e^{Z_i}$$

Now,  $P_i/1-P_i$  is simply the odds ratio of participating in output market. It is the ratio of the probability that the household would participate in wheat output market to that he/she not participate in output market.

Finally, by taking the natural log of equation (4) the log of odds ratio can be written as:

$$L_i = \ln\left(\frac{P_i}{1 - P_i}\right) = \ln(e^{\beta_0 + \sum_{j=1}^n \beta_j X_{ji}}) = Z_i = \beta_0 + \sum_{j=1}^n \beta_j X_{ji}$$

Where:  $L_i$  is log of the odds ratio in favor of participation in the output market, which is not only linear in  $X_j$  but also linear in parameters.

Table 2. Summary explanatory variables

Variables	Specification	Expected Sign	Unit of Measurement
Age of household head	Continuous	+	Number of years
Sex of household head	Dummy	+	Male or Female
Education level	Categorical	+	Assign scale
Market information use	Dummy	+	Assign score value
Credit utilization	Dummy	+	Assign score value
Use of extension service	Dummy	+	Assign score value
Family size	Continuous	-	Household members
Total household income	Continuous	+	Ethiopian Birr
Use of farm inputs	Dummy	+	Assign score value
Proximity to market	Continuous	-	Kilometers
Number of oxen owned	Continuous	+	Number
Total land size	Continuous	-	Hectares
Market orientation	Dummy	+	Assign score value
Quantity of wheat produced	Continuous	+	Quintals

Source: Own survey, 2020



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## RESULTS AND DISCUSSION

### Household Commercialization Index, Household's wheat market participation

Agricultural commercialization refers to the process of increasing the proportion of agricultural production that is sold by farmers. Commercialization of agriculture as a characteristic of agricultural change is more than whether or not a cash crop is present to a certain extent in a production system. It can take many different forms by either occurring on the output side of production with increased marketed surplus or occur on the input side with increased use of purchased inputs.

Table 3. Cereal crops commercialization status in production year 2018/19

Crops	Gross value of crop sales in Birr	Gross value all crops' sales in Birr	Percentage ratio
Teff	453,600.00	1,098,000.00	41.31
Wheat	504,000.00	1,098,000.00	45.90
Barley	48,800.00	1,098,000.00	4.44
Maize	78,000.00	1,098,000.00	7.10
Sorghum	13,600.00	1,098,000.00	1.25

Source: Computation from field survey, 2020

The result of Table 3 shows that wheat is the leading commercialized crop followed by teff. The output of HCI revealed the status of wheat commercialization in the study area which is slightly higher than the national level 33 to 36% (EDHS, 2019).

### Socio-Demographic Characteristics of the Households

Table 4. Proportion of dummy and categorical variables by wheat market output participation by sample households

Variables	Participated in wheat output market	Not participated in wheat output market	Chi-square	P V
Market orientation	Yes 76 (87.4%) No 11 (12.6%)	8 (24.2%) 25 (75.8%)	45.382	0.000***
Sex	Male 80 (92%) Female 7 (8%)	Male 16 (48.5%) Female 17 (51.5%)	28.26	0.000***
Education level	Illiterate 25 (28.7%) 1-4 32 (36.8%) 5-8 10 (11.5%) 9-12 11 (12.6%) 10+1 & above 9(10.3%)	Illiterate 21 (63.6%) 1-4 5 (15.2%) 5-8 3 (9.1%) 9-12 3 (9.1%)	13.155	0.011**



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		10+1 and above 1 (3%)		
Credit use	Yes 37(30.8 %) No 50 (41.7 %)	Yes 7 (5.8%) No 26 (21.7%)	4.68	0.030**
Extension service use	Yes 73 (83.9%) No 14 (16.1%)	Yes 16 (48.5%) No 17 (51.5%)	15.669	0.000***
Market information use	Yes 51 (58.6%) No 36 (41.4%)	Yes 10 (30.3%) No 23 (69.7%)	7.676	0.006***
Uses of farm inputs	Yes 76 (87.4%) No 11 (12.6%)	Yes 1 (3% ) No 32 (97% )	73.991	0.000***

\*, \*\*, \*\*\* indicates significance level by 10%, 5% and 1% respectively

*Source: Own survey, 2020*

It is hypothesized that market orientation and output market participation are positively related. The result showed that from sample household heads participated in wheat output market 87.4% were market oriented and 12.6% were not. Whereas 24.2% and 75.8% those were market oriented did not participate in wheat output market respectively. The Chi-square test result revealed that market orientation is significant in output market participation at 1% probability level.

Findings revealed that 80% were male-headed and 20% were female headed with the proportion of male headed households is quite higher than that of female-headed households. About 92% and 8 % male-headed and female-headed households respectively sold their wheat product whereas 48.5% of male-headed, 51.5% of female headed households did not sell and thus did not participate in output market. The Chi-square test confirmed that sex is significant at less than 1% probability level.

The sample household heads education level range goes from those who did not attend any formal education at all to those who attended 10+3 at diploma level. Categorically, 61.7% were literate whereas 38.3% were illiterate indicating that most of household heads can, at least, read and write- an important factor in the commercialization of farming. The result indicated that 28.7% illiterate household heads participated in wheat output market but 63.6% did not. On the other hand, 71.3% of literate household heads participated in wheat output market but 36.4% literates did not participate in wheat output market. The chi-square value proved that education is significant for wheat commercialization at less than 5% probability level.

The result also revealed that 30.8% of credit users and 41.7% who did not use credit participated in wheat commercialization. Whereas 5.8%, of those who used credit and 21.7% did not use credit did not participate in output market. The Chi-square test showed that the variable is significant at less than 5% probability level.

The large portion of household heads (83.1%) who sold their wheat product to market had accessed extension services and 48.5% who did not participate in output market accessed extension services. On the contrary, 16.1% who did not access extension services sold their wheat product to market and 51.5% who did not access extension services did not participate in output market. The Chi-square test confirmed that access to extension services is significant at 1% probability level.

As it is demonstrated, 58.6% who had access to market information has participated in wheat output market but 41.4% who haven't accessed market information were found participants. On the other hand, 30.3% and 69.7% who accessed and not market information respectively did not participate in wheat output market. The Chi-square value proved that market information is positively associated with wheat output market and it is statistically significant at 1% probability level.



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From the sample households 87.4% and 3% who used DAP and UREA participated in wheat output market whereas 12.6% and 97% did not participate in output market. The Chi-square value proved that market information is positively associated with wheat output market and it is statistically significant at 1% probability level.

Table 5. Mean of continuous variables by wheat market participation

Variables	Overall		Participated in output market	Not participated in output market	t-value
	Min (Max)	Mean(SD)	Mean (SD)	Mean (SD)	
Age	18 (70)	36.88(11.116)	37.25 (11.403)	44.45 (15.871)	-2.758 ***
Family size	2 (15)	4.76 (8.859)	4.34(7.790)	4.65 (7.969)	-2.186
Land holding (ha)	0.125 (4)	1.06 (0.729)	1.07 (0.97)	0.802 (0.482)	0.885
Annual income (birr)	700 (50,000)	3358(5211.30)	4306.55(5822.31)	712.12 (477.98)	5.708***
Number of Oxen	1(20)	1.04(2.085)	1.22(2.392)	0.56(0.682)	2.348
Quantity of wheat produced(qt)	3(70)	6.56(5.274)	6.98(5.87)	5.45(3.022)	1.856*
Market distance (km)	1(13)	2.24 (0.917)	2.20 (0.860)	2.36 (1.055)	-0.818

\*, \*\*, \*\*\* at 1,5,10% significant level respectively and NS (not significant).

Source: Own survey, 2020

As given in Table 5, the mean age of household's who were participated in wheat output market was 37.25years with standard deviation of 11.403 which implies that the age of households participated in output market were decreased by 8.75 years from the national average whereas the mean age of households who were not participated in output market was 44.45 years with standard deviation of 15.871, the result also decreases from the national average by 1.55 years. The mean age of the household who participated in output market is below national average and the age of households who did not participate in output market is higher than those sold to the market. The t-test confirmed that the variable age is significant at less than 1% probability level.

The overall mean family size of sample households is 4.76 which is almost similar with the national average 4.8 with standard deviation of 8.859 (CSA, 2018). The sample revealed that minimum and maximum family size of 2 and 15, respectively. It is depicted in Table 5, that the mean family size of the households who participated in output market was 4.34 with standard deviation of 7.790 and who were not participated was 4.65 with standard deviation of 7.969. The household's family size was negatively related with wheat output market participation but it was insignificant. The t-test and P value showed that the variable is insignificant.

The result revealed that the mean land holding size of the households who participated in wheat output market is owned 1.07 ha and those who did not participate was 0.97 ha. The mean values are lower than the national average 1.18 ha given in Agricultural Statistical Survey for 2007/8 by Gebregzihabher (2010). This figure demonstrates that majority of Ethiopian farmers are smallholders and they deserve attention from policy makers. The mean land holding sizes between those who sold their output and not



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were insignificantly varied. As to the t-test analysis and the p value, the variable land holding size is insignificant to wheat commercialization in the study area.

Results from Table 5, indicates that the mean total annual income for households that participated in output market was 4306.55 Birr with standard deviation of 5822.31 whereas households that did not participate have earned 712.12 Birr with standard deviation of 477.98 which by far lower than the participant households. The t-test analysis result proved that household's income is significant for wheat commercialization at 1% probability level. The annual income for households who did not participate in output market is far lower than the national average income of food insecure areas.

The result shows that the household that participated in output market owned an ox on average and that did not participate had no ox. The result fitted with the ground reality and female headed households were farming by hoe/fork for farming which adversely affects their market participation due to subsistence production. Mostly male headed households who owned oxen more than three used shared-in cropping and enjoying the benefit of higher production. The t-test proved as the variable is significant at less than 5% probability level.

The average quantity of wheat produced by households participated in wheat output market was 6.98 Qt with standard deviation of 5.45 whereas the mean production of the household did not participate in output market is 5.87 Qt with standard deviation of 3.022. That result indicated that those who produce in larger amount better participate in the output market. The t-test confirmed that the variable is significant at 10% probability level.

Regarding the distance taken to travel from home to the nearest market where they sold their product, the mean distance traveled by households who sell their product was 2.20 with standard deviation of 0.860 and those who did not sell was 2.36 with standard deviation of 1.055. The t-value confirmed that the mean variation of distances from home to the nearest output market for households to sell their product was not is significant.

## Determinants of Wheat Output Market Participation for Smallholder Farmers

Demographic, socio-economic and institutional variables which are believed to have influence on the smallholder's wheat commercialization (output market participation) are included in this finding based on the literatures reviewed.

Table 6. Binary Logit estimates for factors determining output market participation

Variable	$\beta$	Odds ratio Exp ( $\beta$ )	Wald	Std error	P value
SEXHHH	1.977	7.222	15.881	0.496	0.000***
AGEHHH	-0.477	0.620	4.086	0.231	0.043**
EDUCLEV	0.862	2.368	14.718	0.225	0.000***
LANDSZ	0.105	1.111	0.128	0.294	0.720
MKTORNT	3.027	21.591	43.015	0.519	0.000***
CREDTACS	1.011	2.749	4.447	0.478	0.034**
EXTNSRVC	1.172	5.540	39.424	0.454	0.000***
FAMLYSZ	-0.430	1.044	22.178	0.073	0.554
QUNTPRD	0.091	1.095	2.434	0.058	0.119





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MRKTINFO	1.181	0.437	24.658	7.310	0.006***
DISTNCE	0.034	1.035	0.199	0.076	0.655
USEFRMINP	3.374	29.20	35.485	0.566	0.000***
THHINCM	0.004	1.004	17.835	0.241	0.000***
OXENOWN	0.108	1.114	0.483	0.150	0.478
CONSTANT	0.969	2.636	22.483	0.204	0.000***

Cox and Snell R<sup>2</sup> 0.692

Nagelkerke R<sup>2</sup> 1.000

Note: \*\*\*, \*\*, & \* indicate significance level at 1%, 5%, and 10%, respectively.

*Source: Own survey, 2020*

The Binary Logit Regression analysis disclosed the explanatory variables that were statistically significant and had casual impact on smallholder's wheat output market participation.

The model goodness of fit as to the result of Cox and Snell R<sup>2</sup> was 0.692 indicating that 69.2% of the variation in wheat output market participation is explained by logit model. The Nagelkerke modification that does range from 0 to 1 is a more reliable measure of the relationship. Nagelkerke's R<sup>2</sup> will normally be higher than the Cox and Snell measure (Gujarati, 1998). Nagelkerke's R<sup>2</sup> is part of SPSS output in the 'Model Summary' table and is the most reported of the R-squared estimates. In this study it was 1.000, indicating as there is strong relationship of 100% between the predictor and the prediction.

### Sex of Household Head

The sign of the coefficient of sex of household head showed positive and significant relationship with wheat output market participation at 1% significance level. The positive relationship implies that male headed households have more chance to participate in wheat output market. The result is fully in conformity with the prior expectation. This result agreed with ground reality as focus groups discussion convinced the farmers participating in output market and producing in market-oriented basis are male headed households than female headed households. This could be due to physical fitness and low resource endowments of female headed households; so, it made them subsistent farmers, produced for home consumption only. The odds ratio of being male headed household is in favor of participating in output market by 7.222, keeping all other variables held constant. The result is in line with the findings of Gebregzihabher (2010) in that sex of household head is one of the factors that affect poultry market participation positively and Abera (2009) showed as sex positively affects commercialization of smallholder farming.

### Age of Household Head

In contrary to what is hypothesized, the age of household head had negative and significant (at 5%) relationship with wheat output market participation. Households are in favor of participating in wheat output market by a factor of 0.620 as the age of household heads decreased by one year while other variables held ceteris paribus. The more household heads gets older the lower would be wheat output market participation. However, the model outputs disagree with focus group discussion result stated as some of aged household heads have higher experiences of farming. As a result, age had positive association wheat output market participation. But the model result might relate with labor productivity



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deterioration with higher age. This contradicts with the findings of Gebremedhin, Jaleta and Hoekstra (2010) as age has insignificant and positive relation with output market participation and Urgesa (2011) age has insignificant and negative relation with wheat market supply.

### Education level

Education attainment proves one of the most important determinants of wheat commercialization, especially completion of primary schools. This could be due to educated farmers are well aware to adopt new technologies and farm inputs utilization. In line with this, education level has positive and significant (1%) and relationship with wheat output market participation. The households were participating in output market by a factor of 2.368 as the education level of household head increased to secondary and tertiary levels, other variables kept constant. Qualitative analysis also agreed with the model result as educated farmers are outshining in their production volume and market orientation in their kebeles with adoption of new varieties and using mechanisms which enhance productivity. The result is compatible with the findings of education has positive and significant effect on crop output market participation Urgesa (2011) in commercialization of smallholders.

### Market Orientation

The result revealed market orientation has significant and positive association with wheat output market participation at 1% significance level. The households are in favor of participating in the wheat output market by 21.591 as they are market oriented, *ceteris paribus*. Key informants' discussion result is also well-matched with the model output by concluding that market orientation is essential for wheat output market participation. Additionally, they argued for market-oriented households are those who early prepared and decided to participate in output market. This indicates as the household's pre-decision either to participate or not in output market is the leading force for output market participation and intensive inputs utilization. Hence, the variable is significant in both quantitative and qualitative analysis. The result is consistent with the findings of Urgesa (2011) who stated as market orientation in agriculture is basically a production decision issue and it has a positive significant relation in commercialization of smallholders.

### Credit Utilization

The model result showed that credit utilization had significant and positive relationship with wheat output market participation at 5% significance level. Households using credits are in favor of participating in wheat output market by 2.749 odds ratio as their credit access increases by one unit while other variables held *ceteris paribus*. This could be because households who use credit are able to purchase inputs for higher productivity and can participate in output markets. But the qualitative result is incompatible with the model result as focus groups expressed ground realities as households did not access credit exist in the community due to fear of legal issues constrained and unexpected losses. Earlier study also revealed that credit is one of factors that affect the probability of adoption of improved varieties, the quantity of fertilizer farmers applies and haricot bean, respectively Gecho (2005).



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### Extension services use

Extension services use had also significant and positive relation with wheat output market participation at 1% significance level. As the household's extension services use increases by one unit, they are in favor to participate in wheat output market by 5.540 odds ratio while all other variables kept constant. The result directly agrees with the qualitative analysis as key informants strongly argue for the importance of the variable, extension services use is refreshing their skill and providing with new information. Thus, the variable is significant both in quantitative and qualitative analysis. This could be due to of extension services use enables farmers to be more commercialized than subsistence farming. This finding goes well together with the findings of Musema (2006) who found that extension services use on improved maize seed, red pepper and improved haricot bean respectively affected marketable supply of each of the commodities significantly and positively.

### Use of market Information

Market information use is another variable which has positive and significant relationship with wheat output market participation at 1% significance level. The positive and significance relationship between the variables indicate that farmers market information use increases, the level of participation in output market increases. The households using market information is in favor of participating in wheat output market by 0.437, odds ratio while other variables *citreous paribus*. The households well used market information can better participate in output market. This could be due to the fact that the farmers used market information are able to produce on market demand basis and they can participate in output market as well. The focus group discussion also agreed as use of market information is positively related to household's output market participation. Hence, the variable is significant in both quantitative and qualitative analysis. The result congruent with the findings of Zegeye and Tesfaye (2001) which revealed that market information use positively affects the market supply of wheat and teff.

### Total household income

Binary logit regression result showed that total household income has significant and positive relationship with household's market orientation at 1% significance level. The odds ratio of participating in wheat output market increased by a factor of 1.004 if a household earns a unit additional income, other variables held constant. This indicates that households with better income can purchase inputs which boosts the productivity and can participate in output market. Qualitative result of focus group discussion also confirmed as the variable is significant as it enables household's to purchase inputs and hire labor in order to increase the productivity and those with better income households that are enjoying from wheat output market participation. Thus, both qualitative and quantitative analysis proved as the variable is significant. This result contradicts with the findings of Sharp, Ludi and Samuel (2007) as non-farm and off-farm incomes have insignificant effect on smallholder's commercialization.

### Farm Input Use

Households farm input utilization is found to have statistically significant and positive relationship on household's wheat output market participation at 1% significance level. The odds ratio indicated that



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household's level of participation in wheat output market increases by a factor 29.20 if a household uses a unit of additional farm inputs. This could be due to the farm inputs capacity to increase agricultural productivity and insight for commercial farming. Focus groups also persuaded as proper use of farm inputs like DAP; UREA and improved seeds have positive relation to wheat output market participation by boosting the productivity in folds. The result agrees with the findings of Samuel and Sharp (2007) which revealed that farm inputs utilization has positive influence on smallholder farming commercialization.

## CONCLUSIONS

The study was aimed to analyze determinants wheat output market participation in the study area. Out of the total sample households, the majority (72.5%) participated in wheat output market while the rest (27.5%) did not participate at all. Household's commercialization index result showed that teff, wheat, barley, maize, and sorghum had 41.31%, 45.90%, 4.44%, 7.10% and 1.25% ratios respectively. Wheat had higher marketability share, average household sold much amount of, the figure is quite higher than the national average of 33-36%. This is a vivid indicator of the high level of commercialization in the study area.

Results of econometric model indicated the relative influence of determinants of different variables on wheat output market participation in the study area. A total of fourteen (8 continuous and 6 discrete) explanatory variables were included in the binary logit model for regression, out of the total; nine variables had shown significant relationship with wheat output market participation. Accordingly, sex of household head, education level, market orientation, access to credit, access to extension services, access to market information, use of farm inputs and total household income were found to have positive and significant influence on output market participation of wheat. On contrary, age of household head has negative and significant influence on output market participation of wheat. The results of all explanatory variables agreed in both qualitative and quantitative analysis except age of household head, price of wheat, number of oxen own and credit access. Institutional support provided to the sector such as access to credit, market information and extension services were below the expected level. The factors together with household personal, demographic and socio-economic and institutional factors greatly affected output market participation of wheat and consequently the production and productivity of the sector. As a result, the following policy recommendations were made.

## RECOMMENDATIONS

The government direction to transform smallholders from subsistence to market-oriented production system proved to have an encouraging result by way of enhancing output market participation. However, a lot needs to be done to enhance the level of commercialization since overwhelming majority of smallholders is not well integrated with market yet. So, young farmers have to be aware on demonstrative training for intensive use of their farm in order to higher productivity. In line with the training, functional adult literacy program has to be promoted for better technological and new ways of farming adoption. In the study area women participation in output market was very low. So, gender and development program should get insight in order to bring gender equity. The training, designed based on rural setting and focusing on labor division at household level should be promoted.



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The wider range difference among farmers in farm inputs (fertilizers and improved seed) application per hectare and its deviation from recommended rate was found partly due to lower household incomes which disable them to settle other household expenditures and save for inputs purchase. As a result, developing saving culture through self-help groups (SHGs) enables smallholders to be capable for commercial transformation. Technical advice and on the spot training should be strengthened by the government and non-governmental organizations, working on farm productivity and production enhancement, and linkage with research institutes dealing with high yield varieties is also demanded. On the other hand, awareness development participatory training is needed on credit utilization as it increases their capacity to purchase farm inputs and household assets. In general, practical and awareness creation training is needed to widen farmer's attitude towards commercialization and institutional services utilization.

There is still potential for output market participant households to increase farm productivity through technical advice and capacity building training on market-oriented production decision and access to extension services should get focus for crops commercialization. A lot needs to be done by government to enhance the level of commercialization since the overwhelming majority of smallholders are not well integrated with the market yet. So, farmers should be market oriented prior to production in order to participate in output market with higher quantity and quality products. On the other hand, use of extension services has to be strengthened so as to improve farmers' use of market information through training and other related supports.

## REFERENCES

- Amentae, T. K., Hamo, T. K., Gebresenbet, G., Ljungberg, D. (2017). Exploring wheat value chain focusing on market performance, post-harvest loss, and supply chain management in Ethiopia: The case of Arsi to Finfinnee market chain. *Journal of Agricultural Science*, 9(8), 22.
- CSA. (2019). Agricultural sample survey report on area and production of major crops (Private peasant holdings, Meher season 2017/2018 (2010 E.C). The FDRE statistical bulletin, Volume I.
- FAO (2017). The state of food and agriculture, leveraging food systems for inclusive rural transformation. Food and agricultural organization of united nations.
- Goshu, D., Getahun, T. D., Oluwole, F. (2019). Innovation opportunities for wheat and faba bean value chains in Ethiopia. *FARA Research Report*, 4(5).
- Tadesse, W., Bishawand, Z., Assefa, S. (2018). Wheat production and breeding in Sub-Saharan Africa challenges and opportunities in the face of climate change. *International Journal of Climate Change Strategies and Management*, 11(5), 696–715.
- Abate, D., Mitiku, F., Negash, R. (2021). Commercialization level and determinants of market participation of smallholder wheat farmers in northern Ethiopia. *African Journal of Science, Technology, Innovation & Development*, 14(2), 428–439.
- Mihretie, Y. A. (2020). Smallholder wheat farmers' commercialization level and its determinants in north-western Ethiopia. *African Journal of Science, Technology, Innovation & Development*, 13(5), Deshmukh et al., *Cogent Food & Agriculture*, 13(5), 607–617.
- Muche, M., Tolossa, D. (2022). Comparative analysis of household food insecurity between selected coffee and wheat growers of Ethiopia. *Cogent Food & Agriculture*, 8(1), 2149134.



## Conference Proceedings

- Tadesse, W., Zegeye, H., Debele, T., Kassa, D., Shiferaw, W., Solomon, T., Negash, T., Gelete, N., Bishaw, Z., Assefa, S. (2022). Wheat production and breeding in Ethiopia: Retrospect and prospects. *Crop Breeding, Genetics and Genomics*.
- Rubhara, T., Mudhara, M. (2019). Commercialization and its determinants among smallholder farmers in Zimbabwe. A case of Shamva District, Mashonaland Central Province. *African Journal of Science, Technology, Innovation & Development*, 11(6), 711–718.
- Tabe Ojong, M. P. J., Hauser, M., Mausch, K. (2022). Does agricultural commercialization increase asset and livestock accumulation on smallholder farms in Ethiopia? *The Journal of Development Studies*, 58(3), 524–544.
- Birhanu, F. Z., Tsehay, A. S., Bimerew, D. A. (2021). The effects of commercialization of cereal crops on multi-dimensional poverty and vulnerability to multidimensional poverty among farm households in Ethiopia. *Development Studies Research*, 8(1), 378–395.
- Andaregie, A., Astatkie, T., Teshome, F., Yildiz, F. (2021). Determinants of market participation decision by smallholder haricot bean (*Phaseolus vulgaris* L.) farmers in Northwest Ethiopia. *Cogent Food & Agriculture*, 7(1).
- Damot Gale Woreda Agricultural and Rural Development Office (2020). Unpublished data.
- SNNPRS Bureau of Agriculture and Rural Development (2020). Unpublished data.
- Govereh, J, Jayne, T., Nyoro, J. (1999). Smallholder commercialization, interlinked markets and food crop productivity: Cross-country evidence in eastern and southern Africa.
- Ethiopian Economic Association (2018/19). Annual Report on the Ethiopian Economy. Addis Ababa.
- Gujarati, D.N. (2003). Basic Econometrics. 4th edition. Tata Mc-Graw-Hill Publishing Co., Mumbai.
- EDHS (2019). Population projects for Ethiopia: Central Statistical Authority, Addis Ababa, Ethiopia.
- CSA (2018). Summary and Statistical Report of the 2019 Population and Housing Census: Addis Ababa.
- Gebregzihabher, D. (2010). Market Chain Analysis of Poultry. The case of Alamata and Atsbi-Wemberta woredas of Tigray Region. A MSc. Thesis Presented to School of Graduate Studies of Haramaya University.
- Gujarati, D., (1998), Basic Econometrics, McGraw-Hill International Editions, 3rd Edition. McGraw Hill, Inc., New York.
- Gebregzihabher, D. (2010). Market Chain Analysis of Poultry. The case of Alamata and Atsbi-Wemberta woredas of Tigray Region. A MSc. Thesis Presented to School of Graduate Studies of Haramaya University.
- Abera, G. (2009). Commercialization of Smallholder Farming: Determinants and Welfare Outcomes. A Cross-sectional study in Enderta District, Tigray, Ethiopia. A M.Sc. Thesis presented to School of Graduate Studies of Agder, Kristiansand.
- Gebremedhin, B., Jaleta, M., Hoekstra, D. (2010). Smallholder Commercialization: Process, Determinants and Impact. Addis Ababa.
- Urgesa, M. (2011). Market Chain analysis of Wheat and Teff: The case of Hlaba special woreda, SNNPRS of Ethiopia. A M.Sc. Thesis presented to School of Graduate Studies of Haramaya University.



## Conference Proceedings

Gecho, Y. (2005). Determinants of Adoption of improved Maize Technology in Damote Gale Woreda, Wolaita, Ethiopia. Msc. Thesis (Unpublished) Presented to School of Graduate Study of Alemaya University.

Musema, R. (2006). Analysis of red pepper Marketing: The case of Alaba and Silitie in SNNPRS of Ethiopia. A M.Sc. Thesis presented to School of Graduate Studies of Haramaya University.

Zegeye, T., Tesfaye, S. (2001). Determinants of adoption of maize technologies and inorganic fertilizer in Southern Ethiopia. Ethiopia Agricultural Research Organization (EARO). Addis Ababa.

Sharp, K., Ludi, E., Samuel, G. (2007). Commercialization of Farming in Ethiopia: Paper presented at the Fifth International Conference on the Ethiopian Economy, Addis Ababa.

Samuel, G., Sharp, K. (2007). Commercialization of Smallholder Agriculture in Selected Teff-Growing Areas of Ethiopia, Ethiopian Journal of Economics. Addis Ababa.



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# CONSTRAINTS OF APPLYING TRANSFERRED HRM TO DEVELOPING COUNTRIES: THE CASE OF ALGERIA

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DOI: 10.5937/EEE24019G

JEL: O15

Review Scientific Paper

### ABSTRACT

*Management principles have evolved in developed countries, mainly in the United States and Europe where scientific theories have emerged explaining the behaviors and motivations of individuals depending on the beliefs and cultural values of these societies. Management principles cannot be transferred from one society to another, as individuals' actions and perceptions of work are affected by the social local culture. This illustrates the failure to transfer management models between countries belonging to different civilizations without adaptation or modification. It is the result of the author's research and experience with the reality of managing institutions in a country (Algeria) that has known an intensive import of industrial enterprises, in the '70s of the 20<sup>th</sup> century, with their management practices. But this policy was doomed to failure, due to the use of inappropriate management methods which did not keep up with the prevailing cultural values in the society. This paper comes at a critical stage of restructuring the economy of many developing countries, and working to adopt scientific methods in management and organization knowledge, aimed at increasing the efficiency and effectiveness of organizations.*

### KEYWORDS:

*Culture in organizations, western management, management transfer, appropriate management, developing countries*

## INTRODUCTION

Developing countries generally live with the problem of importing organization and management methods, as well as ready-made industrial devices. Machinery and equipment imported from industrialized countries can be used as they are, while imported methods of human management are difficult to apply. This is the result of social interaction and is closely linked to society's values, culture and civilization affiliations.

Despite the importance of the human aspect of organizations, this aspect has remained neglected, as factories are usually imported ready, with the required methods of structuring work, organization, and management. Experience has shown that imported management methods have failed because they have not succeeded in increasing the effectiveness of production enterprises and not being able to get developing countries out of the cycle of backwardness.

Hence the urgent need to learn more about the cultural and social characteristics of the worker, and to

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study him in his social environment, to understand him and improve his motivation and management. It is therefore illogical to continue to consume western methods of human organization. It has become necessary to look at new methods of management, based on local values, community culture, historical and nodal reality, and value systems.

This paper comes at a critical stage of restructuring the economy of many developing countries, and working to adopt scientific methods in management and organization, aimed at increasing the efficiency and effectiveness of economic and service organizations.

### OBJECTIVES OF THE STUDY

This study is important in three aspects:

1. The theoretical importance of highlighting the impact of cultural values on management. It is a sensitive area, which has been the subject of various international scientific meetings and conferences.
2. The practical importance, as it paves the right ground for laying the foundations for human management methods, taking into account the reality values prevailing in society. That undoubtedly facilitates the process of understanding the worker, and thus designing appropriate methods of management and motivation, which are badly needed in developing countries.
3. It draws the attention of officials, to the need to take into account local values in the field of management and work to adapt the imported methods of work and organization, to adapt to the cultural value reality of the worker.

Light will be shed on the cultural values within productive enterprises and the important factors influencing their developments. The cultural dimension of the organization, the components of the worker's value pattern, traditional values and requirements of modern organizations, the implications of socialist governance on workers' values, and workers' responses to management methods.

### FROM SOCIAL CULTURE TO ORGANIZATIONAL CULTURE

The organization is a social entity with distinct boundaries. However, these limits are transparent and allow the organization to interact with its social environment with all the culture and values that society holds, which in turn affects the characteristics and effectiveness of the organization. There is a growing interest in studying the impact of culture on workers' behavior and the effectiveness of regulations (Hofstede, 1978, Smircich, 1983, Ghat, Willey, 1989).

According to Taylor (1871), culture is "that complex whole which includes knowledge, beliefs, arts, morals, law, customs, and any other capabilities and habits acquired by man as a member of society."

The concept of culture has been the subject of numerous discussions, probably due to their complexity and invisibility. Although some definitions are popular, almost every researcher has his own definition of this concept. Among the much-cited phrase defining culture is the "collective programming of the mind" (Hofstede (1980).



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Culture is related to a geographical area, a region or a country. The “national culture provides the set of rules to act, and the set of preferred outcomes to compare from before an action is taken. Employees are likely to prefer management practices that are consistent with their work values and may reject those practices that are not” (Nieves et al., 2006).

While Schein (1992) presents a definition for culture as "A pattern of shared basic assumptions that the group learned as it solved problems of external adaptation and internal integration that has worked well enough to be considered valid and, therefore, to be taught to new members as the correct way to perceive, think, and feel in relation to those problems".

Culture is looked at as a set of dimensions. Hofstede (1980) defined four dimensions of culture that described fundamental similarities and differences in human behavior, attitudes, and decision-making for culture. The four dimensions were: masculinity/ femininity, power distance, individualism/ collectivism, and uncertainty avoidance.

While Krech et al. (1974) divide culture in an explicit and implicit dimension. The explicit part of culture consists of consistent behavioral patterns in a given situation. These patterns or arrangements are formed and influenced by both the physical environment (climate, geographical region ...), and other cultural groups (through exchange of ideas...). The implicit dimension is a manifestation of wants, interpersonal responses traits, attitudes, values, beliefs and norms, which together give meaning to explicit behavior.

On the other side, (Argandona, 2002), defined culture in a very broad sense as “central desires or beliefs regarding final states or desirable conduct that transcend specific situations, guide the choice and evaluation of our decisions and, therefore, of our conducts, becoming an integral part of our way and acting, to the point of shaping our character".

From this perspective, Beulah Viji explained that "Value, attitude, and behavior are interlinked with each other. All these factors contribute to the personality of an individual. Values represent an individual's standard, faith ideals or even events and activity" (Beulah Viji, 2016).

The actions and behaviors of workers are the results of the accumulation of a set of ideas, knowledge, and experiences that allow the individual to judge the material, social and cultural issues around him. Therefore, the result of the judgment depends on the nature of these ideas and cultural values.

Meglino and Ravlin (1998) explained that firms and individuals would benefit from a better understanding of the relationship between the values of the employees and the corporate culture. Corporate culture is defined by the values of corporate managers and subordinates. A strong corporate culture is possible only if the employees' values are in agreement with those of the firm (Nieves et al., 2006).

While Nieves et al. (2006) concluded that “in all, research has indicated how culture differs in their choice of, and the significance given to, values, and how superiors and subordinates differ in their values across cultures, as well as how values tend to remain and resist change in a specific national culture or society”.

Any organization must have individuals with common objectives who share roles and use the means available to achieve their goals. Even in the most automated organizations, planners, observers, and programmers must play a central role in decision-making and implementation. Individuals come as facilitators, workers or customers in the environment in which the organization deals, with their social and cultural values. Each individual has his view of life and work, the nature of his actions in certain situations, and the values of society and culture, which in turn affect the actions of the individual in different working situations.

The ILO report focused on the element of the organization when explaining the concept of management. "Management is the organization and control of human activity towards specific ends" (ILO, 1969).

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While “Katz” summarizes the mission of managers, arguing that the most important requirements of the manager are to be an analyst of factors affecting production and diagnoses the relationship between individuals, values, and standards within his unit. These requirements are general for all management locations” (Katz,1970).

The importance of culture and its role in determining ways of human management, and the need to take into account local cultural values in developing an appropriate model of management, adapted to the cultural reality and the value pattern of the worker.

## FROM OPEN TO THE CULTURAL SYSTEM

In recent years, researchers have been increasingly interested in the effects of the cultural environment on management effectiveness. The prevailing view was that the organization was a closed-system, independent from peripheral and cultural influences and turned to a new concept, open-system, stressing the fact that organizations interact with their social and economic environment (Negandhi, 1975). The current trend of the organization theorists is to consider the latter as a cultural-system in recognition of the impact of culture on the organization and, consequently, on the ways of managing it. As stated by Smircich (1983), "the theory of organization is moving beyond the open system of organization, towards a cultural system. A system interested in the higher mental functions of human behavior, such as language and concept creation".

## FACTORS CONTRIBUTING TO SHAPING THE WORKER'S VALUE SYSTEM

The factors contributing to determining the worker's value pattern can be identified in a range of factors, the most important of which are: cultural, historical, social, political, economic and organizational factors, which affect the worker and determine his behaviors, and methods of dealing.

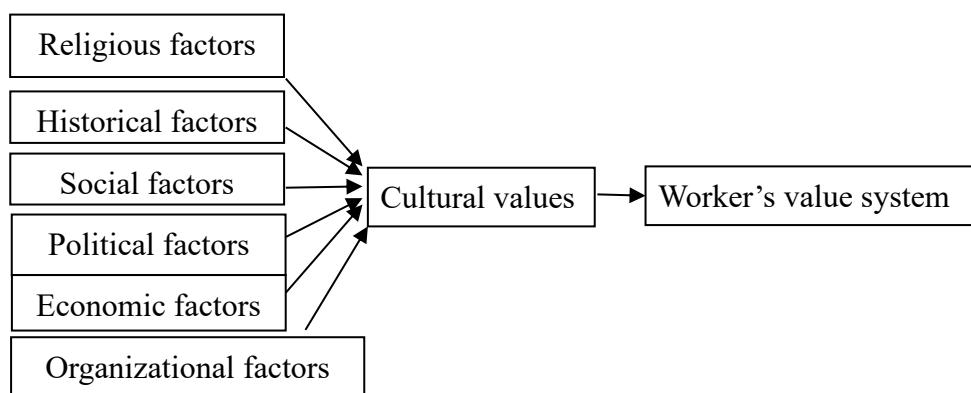


Figure 1. The main components of the worker's value system

Cultural factors that influence individual behavior and norms are profound and multiple, often difficult to identify and to tackle. The most important of them are listed as follows:

## CULTURAL AND ORGANIZATIONAL BEHAVIORS

Cultural influences go through a series of stages before they emerge in the form of values that influence the individuals' behavior within organizations.

The length of this series and the overlap of various cultural, social, economic, political and organizational factors make it very difficult to link the relationship between cultural values and organizational practices.

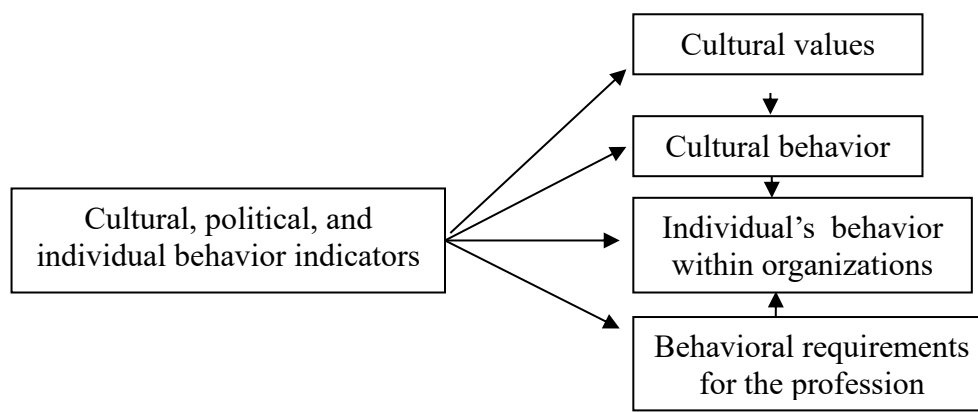


Figure 2. Interaction between factors shaping the organizational behavior

The previous figure illustrates the role of cultural, economic and social factors in determining the values of the society, their behaviors and shaping their personalities. The pressures from the profession, its requirements, the pressure of society's values on workers, are factors that characterize the worker's professional behaviors and his attitudes towards work.

The cultural aspect of human management cannot in any way be neglected. Blunt (1983) asserts that "cultural beliefs influence an individuals' behavior and determine their responses to work to certain limits." The organization is influenced by the culture inside and outside it. According to Smircich (1983), "the idea of culture has been incorporated and given importance as an internal and peripheral variable." According to Goodenough, culture is seen as "a single system of understanding and organizing physical manifestations, objects, facts, behavior and emotions" (Smircich,1983).

The organization must be seen as open to its cultural reality and work to integrate the cultural dimension of workers into the methods of management and the concerns of the managers.

Thus, we conclude that the cultural dimension is the cause of many of the problems experienced by many organizations, such as absenteeism, neglect, low occupational satisfaction, poor relations between workers, and mistrust between subordinates and managers. This is also the result of the difference in cultural values and the contradiction between the old and the modern, between the workers and supervisors and between the youth and the elders. The association of culture with behaviors and motivations of individuals help in understanding organizational behavior. This increases the importance of culture in organizations and explains the need for studying social culture and its impacts on organizational effectiveness.

In this way, it is possible to keep up with management requirements and to use some local cultural values to organize enterprises and manage the employees. The social environment and cultural backgrounds must be identified to be used to facilitate the achievement of the organizational objectives.



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# CULTURAL DIFFICULTIES AND PROBLEMS OF HUMAN MANAGEMENT

Organizations in developing countries have multiple and interrelated difficulties, but most of them are the result of difficulties in managing human resources. This is the result of the absence of industrial cultural values in line with the requirements of modern organizations, and the failure of managers to understand the workers' motivations and to find managing methods in line with the value of society's reality.

### 1. The predominance of the agricultural mentality of workers

The professional activities of developing societies are predominantly peasant, so the prevailing culture and therefore the values held by workers are influenced by this aspect, which is usually expressed by the "agricultural mentality", as opposed to the "industrial mentality", which is found with workers from industrialized societies.

### 2. The worker's professional experience

Professional experience has an impact on determining an individual's values and attitudes towards work. An individual who has observed in his career that work is the only way to promote and raise the material situation leads him to the seriousness and work towards his goals. In cases where the worker's effort, dedication to work and reliance on nepotism and tribalism are not given importance, this affects the values, concept, and motivation of the work.

## THE MANAGEMENT PRACTICES BETWEEN LOCALITY AND GLOBALIZATION

Management methods being used in managing organizations from developing countries influenced their level of effectiveness and the extent to which they succeeded in achieving their objectives. The failure to take into account local cultural values and the contradiction of the latter with the regulatory requirements of modern institutions led to difficulties in managing and the failure to achieve production goals and economic development in general.

What is the possibility of transferring management know-how between nations and civilizations? What are the impacts of applying imported management methods? How did decision-makers face the negative performance of organizations? These questions need to be highlighted.

### Values' differences and management difficulties

Though there is no conclusive evidence of the failure of institutions that rely on imported approaches to management, it has become clear that most organizations from developing countries are not productive, inefficient and not profitable. That is evidenced by the fact that economic problems in these countries are constantly worsening, forcing them to import to meet the majority of goods for their daily needs.

The cultural values and customs of society have influenced the effectiveness of the organizations, especially in terms of the management of human resources and the motivation towards work. The success of the methods of management in America or Europe does not guarantee their success in other developing countries, as the characteristics, values, and customs are different. These factors affect our perception of work and motivation factors, which affect the functioning of organizations and their effectiveness.



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### **Difficulties in finding suitable methods for human management**

Problems are met by managers in running their organizations and the workers carrying out their professional duties. The problem with decision-makers in organizations, the identification of the phenomena needing to be observed as a continuation of the error and the lack of periodic evaluation of the results, despite the multiple problems faced by both managers and the workers.

Decision-makers usually look at problems with an ideological political perspective, which makes them lose their objectivity and scientific importance, which contributes to hiding the real causes of these problems. All of this deprives economic managers of valuable information, which could have been used to improve performances, to address the negative aspects and reinforce the positive ones.

1. The managers' narrow view to organizational problems: decision-makers aim to identify and work to solve problems of their organizations. However, the nature of their training makes them neglect the cultural character of many of the tackled problems. That is why they usually think about machinery and hardware and ask for additional funds to increase investments. The reasons for many problems lie behind poor management and the lack of understanding of the workers' cultural attitudes. That leads to the inability to motivate; control and coordinate works, then fail to achieve the organizational goals.
2. The cultural background of the managers: It is common to meet the phenomenon of adopting the models, an imported management model, either from the West or from the East, to apply it without regard to local people's values and culture. Instead of starting from the social data, organizing and theorizing them to find a locally appropriate model of management. The decision-makers apply ready brown methods, theories, and approaches, leading to a set of contradictions and problems associated with human management.

### **Failure in transferring Western management know-how**

Modern organizations have evolved in industrialized countries, and have gone through stages of adapting workers to their requirements, and workers who in turn belong to industrialized and developed societies, are following the requirements of the organizations, which have made harmony between the values of society and the values of organizations, which are missed in developing countries.

When looking at the factors of development, they depend on raw materials, technology, management methods, and labor. If raw materials are available, developing countries need technology and management methods. The way to make up for this shortfall is the acquisition of technology and methods of organization and management from industrialized countries, which is called the transfer of production technology, and the transfer of management technology. While it is acceptable to acquire production technology from abroad, at least as a temporary stage, it is wrong to acquire management theories and methods, as they are applied in the West, because of the different cultures and values between the underdeveloped and the developed countries.

Scientific studies have found that the transfer of management methods has failed in the case of different cultures and cultural values between the countries from which they are transferred, and the countries to which they transfer the models of management. The worker is influenced by his behaviors, motives, and ways of responding to the cultural values that exist in his environment. That is confirmed by Blunt who believes that "the individual's perception of his profession and work, in general, is long-defined by his stock of cultural values obtained from his surroundings" (Blunt: 1983, 54). It is recognized that the



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failure of workers to achieve and maintain the required levels of productivity has to do with the quality of life, starting with the difference between organizational values that are not commensurate with cultural values." Schippers and Fajardo (1983) pointed out that the cases where success occurs, Modern management has been adapted to fit with the local culture, social and political environment".

The current methods of management in most developing countries, have crystallized in the East or the West as a result of certain cultures and cultural values, but have moved to be applied in completely different societies. It is difficult to rely on Western cyclic theories to understand the Arab Muslim factor with their cultural values and backgrounds. For example, the use of projection tests in assessing the personality of individuals, and the theories of motivation in understanding local people at work. That affects negatively the management and level of effectiveness of organizations in developing countries in general.

There are two aspects of management. The first has to do with statistics and the use of numbers and computing, and that requires techniques and methods that can be exploited globally regardless of the reality in which they evolved. The second aspect is what has to do with understanding, motivating, dealing with people and managing them, which must be linked to the civilization of society and its cultural values.

According to Farmer and Richman (1964,55), "the majority of studies in management occurred within the "black box", called management, without much regard for the external environment within which the company might operate. The more the external environment is similar for all companies, the approach is reliable, but in cases where the environment is significantly different, as is the case between states, this theory is not appropriate to explain the effectiveness differences".

### **Repercussions of management model transfers**

Because the management approach in developing countries has several negative repercussions, the most important of which can be summarized as follows:

1. The difficulty of exchanging experiences: The different political platforms and methods and objectives of management in developing countries affect negatively their cooperation. It also misses an opportunity to share information and experiences that can be exploited for the benefit of development and the prosperity of its people.
2. Promoting dependency and relying on others: The developing countries depend on the West in meeting their needs of technology and filling their deficit of consumer materials on the industrialized countries. While this is acceptable for these materials, due to the lack of equipment necessary for production and advanced technology, returning to foreign countries to solve our management problems helps to enhance dependency. It also forces them to rely on others to find solutions to problems related to our reality. Taking notes that these countries have specific cultural characteristics, and are better to find appropriate solutions to their problems.
3. Promoting the difference between developing countries: imported and applied management methods in developing countries vary according to their former colonists. The difference in languages and ideological principles widens the difference in applied management methods in different developing countries.

### **The need for adapted management methods**

Management principles have evolved in developed countries, mainly in the United States and Europe,



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and scientific theories have emerged explaining the behaviors and motivations of individuals, depending on the beliefs and cultural values of these societies. That proves that the principles of human management cannot be transferred from one society to another, as individuals' actions and perceptions of work are affected by the social local culture. This illustrates the failure to transfer management models between countries belonging to different civilizations without adaptation or modification.

From here we conclude that management and organization methods cannot be transferred successfully between countries, except if cultural values are similar. It has been possible to identify groups of countries that can transfer the methods of management and organization, depending on the unity of their culture and civilization affiliations. These conditions are not available as is the case between the MENA Region and Europe or the United States

Japan is a model for finding ways of conducting in line with the value of local culture, relying on itself to develop appropriate techniques in human management methods, which has contributed to the effectiveness of Japanese organizations.

The process of researching the most appropriate ways of managing the value and cultural reality of a society is a very difficult task. According to Negandhi (1975), "it is difficult, if not impossible, to link a causal relationship between special elements, from socio-cultural and peripheral variables to elements of management and effectiveness applications."

### **The need for a local cultural style of management**

The human element is one of the most important factors of production, because of its changeable properties, interaction with the environment, its culture, values, and patterns of thinking and behavior. Hence we conclude the difficulty of transferring methods of human management between different environments and civilizations. The greater the difference, the harder it is to transfer and apply. The change and adaptation of management methods are badly needed, to be adapted to the local cultural realities.

There is an imperative that leads us to think seriously about creating a local model of management, which can be attributed to the following reasons:

1. The impossibility of transferring foreign models of management as they are. Models of management can be studied and exploited, but it is necessary to have them modified and adapted to conform to the characteristics of local reality. This practice was followed by western countries, according to Thurley XIII, the Marshall Plan has indicated that every European country involved has encouraged the search for its identity to develop appropriate management and management skills. Since the American School of Consulting and Business Management has tried and adapted, it has not been transmitted as it is." The result of The Schippers & Fajardo:1984, 17, is that "in cases where success has been achieved, modern management methods have been adapted to local culture and its social and political environment".

All of this demonstrates the futility of transferring foreign management methods as they are and their application to the organization of different civilizations without change or modification.

2. Lack of ready-made solutions to be imported: According to Haurant (1984) "new organizations emerging in developing countries face the same management problems as their counterparts in industrialized countries - from problems of men's management, structural problems and management control in general- and in addition to that, they face special problems, they need to find innovative, adapted solutions, without always being able to return to European or American-





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type experiences." This is the result of the association of management with local values which are different from what can be found in industrialized countries.

3. The greatness of the project and the unity of values: No one country can bear this important project of creating a model of management, and adapting what exists to be in line with the characteristics and reality of these countries. The great convergence of culture, history, the unity of ambitions made it possible to collectively sponsor this project.

All these factors have made it necessary to think constructively and work hard, to complete this civilized project, which is necessary for the organizational and industrial take-off of our developing countries' societies.

Creating a model in management appropriate to the social reality that meets local special needs is a civilized action that needs the joint efforts of researchers in more than one country, to study and scrutinize reality and share knowledge and experiences. The unity of cultural values and the convergence of degrees of industrialization, the unity of religion, language, history, and goals of several developing countries, are factors encouraging cooperation and concerting efforts, to achieve common goals.

Modern industries have emerged in Western societies with a materialistic culture, values, and traditions that characterize them. The current management has emerged, linked to the values of industrial societies.

Developing countries have created modern industries and imported the same management methods used in the West, with no regard for the values and mentalities prevailing in their community.

The former colonies, today after experimenting with successive management systems since their independence, need to do two simultaneous operations, namely adaptation, and adjustment. The first is to study the social, economic, political and value realities to understand, organize and adapt it to the contemporary economic reality. The second process is to facilitate the process of labor adjustment of industrial realities and the modernization of their culture and attitudes towards work.

The two processes are complementary, as adapting and adjusting cultural values to the reality of a modern form are in line with the requirements of the industrial age, making it easier for workers to accept local management methods and thus make it easier to adapt to them. One of the most important administrative concepts spreading in the literature of administrative sciences in industrialized countries is the organizational culture.

Organizations can be developed by creating a unified culture that brings together members of the organization, contributes to unifying their opinions, perceptions, and behaviors and increasing the strength of their affiliations to the organization. This is done by:

- Creating a policy of consultation and the contribution of workers in shaping the objectives of their organizations and their strategic policy.
- A media policy through internal bulletins and media.
- Good relations between workers, supervisors, and managers.
- Taking care of workers' concerns.

## CONCLUSION

The length of the period of colonization, underdevelopment, and mismanagement in public institutions, and the adoption of a patriarchal, socialist and social policy in employment, have led to the emergence



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and expansion of negative values and habits at work. That led to the propagation of absenteeism, underemployment, and failure to give the work the status it deserves. That led to the increase of economic and social problems, and even to the crisis that most developing countries are currently experiencing.

Therefore, a review of professional values and work traditions and promote positive values, based on the love of work, diligence, and mastery, respect for time and encouragement of effort, all of which help to promote the values of work and the integrity of professional, commercial and social relations for the benefit of society .

## REFERENCES

- Argandona, A. (2002). Fostering Values in Organizations. *Journal of Business Ethics*. The Chair of Economics and Ethics.
- Beulah Viji, M. C. (2018). *Organizational Behaviour*. Educreation Publishing, New Delhi
- Blunt, P. (1983). *Organizational Theory and Perspective: An African Perspective*. Longman, New York.
- Felipe, C. M., Roldan., J. L., Leal-Rodriguez, A. L. (2017). Impact of Organizational Culture Values on Organizational Agility. *Sustainability*. Su9122354.
- Ghiat, B., Willey, P. C. T. (1989). The Impact of Local Culture and Attitudes on Organizational Effectiveness in Algeria. In Davies J. et al. (Eds.) *The Challenge to Western Management Development*. (pp. 66-74). Routledge, London.
- Henriques, T. and O'Neill, H. (2015). *The Human Side of Information Systems: Capitalizing on People as a Basis for OD and Holistic Change*
- Hofstede G., H. (1978) Culture and Organization: A Literature Review Study. *Journal of Enterprise Management*, 127-135.
- Hofstede, G. H., (1980). *Culture Consequences: International Differences in Work-Related Values*. The University of Illinois at Urbana-Champaign's Academy for Entrepreneurial Leadership Historical Research Reference in Entrepreneurship.
- ILO (1969). *Introduction to Work Study*. Geneva.
- Katz, D., Kahn R. (1966). *The Social Psychology of Organizations*. John Willey & Sons, New York.
- Khan M. A., Law L. S. (2018). The Role of National Cultures in Shaping the Corporate Management Cultures: A Three-Country Theoretical Analysis, *Organizational Culture*. Intech Open, 1-26.
- Maierhofer, N. I., Kabanoff, B., Griffin M. A. (2002). The Influence of Values in Organizations: Linking values and Outcomes at Multiple Levels of Analysis. *International Review of Industrial and Organizational Psychology*, 17, 217-263.
- Matic, J. L. (2008). Cultural Differences in Employee Work Values and their Implications for Management. *Management*, 13, 93-104.
- Negandhi, A. R. (1975). *Organization Theory in an Open System: a Study of Transferring Advanced Management Practices to Developing Countries*. Cambridge University, New York.
- Nieves, R., Mujtaba, B. G., Pellet P. F., Cavico, F. (2006). *Culture and Universal Professional Values: Is*



## Conference Proceedings

- There a Divergence or Convergence of Cultural Values? *Journal of Diversity Management*, 1(1), 31-37.
- Nobbs, J. (1984). *Sociology in Context*. Macmillan Education. London and Basingstoke.
- Nyambegera, S. M., Sparrow, P., Daniels, K. (2000). The Impact of Cultural Value Orientations on Individual HRM preferences in Developing Countries: Lessons from Kenyan Organizations. *International Journal. of Human Resources Management*, 11(4), 639-663.
- Sagiv, L., Schwartz, S. H., Arieli, S. (2011). In: Ashkanasy, N. N., Wilderom, C., Peterson M. F. (Eds.). *The Handbook of Organizational Culture and Climate*. Sage, Newbury Park. 2<sup>nd</sup> edition.
- Scipers, F. (1983). *Appropriate Management for Small and Medium Size Industries in Developing Countries*. Technonet Asia, Singapore.
- Sledge, S., Miles, A. K. (2012). Workplace Values: Cross-Cultural Insights from the Service Industries. *Journal of Comparative International Management*, 15(1), 50-67.
- Smircich, L. (1983). Concepts of Culture and Organizational Analysis. *Administrative Science Quarterly*, 28(3), 339-358.
- Smith, P. B., Peterson, M. F., Schwartz, S. H. (2002). Cultural Values, Source of Guidance and Their Relevance to Managerial Behavior, *A 47 Nation Study*, 33(2), 188-208.
- Trompenaars, F. (2005). *Culture, Values and Work-related – A Theoretical Overview*. University of Pretoria.
- Tylor, B., Edward, B. (1871). Primitive culture. *Popular Science Monthly*, 26.



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# DIGITAL GLOBALIZATION AND ITS IMPACT ON EDUCATION AND THE LABOUR MARKET

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DOI: 10.5937/EEE24020G  
JEL: F66, I21  
Review Scientific Paper

## ABSTRACT

*Digital globalization, which came about with the birth of the Internet and digital technologies, has revolutionized the way information, ideas, capital and people move around the world. This is how the fourth industrial revolution has begun, bringing about challenges and opportunities that shape our global society and modern life. Namely, this new era of connectedness, characterized by speed, innovation and constant changes, is transforming many aspects of our lives as individuals and of our society as a whole. Given that education is the cornerstone of every society and the crucial tool for the future, it is necessary to explore how digital globalization impacts and redefines the existing education systems. This paper focuses on understanding that particular impact, but also the impact it has on the development of new trends on the labour market and the importance of adapting to them.*

## KEYWORDS

*digitalization, globalization, education, labour market*

## INTRODUCTION

Globalization as a phenomenon has become ever more present in our day-to-day discussions, both within the academic community and a broader public. While some focus on the wide spectrum of the possibilities it offers, others express their concern about the negative consequences it may bring. This is exactly why it is extremely important to understand globalization, its different forms and the impact it has on different aspects of society.

Joseph Stiglitz, a Nobel laureate, has defined globalization as a process in which “countries and people around the world have become tightly connected, which has been enabled by an almost instant communication and information exchange”, which places emphasis on the role and significance of technology, especially the Internet, in the process of globalization. This is how the phrase digital globalization was born, and we shall analyse its impact on the life of the modern man from the aspect of changes happening in education and the labour market.

Thanks to globalization in developed countries, there is a noticeable tendency to move production capacities to countries with lower labour costs. As a result, many traditional industries, especially in the

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manufacturing sector, have faced job cuts. Workers in these sectors have found themselves in a situation where they have to retrain or look for work in other industries, which is not always easy. On the other hand, globalization has brought new opportunities in sectors such as information technology, finance and services. In many countries, the growth of these sectors has led to the creation of new jobs that require a higher level of education and specialization.

Globalization has obviously changed the way the labour market functions and caused new opportunities and changes in the education system as well. It has brought challenges to traditional industries, and on the other hand, it has opened doors for new opportunities and developed new sectors that are on the rise today. A key component for each country is the adaptability of the education system to the labour market. This adaptability is necessary to prepare workers for the new reality.

## DIGITAL GLOBALIZATION

Digital globalization is a phenomenon that combines the ubiquitous digital revolution with traditional concepts of globalization. This process refers to the way technologies and digital platforms are transforming and shaping economic, political and social interactions on a global scale. The central idea of this concept lies in the fact that digital technologies, such as the Internet, enable the rapid exchange of information, ideas and resources around the world, often in real time.

To understand this phenomenon, it is useful to consider digital globalization as an extension of, but also a departure from, traditional globalization. While traditional globalization was driven by trade in goods and physical capital, digital globalization relies heavily on the flow of data and digital information. For example, while thirty years ago global trade was the result of ships laden with goods sailing the world's seas, today the digital flow of data is equivalent to these oceanic paths, enabling global trade, cooperation and communication almost instantaneously (Giddens, 2005).

The term "digital globalization" also implies changes in the way products and services are created, distributed and consumed. As digital platforms allow users to connect with the world from the comfort of their home or mobile device, traditional boundaries have become less important. This has led to the creation of global markets that are accessible to anyone with access to the Internet, regardless of geographic location.

In the context of this new age, the value of information and data is growing exponentially. While in the past physical goods were key to economic growth and prosperity, today digital resources have become the new "currency" in the global economy. While this development offers many benefits, such as improving access to information and opening up new economic opportunities, it also brings challenges in terms of privacy, data security and digital inequality (World Bank Open Data, 2020).

Data and information have become key resources, often described as "modern oil". The amount of collected information directly affects the effectiveness of solutions that use artificial intelligence, especially those that rely on machine learning. Global flows of information, innovation, skills and industry standards play a key role in determining investment strategies, while creating opportunities to turn data into profit. In the last decade, global data flows have made a notable contribution to global economic growth, even more than traditional commodities (De Mello, Ter-Minassian, 2020).

On the other hand, digital globalization is not only challenging for companies, but also for societies around the world. Social media, while creating global communities and allowing people to connect in ways not previously possible, also serve as platforms that can connect extremist networks and spread



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false information. Managing these complex challenges will require increasing international coordination, dialogue and cooperation. This new phase of globalization is dynamic, diverse and full of unpredictability. However, if properly managed, within this connectivity lie opportunities for growth and innovation (Leonardi, 2020).

Digital globalization has become an inevitable reality of the modern world, providing opportunities and challenges that must be addressed to ensure sustainable and inclusive global development.

## DIGITALIZATION AND THE FOURTH INDUSTRIAL REVOLUTION

In an era where technology is becoming a key pillar of everyday life, digitalization plays the most significant role in the transformation of the global economy. Digitalization, affected by innovations such as big data, predictive analytics and artificial intelligence, provides an opportunity for companies to transform their business and become more agile, productive and competitive. This has become the foundation for what many call the fourth industrial revolution (Zhao, 2018).

The new era stands out for its ability to combine the physical, digital and biological worlds. The fourth industrial revolution is bringing changes in almost all sectors and industries, with a special focus on the Internet of Things (IoT). Through IoT, everyday devices are now able to communicate with each other, generating data and enabling automation. This integration of technology leads to the creation of "Industry 4.0", which includes the transition from centralized to decentralized production, where systems are interconnected, autonomous and capable of making decisions based on collected data (Zhao, 2018).

With this progress comes the need to rethink the way we function as a society. For the fourth industrial revolution to be effective, educational systems need to be transformed. The new century requires interdisciplinary education where individuals possess knowledge in multiple domains, enabling them to adapt to the changing demands of the labor market. Additionally, as technology evolves, so do employment opportunities. While some jobs are becoming obsolete, other industries are growing and adapting to these changes (Zhao, 2018).

Artificial intelligence, which is a pillar of digitalization, encompasses a wide range of technologies from computer vision to advanced machine learning. These technologies provide opportunities that transcend traditional boundaries. Most companies are predicted to integrate some form of AI by 2030, and this will have huge implications for the global economy. While AI can bring significant economic benefits, there is also a risk of misuse, such as invasion of privacy.

In addition to artificial intelligence, blockchain technology is emerging as another revolutionary force in the sphere of digital globalization. This technology promises to transform the financial sector, facilitating secure and transparent transactions. Both of these technologies, artificial intelligence and blockchain, bring a wealth of opportunities, but also challenges that require careful management and regulations to ensure that their potentials are used in a sustainable and responsible way (Leonardi, 2020).

In order to realize the benefits of digital globalization, we need people who can successfully deal with all the challenges that digital globalization brings with. Therefore, certain changes are necessary. According to Prikhodchenko, Panskov, Afanasyeva (2021), in order to be the winners in the fourth industrial revolution, it is necessary to proactively approach the shaping of educational systems, employment policy and technological standards for future generations of workers.



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# THE IMPACT OF DIGITAL GLOBALIZATION ON THE WORKFORCE AND THE LABOUR MARKET

Globalization has brought significant changes in the field of employment. Economies around the world have become intertwined, leading to the reconfiguration of the industry value chains. This phenomenon has allowed some industrial sectors to flourish, while others have suffered under the pressure of international competition (Rajšić, 2006).

In a rapidly digitalizing world, the labour market and workforce are experiencing revolutionary changes. Modern technological tools, such as artificial intelligence, automation and blockchain technology, are redefining the role of workers and the nature of the work they do.

Automation, while bringing increased productivity and efficiency, raises difficult questions about the future of traditional occupations. As robots and algorithms are taking over routine and repetitive tasks, many workers are facing the potential uncertainty of their jobs. Endovitsky, Tinyakova, Morozova, Karyagina, Fedotova (2021) state that, according to the forecasts of the World Economic Forum and based on data analysis of 371 companies and their 13.5 million employees in the countries of Southeast Asia, the Persian Gulf, the USA, Great Britain, Germany, Italy, China, Turkey, France, Japan and other countries, robots will leave around 5 million people worldwide out of work in the next two to three years and that the reductions will mostly affect office and administrative workers. Such developments require a redefinition of competencies and skills that will be key in the labour market of the future.

However, digital globalization is not only a challenge; it is also an opportunity. Global connectedness and telecommuting allow workers to access markets that were previously unreachable. This “frontier” workforce, not tied to a physical location, is proving increasingly attractive to employers looking for flexibility and diverse talent. The gig economy, or economy based on temporary jobs, is becoming more widespread, allowing workers more flexibility, but at the same time raising questions about workers’ rights and safety (Prihodchenko, Panskov, Afanasyeva, 2021).

Such changing work environments bring certain risks as well. Global competition can put pressure on salary reduction and work conditions. Research has shown that every fourth person employed within the platform economy works in inadequate conditions, including the lack of access to training, small wages and job uncertainty (Radović Marković, Vučeković, Marković, 2021). Also, the digital divide – the difference in access and skills needed to use digital technologies – can further deepen socio-economic differences, where those without digital skills become marginalized.

In tackling these challenges, education will play a key role. Preparing young people for the so-called jobs of the future will mean a focus on skills such as digital literacy, adaptability and interpersonal competencies. In a world where jobs are changing faster than ever, the ability to continuously learn and adapt will become essential.

## THE IMPACT OF DIGITAL GLOBALIZATION ON EDUCATION

As can already be guessed based on what has been said in the paper, in the era of information and communication technologies, digital globalization strongly shapes the education sector. Lingard (2021) states that “the rapid evolution of digital resources and the global communication network have enabled



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revolutionary changes in education, providing new dimensions to learning and shaping the pedagogy of the future”.

One of the most visible aspects of this influence is the emergence of online education. Through virtual classrooms, boundaries are erased and an opportunity for inclusive education is provided. Students from different parts of the world can access top education, overcoming geographical and economic barriers. However, this new approach brings with it a number of challenges. The digital divide becomes apparent when we face the fact that many students do not have access to appropriate technological tools or a stable internet connection.

An additional concern in the digital environment is data protection. With the increasing dependence on digital platforms, there is a risk of misuse of personal information of students and teachers. This requires strengthening digital security and ethics in the educational environment.

Regarding the quality of education in the digital age, there is a need for constant monitoring and evaluation of educational materials provided via the Internet. Digital education must not be a compromise in quality compared to traditional education. To achieve this, educational institutions should invest in the training of teachers so that they can use new technologies in an effective and pedagogical way.

With the advent of the COVID-19 pandemic, digital globalization in education has been brought into focus. The sudden transition to online teaching highlighted the potential, but also the limitations, of digital technologies. This has pointed to the need for flexibility in education systems, as well as for strengthening infrastructure in order to respond to unforeseen global challenges (Lingard, 2021).

It can be stated that digital globalization brings both opportunities and challenges to the education sector. The new tasks that are set before educational institutions concern the society's demand that young people be adequately prepared for a world of frequent changes and that they be able to find their place in such a world (Gavrić, Čukanović Karavidić, Mušinović, 2003).

One thing is certain: digital globalization is here to stay and will continue to shape education for years to come. It is up to us to find a model by which we will maximize the benefits and minimize the risks of this type of education. In order to achieve this, a proactive role is needed by all participants in education – from decision makers to teachers and students.

## **THE FUTURE OF DIGITAL GLOBALIZATION: PERSPECTIVES AND FORECASTS**

One of the key predictions we associate with digital globalization is the further integration and interoperability of digital platforms, devices and services. The Internet of Things (IoT) is likely to take off, connecting everything from home appliances to industrial systems into a global network. This connectivity enables new ways of interacting, trading and innovating, but it also raises questions about security, privacy and ethics.

Artificial intelligence (AI) and machine learning will become even more central to the global ecosystem. AI is expected to automate many jobs, create new industries and transform existing ones. While AI offers the potential to increase productivity and innovation, it also raises serious questions about the consequences for employment, social equity and the management of technological power.





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In terms of future prospects, globalization is likely to continue to develop and shape the world in different ways. New technologies, such as artificial intelligence and automation, can further accelerate globalization processes, but at the same time bring new challenges. However, there is also an opportunity to redefine and recalibrate globalization, where more emphasis will be placed on sustainability, inclusiveness and multilateral cooperation (Bilbilovska, Plavšić, Andonov, 2003).

The Metaverse, or virtual universe, may become the next phase of digital globalization. As a fully immersive digital experience, metaverse will allow users to live, work and play in a digital space, which can completely redefine the boundaries between the physical and digital worlds.

Given these technological changes, digital inequality will be a key issue for the future. To ensure that everyone benefits from digital globalization, concerted efforts are needed to reduce the digital divide between developed and underdeveloped regions, as well as within societies themselves.

Regulation will also play a key role in shaping the future of digital globalization. As the question of monopolies of large technology companies, data protection, ethical dilemmas and security challenges is raised, global cooperation is needed to create rules and standards that encourage innovation, but also protect individuals and societies (Skare, Soriano, 2021).

The future of digital globalization promises radical changes in our world, but with them come uncertainties. The key to success lies in adaptability, foresight and collaboration at all levels – from individuals to global institutions – to ensure that the technological revolution benefits everyone, not just some.

## CONCLUSION

Globalization is, without a doubt, one of the most influential processes shaping the modern age. It breaks down borders, merges cultures and reshapes how we understand the world around us. The economic, social, cultural and political aspects of globalization prove that the world has become increasingly connected and interdependent, which brings with it numerous advantages, but also challenges.

Digital globalization is revolutionizing the way we communicate, learn and work. Information technologies enable faster exchange of information, facilitate education and remote work, but also raise questions about digital literacy, privacy and social connectedness. While digital communications can increase access to information and resources, they can also widen the gap between those who have access to digital resources and those who do not.

Overall, digital globalization is a double-edged sword. While it provides enormous opportunities for innovation, development and connectivity, it also gives rise to tensions, inequalities and new challenges. In order to successfully adapt and cope with the most modern trends, adaptability and constant re-examination are needed. What is indisputable is that globalization, in all its forms, will continue to shape our society, economy and culture for decades to come. This is precisely why it is essential that we understand its impact and channel it in a direction that will be beneficial and sustainable for all.

## REFERENCES

Bilbilovska, G., Plavšić, S., Andonov, Z. (2003). Svetski tokovi globalizacije uslov brzog sopstvenog razvoja. *Ekonomске teme*. 41(2), 126-138



## Conference Proceedings

- De Mello, L., Ter-Minassian, T. (2020). Digitalisation challenges and opportunities for subnational governments. OECD Working Papers on Fiscal Federalism, No. 31. Paris
- Endovitsky, A. D., Tinyakova, I. V., Morozova, I. N., Karyagina, V. T., Fedotova, A. M. (2021). Analysis of forming of the professional competence and the rational use of human capital in the digital economy. *International Review*, 3-4, 121-126.
- Gavrić, G, Čukanović Karavidić, M., Mušinović, F. (2023). Functionality of knowledge acquired during formal education, XII International Scientific Conference "Employment, Education and Entrepreneurship – EEE2023", pp. 275-281
- Gidens, E., (2005). Odbegli svet: kako globalizacija preoblikuje naše živote. Stubovi kulture, Beograd
- Leonardi, P. (2020). You're going digital-now what? *MIT Sloan Management Review*, 61(2), 28-35.
- Lingard, B. (2021). Globalisation and education: Theorising and researching changing imbrications in education policy. *Globalisation and Education*, pp. 1-27
- Prikhodchenko, O., Panskov, V., Afanasyeva, L. (2021). Modern Trends in the Development of the Regional Economic Management System in the Context of Digital Globalization. In *SHS Web of Conferences*, 92, 27-53
- Radović Marković, M., Vučeković, M., Marković, D. (2021). Fleksibilan rad u digitalnoj ekonomiji. *Trendovi u poslovanju*, 9(1), 25-31.
- Rajšić L. (2006). Ekonomska globalizacija i ljudsko usavršavanje. *Ekonomске teme*, 44(1-2), 551-562.
- Skare, M., Soriano, D.R. (2021). How globalization is changing digital technology adoption: An international perspective. *Journal of Innovation & Knowledge*, 6(4), 222-233.
- World Bank Open Data. (2020). World Bank, Washington.
- Zhao, H. (2018). Assessing the Economic Impact of Artificial Intelligence. *ITU Trends, Emerging Trends in ICTs*, Issue 1.



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**ENTREPRENEURSHIP FOR NEOLIBERAL  
PEACEBUILDING: THE IMPACT OF PUBLIC POLICY  
DRAFTED BY INTERNATIONAL ORGANIZATIONS IN  
POST-CONFLICT COUNTRIES**

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DOI: 10.5937/EEE24021H  
JEL: F53, F63, J68, L26, L38, O19  
Review Scientific Paper

**ABSTRACT**

*This study investigates the role of international organizations implicated in fostering an entrepreneurial ecosystem in post-conflict countries by shaping public policy to establish a lasting peace through economic stability. Literature relevant to public policy and entrepreneurship – specific to post-conflict countries as well as international organizations' implication were discussed. An empirical study was conducted that focused on three post-conflict countries and involved twenty interviewees from different INGOs and intergovernmental organizations implicated in shaping public policy to promote entrepreneurial endeavors. The research provides insights of the overall dynamic of post-conflict public sector policy and the establishment of an entrepreneurial environment centered on inclusive practices and value creation. The research highlights on various contextual factors such as socio-economic issues, political climate, and ideological structures. Research findings show that most post-conflict countries were subjected to a forced injection of public policy from international entities without considering their local context, focusing only on economic factors – which led to ineffective entrepreneurship initiatives. In addition, study results show that international organization are directly involved in reconstructing public sector practices by involving startups in providing public services to achieve a lasting "Liberal Peace" influenced by the "Washington Consensus". Additionally, findings indicate that numerous entrepreneurial ventures were not sustainable, as most start-ups were heavily dependent on external assistance. Ultimately, the research proposes a conceptual framework for understanding how international organizations involved in creating an entrepreneurial ecosystem go about drafting public policies. In addition, the study offers a new perspective on "Liberal Peace" by examining entrepreneurial endeavors. The paper reveals many research gaps and suggestions new directions for future research on entrepreneurship in post-conflict countries while crisscrossing the discipline of public management. Our study also helps policymakers to design an effective entrepreneurship policy considering the specific requirements of post-conflict contexts.*

**KEYWORDS**

*entrepreneurship, post-conflict countries, economic recovery, public policy, liberal peace*

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# INTRODUCTION

After a war ends, a post-conflict period begins. This phase necessitates a halt in military confrontations, the initiation of peace talks or the implementation of a ceasefire, and the beginning of a reconstruction process (Kreutz, 2010). Many countries that have experienced conflict continue to be unstable, with issues such as political turmoil, economic stagnation and resulting challenges, and social tension being common (Junne, Verkoren, 2005). Experts suggest that a post-conflict phase is considered successful upon its completion, achieved through establishing stability and security via disarmament, state administration rebuilding, restoring law and order, implementing peace agreements, and resolving underlying issues (Moritz et al., 2023). In today's world, with the increasing number of international and internal conflicts, post-conflict recovery is a significant challenge (George et al., 2016, IASIA, 2019). Both governments and international organizations have made significant efforts to help these countries transition to peace and economic stability (Reychler, Langer, 2006).

In times of conflict/post-conflict transition, concerned countries often face fragility and frequent episodes of violence that pose obstacles to peacebuilding efforts (Junne, Verkoren, 2005). Nevertheless, peace, economic rejuvenation, and a working public sector are crucial requirements for lasting progress and are key objectives for the United Nations (George et al., 2016). However, countries handle these challenges in different ways, and there are many different approaches to post-conflict reconstruction that are evident (OECD, 2016). Most scholars and practitioners agree that public administration is crucial in reconstructing post-conflict countries by delivering essential public services to achieve peace (Brinkerhoff, 2007). In this context, post-conflict countries were introduced to a new state-building model by various entities including the United Nations, International Financial Institutions, and International Non-Governmental Organizations. According to a neoliberal perspective, if the state is reconstructed, public services are distributed equally, and the economy grows, there is no need to go back to a war-time state (Williams, Vorley, 2017).

In many cases of post-conflict intervention, the main priority for international organizations is to establish favorable conditions for business growth through public sector means, which in turn promotes economic recovery and innovation (Audretsch, Link, 2012). Indeed, Entrepreneurship is viewed as a mean to quickly drive reconstruction, promote sustainable economic development, and facilitate the transition of post-conflict countries, as highlighted by multiple experts (Desai, 2011, Berdal, Mousavizadeh, 2010, Bozzoli et al., 2013, Rapp, Olbrich, 2021). However, post-conflict entrepreneurship is quite different from a "normal" entrepreneurial setting – and requires different factors to be considered (Moritz et al., 2023). To many scholars, a comprehensive view of entrepreneurship in post-conflict country should consider historical, temporal, institutional, spatial, and social aspects (Welter, 2011). International organizations have worked on the post-conflict public sector, a more specifically on public policy to create the necessary conditions of an ecosystem capable of creating a business-friendly atmosphere in post-conflict countries to attain a sustainable peace through economic stability (Murshed, 2019). However, in recent years, many academics have viewed this approach as inefficient, ineffective, and unsuitable due to the unique characteristics of each nation (such as socio-cultural, historical, and anthropological factors) that can impact the implementation of the new system as is (Blunt, Turner, 2005). On another note, most entrepreneurial initiatives stopped once international organizations withdrew their funding from the post-conflict project (Aldairany et al., 2018).

The purpose of this paper is to analyze how international organizations contribute to creating an entrepreneurial environment in post-conflict nations by influencing public policy to promote economic stability to achieve long-term peace. The paper will outline post-conflict entrepreneurial public policy based on existing literature. An empirical research project was carried out in three post-conflict



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environments, interviewing twenty individuals from various INGOs and intergovernmental organizations that play a role in shaping public policy to support entrepreneurship. The study adds to the existing knowledge in the field of public management and entrepreneurship in post-conflict environments by pointing out various aspects like the impact of poorly designed public policies on entrepreneurial ventures, the shortcomings of liberal peace, etc. It also guides policymakers in creating entrepreneurship policies tailored to the unique needs of post-conflict situations.

## LITERATURE REVIEW

### Liberal Peace & International Organizations Intervention

After the end of the cold war (1947-1991), and with the multiplication of conflicts across the globe various international actors engaged in peacebuilding efforts have developed the concept of post-conflict development (Ahmad, 2006, Belaid, 2012). Post-conflict rebuilding refers to efforts to find ways to enhance peace and prevent a relapse into conflict (Nhema, 2015). This idea is now a crucial aspect of the peacebuilding strategies of global organizations such as the UN, INGOs, IFIs, etc., to attain a lasting peace (Obuku et al., 2017). Put differently, international entities fund a reconstruction process in post-conflict counties which involves creating new incentive systems from within, drafting new public policies, etc. (Boyce, 2007). This is achieved by providing post-conflict aid, which involves giving resources such as money, technology, and more. Different ways of support include (Garriga, Phillips, 2014; Obuku et al., 2017): (1) Multilateral Public Aid launched by International Organizations (i.e. IBRD, World Bank, IMF, UNDP, OECD DAC); (2) Bilateral Official Aids which is a direct agreement between two countries; and (3) Private Aids from developed country's private sector to underdeveloped nations. All these efforts aim to build a strong economy through different means – as ensuring economic steadiness will achieve stability and social cohesion (OECD, 2002). This can be achieved by using a neo-liberal economic approach to peace – known as "Liberal Peace".

"Liberal Peace" is an approach aimed at restoring fragile states by strengthening national institutions linked to sustainable peace and creating tools to resolve the root causes of conflict, such as social cohesion and economic development, from a liberal perspective (Richmond, 2008). To guarantee liberal peace, it is necessary to have an intervention led by external entities such as international and charitable organizations, because the problem is internal, but the solution must come from outside. Their participation consists of a top-down, fragmented approach to nation-building. Hence, it is an introduction of a new way of thinking ("liberal") (Autesserre, 2011). Furthermore, the objective of the interested parties is to reduce and prevent conflicts, by improving national and local skills in conflict resolution (Castillo, 2003, Richmond, 2008, Oliveira dos Santos, 2019). Also, strategies for achieving liberal peace include post-conflict reconstruction, the promotion of democracy and justice, market-based economic reforms, the creation of other institutions linked to 'modern' states to foster peacebuilding and the empowerment of the population (Oliveira dos Santos, 2019)

### Post-Conflict Entrepreneurship Public Policy

Within the context of liberal peace, international organizations work on drafting and executing public policies that foster an entrepreneurial ecosystem. The idea is to initiate and incubate policies that encourage micro-businesses as well as the development of key factors underlying entrepreneurship (i.e. loan guarantees, support for exporters, advice and information provision, incubation and acceleration



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programs, efficient labor market projects, etc.) as well as macro-economic policies, such as interest rates, which affect all businesses but have deep impact on entrepreneurial risks (Abramov, 2009). The idea is to create the incentives (i.e. financial profit), the means (i.e. coaching, incubators, laws and regulations, etc.), and the market (Chowdhury, 2011, Djib, 2014). Such policies have an impact on economic growth and dynamics in the post-war economic.

Adaptability, resilience and the ability to manufacture small goods and to provide services with a high degree of flexibility and cost effectiveness by micro-businesses are hallmarks to the post-war economy (Bray, 2009; Desai et al., 2013). On another note, micro-businesses are particularly important for bringing innovative products and/or services to the post-war market, nurturing talent, and creating employment – specially for the former-combatants, alleviating poverty, increasing social and economic participation of women, youth, and minorities (Aldairany et al., 2018, Bongomin et al., 2020).

## METHODOLOGY

A qualitative research was conducted to investigate how international organizations are implicated in the drafting of public policies fostering entrepreneurial ecosystems and subsequently entrepreneurial activities. This approach was deemed to be appropriate since such a process enables a proper understanding of the studied topic and provides insight on why and how particular things occur during specific events (Eisenhardt, 1989). Three middle eastern countries (Lebanon, Iraq and Syria) were chosen given the unstable nature of their environment (a continuous stalemate of war – post-war periods). On another, the thousands of INGOs and their funded projects in Lebanon have made such parties the third wheel of public policy (Abou Assi, 2006). Indeed, such entities have been actively engaged in public activity, impacting public policy (Najam, 2000). On another note, when it comes INGOs entrepreneurial projects these countries – given the variability of their objectives – the outcome of such activities varies.

Data was collected from twenty (20) INGOs, International development agencies, Embassy programs, intergovernmental organizations, international financial institutions, etc. implicated in shaping public policy in the said countries to promote entrepreneurial endeavors. The sampled entities aimed to provide a comprehensive coverage of their origin, nature, interest, objectives, etc. – thus avoiding over emphasis on a specific type of activity (Palmatier et al., 2007). This decision allowed the researchers to capture a wide range of international entities' perceptions (Gersick, 1988). Interviewees were selected based on their experience as well as their current and past involvement in post-conflict entrepreneurial activities and public policy implication. All interviewees had at least three years of working experience in the three studied post-conflict countries. Over a period of two years (2022-2023), interviews were conducted that concentrated on two main inquiries: the entrepreneurial initiatives that were supported by such entities, as well as the process of participating in formulating and implementing public policies the three post-conflict countries, were conducted. A semi-structured qualitative protocol was employed given that each entity had a different identity with a different mission – hence, operated in a relatively different context. This allowed the researchers to adapt the questions to both the interviewed organizations' representative and their work.

Data collected from interviews and existing literature were used to properly outline the studied topic (Eisenhardt, 1989). Since the researchers are situated in France, interviews were conducted using Zoom. Every interview lasted between 30 and 45 minutes. Twenty (20) interviews were carried out under similar conditions to avoid bias and ensure reliability (Guba, Lincoln, 1985). Researchers were prohibited from recording the interviews. Interviews were conducted in English and transcribed.



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Researchers used a triangulation methodology incorporating interviews and archival sources to enhance the reliability and validity of the data (Yin, 1994). The extracted data was classified by origin (interviews and archives) by the researchers. This was done as to when qualitative data from various sources matched, the findings were considered stronger and the patterns more valid. On the other hand, conflicting data were gathered in another analysis group to be re-analyzed, re-studied or thrown due to inadequate verification (Eisenhardt, 1989). In conclusion, data that were collected were cross-referenced with previous literature to confirm the contributions made in both theory and practice (Eisenhardt, 1989).

## FINDINGS

### The Challenges of Post-Conflict Entrepreneurship Public Policy

The challenges to entrepreneurship public in post-conflict environments are similar yet very distinct from those where war is an ongoing phenomenon – given that a conflict (and its derivatives, in the post-war period) takes place on a spectrum:

- **State Rebuilding:** In most cases, either the public administration will not help the launching of such initiatives, or the rebuilt model is not compliant to the expected outcome.
- **Lack of Security:** Security is a crucial element in post-conflict settings. Nonetheless, development must be coupled with security to avoid economic stagnation and civil unrest, while security alone can also imperil economic growth and potentially cause a total economic collapse.
- **Insufficient Peace Support Activities:** In most cases, peace support activities were insufficient as they were not transformational – in other note, the injected content (system) did not have a proper impact on the culture, the mindset and the behavior of the community.
- **Complicated Administrative Structures:** They can be the result of the old public sector or the new one – however, in most cases, it created fragmented economic and labor markets, scarcity of financial support, unfriendly regulatory environment, etc.
- **Lack of Real Financing:** Given the financial risk level, access to capital outside of external funding, whether from formal or informal sources is quite difficult and, in some cases, non-existent.
- **Difficulties Empowering the deprived Population:** In most cases, post-conflict entrepreneurial initiatives fail to include women, minorities, etc. in the all-in-all process.
- **Inadequate Programs:** Most international entities do not consider the particularities of each country and its context and offer entrepreneurial programs that will not help with the process as is.
- **Lack of Facilities and Human Capital:** In most cases, there was a lack of incubator, accelerators, facilities, equipment, access to technology, etc. On another note, there was a lack of skills, competencies to initiate the project – as well as the lack of qualified human resources to either develop or sustain the project that was already launched.



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### **Non-Sustainable Entrepreneurial Dynamics**

Most international organizations have adopted a similar approach to post-conflict entrepreneurial initiatives regardless of the community, region, country, etc. In other words, without considering any particularities or specificities of each environment (i.e. anthropological, social, etc.).

On another note, most INGOs and international organizations were heavily involved in any entrepreneurial project (more or less) given that they were getting funding to fund such projects and export the know-how. They had to spend all their budget on a yearly basis – which resulted in the funding of non-serious and non-sustainable projects. Indeed, many projects that were supported, were very unimpressive, artisanal, and primitive – with no serious impact on the economy.

Furthermore, many projects were wrongly incubated given that several training programs were inadequate, and many proposed initiatives were non-compliant to the existing environment (i.e. high-tech projects).

## **DISCUSSION**

### **Post-Conflict Liberal Peace**

Post-conflict countries are perceived as weak, fragile, and in most cases faltering states. Nevertheless, liberals argue that employing liberal peace can address the problems created and suffer. International organization linked with neo-liberal IFIs advocate for liberal peace strategies to develop states in this scenario. The objective is to reform the public sector and modernize its establishments to deliver top-notch services to citizens uniformly across all areas, with the goal of averting a return to tumultuous periods.

Specific characteristics and assumptions characterize liberal peacebuilding in post-conflict nations, including:

- 1) frequently led by foreign entities, portrayed as non-political and with good intentions;
- 2) emphasizing internal problems with seeking external solutions;
- 3) prioritizing international interventions over local actions and favoring top-down state-building over bottom-up approaches;
- 4) aiming to establish a market economy and modern institutions as essential for peace-building;
- 5) covering sectors like security, development, humanitarian aid, governance, democracy, and law;
- 6) suggesting that liberal democratic societies are more peaceful and prosperous than non-liberal/non-democratic ones.

### **The Achilles Heel of INGOs' Post-Conflict Entrepreneurship Public Policy**

In most post-conflict countries, the public policies installed by international organization have had an Achilles effect:





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- **Heavy International Organizations' Direct Implication:** International organizations are directly involved with their staff, expertise, funding, etc. They are managing the formulation as well as the execution of public policies related to entrepreneurship. Such entities are heavily investing, incubating, accelerating, and supporting projects (i.e. external consultants, etc.).
- **Once International Organizations are Out:** However, once organizations decide to do an exit strategy, most startups are not properly developed to the point of being independent. In other words, such local micro-businesses have such a bad business model, where they are heavily reliant on the assistance of international entities and cannot continue their development if funding, expertise, etc. are suddenly cut-off. On another note, public entities, cannot fulfill this task, as they do not have either the expertise, facilities, etc. to do the international organizations past activities.

Hence, we understand that a small development through public policies is possible, however – it is conditioned by the presence and direct involvement of international entities. This means that in case of an exit strategy, there is the possibility that the injected entrepreneurial eco-system be systematically dismantled – which can lead to unstable events in an already unpredictable post-conflict setting, thus jeopardizing the very objective of “Business for Peace”.

## CONCLUSION

The paper bridges the gap between public policy, entrepreneurship and post-conflict countries – while highlighting the concept of “Liberal Peace”. With modern-day conflicts now more complex and longer lasting, academic research on the interaction between entrepreneurship and peace will continue to increase as scholars explore durable solutions for sustainable peace. The study has sought to make the broad field of post-conflict studies more inclusive by extending its existing pillars: the economic pillar, the public management pillar, and the entrepreneurship pillar. These extensions open the door for further contributions to the interplay of entrepreneurial business and peace while also helping to theoretically advance post-conflict public policy.

Based on the results of our study, we suggest that future research should develop more holistic solutions for post-conflict entrepreneurship in in post-conflict countries. Such research should be based on "practice" made possible by the partnership between academia, INGOs, local associative entities and the private sector to leverage the expertise and drive forward the knowledge in this field of study. Moreover, future research should improve the efficiency and effectiveness of public policy and entrepreneurial initiatives to ensure sustainable socio-economic conditions and lasting peace.

## REFERENCES

- Abou Assi, K. (2006). Lebanese civil society: A long history of achievements, facing decisive challenges ahead of an uncertain future. CIVICUS, Johannesburg.
- Abramov, I (2009). Building peace in fragile states—building trust is essential for effective public-private partnerships. *Journal of Business Ethics*, 89 (Suppl. 4), 481–494.



## Conference Proceedings

Ahmad, R. (2006). The Role of Public Administration in Building a Harmonious Society. Asian Development Bank, Manila.

Aldairany, S., Omar, R., Quoquab, F. (2018). Systematic review: entrepreneurship in conflict and post conflict. *Journal of Entrepreneurship in Emerging Economies*, 10(2), 361-383.

Audretsch, D.B., Link, A.N. (2012). Entrepreneurship and innovation: public policy frameworks. *Journal of Technology Transfer*, 37(1), 1–17.

Autesserre, S. (2011). Construire la paix: conceptions collectives de son établissement, de son maintien et de sa consolidation. *Critique internationale*, 51, 153-167.

Belaid, M. (2012). La reconstruction post-conflit. Implications et limites d'un concept multidimensionnel. *Laboratoire de l'Irsem*.

Belitski, M., Cherkas, N., Khlystova, O. (2024). Entrepreneurial ecosystems in conflict regions: evidence from Ukraine. *The Annals of Regional Science*, 72, 355–376.

Bongomin, G.O.C., Woldie, A, Wakibi, A. (2020). Microfinance accessibility, social cohesion and survival of women MSMEs in post-war communities in sub-Saharan Africa: lessons from Northern Uganda. *Journal of Small Business and Entrepreneurship Development*, 27(5),749–774.

Berdal, M., Mousavizadeh, N. (2010). Investing for peace: the private sector and the challenges of peace- building. *Survival Global Politics and Strategy*, 52(2),37–58.

Blunt, P., Turner, M. (2005). Decentralization, Democracy and Development in a Post-conflict Society: Commune Councils in Cambodia. *Public Administration and Development*, 25(1), 75-87.

Boyce, J. (2007). Public finance, aid, and post-conflict recovery. *Economics Department Working Paper Series*, 42.

Bozzoli C, Brück T, Wald N (2013) Self-employment and conflict in Colombia. *Journal of Conflict Resolution*, 57(1):117–142.

Bray, J. (2009). The role of private sector actors in post-conflict recovery. *Conflict Security and Development*, 9(1), 1–26.

Brown, S., Goldwyn, R., Groenewald, H., McGregor, J. (2009). *Conflict Sensitivity Consortium Benchmarking Paper*

Castillo, G.D. (2003) Economic reconstruction in post-conflict transitions: lessons for the Democratic Republic of Congo. *OECD Working Paper No. 228*, OECD Publishing, Paris.

Chowdhury, M.J.A. (2011). The determinants of entrepreneurship in a conflict region: evidence from the Chittagong hill tracts in Bangladesh. *Journal of Small Business and Entrepreneurship*, 24(2), 265–281.

Desai, S. (2011) A tale of entrepreneurship in two Iraqi cities. *Journal of Small Business and Entrepreneurship*, 24(2), 283–292.

Gallo, P. J., Sosa, S., Velez-Calle, A. (2023). Business for peace: How entrepreneuring contributes to Sustainable Development Goal 16. *Business Research Quarterly*, 26(1), 62-78.

Desai, S., Acs, Z.J., Weitzel, U. (2013). A model of destructive entrepreneurship: insight for conflict and post-conflict recovery. *Journal of Conflict Resolution*, 57, 20–40.

Djip, V. (2014). Entrepreneurship and SME development in post-conflict societies. *Journal of Entrepreneurship Public Policy*, 3(2), 254–274.



## Conference Proceedings

- Eisenhardt, K.M. (1989). Building theories from case study research. *Academy of Management Review*, 14(4), 532-550.
- Garriga, A.C., Phillips, B.J. (2014). Foreign aid as a signal to investors: predicting FDI in post-conflict countries. *Journal of Conflict Resolution*, 58(2), 280–306.
- George, G., Howard-Grenville, J., Joshi, A., Tihanyi, L. (2016) Understanding and tackling societal grand challenges through management research. *Academy of Management Journal*, 59(6), 1880–1895.
- Gersick, C.J. (1988). Time and transition in work teams: toward a new model of group development. *Academy of Management Journal*, 31, pp. 9-41.
- Guba, E., Lincoln, Y. (1985). *Naturalistic Inquiry*. Sage, Newbury Park.
- IASIA (2019). IIAS/IASIA Presentations at the First International Ministerial Roundtable on Public Administration in the City of Ramallah, Palestine, Held on 1 April 2019 by General Personnel Council, IASIA.
- Joseph, J., Katsos, J. E., Van Buren, H. J. (2023). Entrepreneurship and Peacebuilding: A Review and Synthesis. *Business & Society*, 62(2), 322-362.
- Junne, G., Verkoren, W. (2005) *Postconflict development: meeting new challenges*. Lynne Rienner Publishers, Boulder.
- Kreutz, J. (2010). How and when armed conflicts end: introducing the UCDP conflict termination dataset. *Journal of Peace Research*, 47(2), 243–250.
- Moritz, A., Block, J.H., Morina, F. (2023). Entrepreneurship in post-conflict countries: a literature review. *Review of Managerial Science*, 18(10), 3025-3083.
- Murshed, S.M. (2019). *The Liberal Peace: Challenges to Development, Democracy, and Soft Power*. In: Kulnazarova, A., Popovski, V. (eds) *The Palgrave Handbook of Global Approaches to Peace*. Palgrave Macmillan, Cham.
- Najam, A. (2000). The Four-C's of Third Sector–Government Relations: Cooperation, Confrontation, Complementarity, and Co-optation. *Nonprofit Management & Leadership*, vol. 10, pp. 375-396.
- Nhema, A. G., (2015), *Relevance of Classical Management Theories to Modern Public Administration: A Review*. *Journal of Public Administration and Governance*, 5(3), 165-179.
- Obuku, E.A., Stewart, R., Mijumbi, R., Ochan, M., Achana, F., Akena, D., Nakitende, A., Ssemata, A., Kinengyere, A., Semakula, D., Ssenono, R., Nsangi, A., Lalitha, R., Mwesiga, E., Akite, J., Basaza, R., Newbrander, W., Okello, J., Sewankambo, N., Dickson, K., Oliver, S. (2017). *Working with non-state providers in post- conflict and fragile states in primary healthcare service delivery: a systematic review*. London: EPPI-Centre, Social Science Research Unit, UCL Institute of Education, University College London.
- OECD (2002). *OECD Annual Report 2002*, OECD Publishing, Paris
- OECD (2016) *Libya's private sector and SME landscape*. OECD Publishing, Paris.
- Oliveira dos Santos, R. (2019). *Liberal Peace, Peacebuilding and UN Peacekeeping Rationality: Reforming 21st century peacekeeping operations: governmentalities of security, protection, and police*, by Marc G. Doucet, Routledge, London and New York, Routledge, *Journal of Intervention and Statebuilding*, 13(5), 644–649.



## Conference Proceedings

- Palmatier, R.W., Dant, R.P., Grewal, D. (2007). A comparative longitudinal analysis of theoretical perspectives of interorganizational relationship performance. *Journal of Marketing*, 71(4), 172-194.
- Rapp, D.J., Olbrich, M. (2021). On predictive entrepreneurial action in uncertain, ill-structured conditions. *Review of Managerial Science*, 15, 1961–1979.
- Reychler, L., Langer, A. (2006). *Researching peace building architecture*. Leuven Centre for Peace Research and Strategic Studies, Leuven.
- Richmond, O. (2008). *The UN and Liberal Peacebuilding: Consensus and Challenges*. In: Darby, J., Ginty, R.M. (eds) *Contemporary Peacemaking*. Palgrave Macmillan, London.
- Welter, F. (2011). Contextualizing entrepreneurship-conceptual challenges and ways forward. *Entrepreneurship Theory and Practice*, 35(1), 165–184
- Williams, N., Vorley, T. (2017). Fostering productive entrepreneurship in post-conflict economies: the importance of institutional alignment. *Entrepreneurship & Regional Development*, 29(5–6), 444–466.
- Yin, R. (1994). *Case Study Research: Design and Methods*, Sage, Beverly Hills.



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# UNIQUE DESTINATIONS IN KENYA: THE NEW FACE TOURISM ENTREPRENEURSHIP IN KENYA

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DOI: 10.5937/EEE24022I

JEL: L26, L83

Review Scientific Paper

### ABSTRACT

*A visit to The Alamo in Texas in USA, the Great Wall of China, a palace in Warsaw and a few other places leaves no doubt that Africa has not marketed her destinations from traditional shrines or relics of Kingdoms like Ghana and Songhai, playgrounds of the various nationalities who once made Africa their home from Portuguese to British settlers. Destinations include Kenya's coastal strip and Happy Valley (Wanjohi Valley). Some destinations have been forgotten like a Dutch Reformed Church in Kenya and its sister institutions like schools. With Kenya's new constitution in 2010, devolved units showed lots of interest in such destinations. There are lots of cultural and physical destinations that we can package. Egypt has led us by making money from tombs(pyramids) and corpses(mummies). They got 11,196,000 tourists in 2018(World Bank, 2018). Kenya got 1,364,000 the same year. To emulate Egyptians, we must repackage the destinations -both in our minds and physically. And make the world realise there is no more than the big 5(elephant, lion, buffalo, rhino, and leopard) in tourism. The paper will explore some of the forgotten destinations in Kenya that would make the country join the league of Egyptians. The fact that Kenya has been a playground of different nationalities for over 1000 years means there is plenty of potential destinations or attractions.*

### KEYWORDS

*destinations, tourism, settlers, Afrikaans, Aberdares, Mau Mau*

## INTRODUCTION

Generations to come would want to enjoy the sites of Taj Mahal, the pyramids, Machu Pichu, the wildebeest crossing the crocodile infested rivers in Kenya and other destinations, less known than the 8 wonders. This paper looks at some of the forgotten or unique tourist destinations. We consider Kenya a representative of Africa because of her diversity in culture, races and even landscape. By highlighting a few of these destinations, we can go beyond the big 5 and Safari drives. Of keen interest are destinations that are "emotional" creating connections across generations, region and continents. The author has visited some of the destinations and offers first-hand experience and observations.

The big game and Safaris coupled with beaches have defined East African destinations for the last 100 years. The myth about the big 5 are almost magical. National parks are some of the most popular destinations in Africa, from Masai Mara in Kenya to Kruger in South Africa. One American President Theodore Roosevelt even came hunting game in Kenya. "From 1909 to 1910, Roosevelt and his crew

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trekked through Kenya, Uganda, the Congo, and southern Sudan, exploring, shooting, and capturing footage and photographs that museums still treasure today", says Boeni (2014).

Covid-19 left no doubt that this model based on national parks is not sustainable. The empty beaches and national parks created the need for less traditional destinations. We could have used the covid-19 interruption to package new destinations. The paper builds the case for some forgotten destinations in Kenya. They are "forgotten" because they get few visitors; their potential has not been exploited. The number of tourists arriving in Kenya is low compared with other countries.

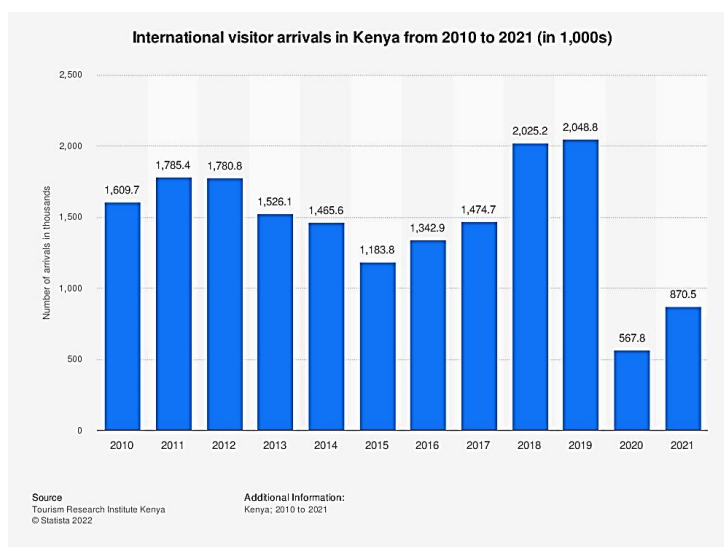


Figure 1. Tourist arrivals in Kenya  
*Source: Statista.*

This is contrasted with Greece below.

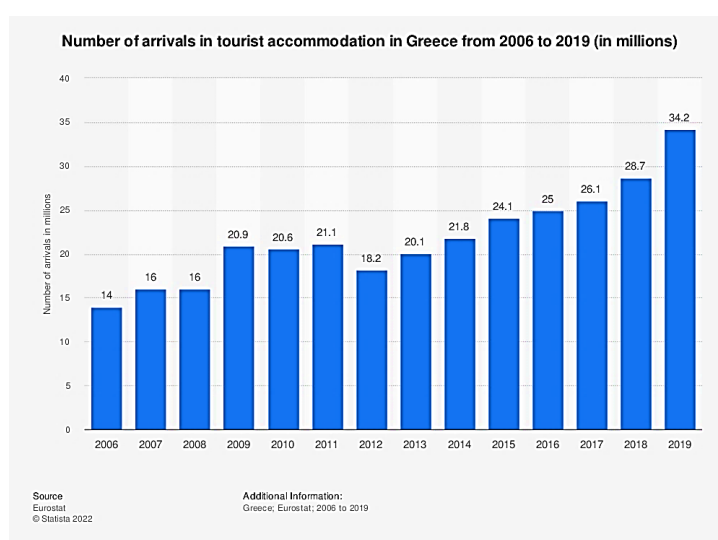


Figure 2. Tourist arrivals in Greece  
*Source: Statista.*



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The possible destinations are explained. They have been chosen based on their historical significance and appeal to global audience. A map of Kenya gives the context.



### Old Mombasa town

This is an intersection of centuries old cultures involving the indigenous Africans, the Arabs, Indians, Portuguese and Indians. A visit to the cemeteries in the old town leaves no doubt how cosmopolitans the town is, even in death. Rarely has this been sold as a tourist destination. Visitors to Mombasa mention Fort Jesus, built by Portuguese and beaches. The old town could rival Zanzibar's stone city.

### Happy Valley and old houses



Figure 3. Happy Valley Facing South in Nyandarua county, Kenya (own photo)



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Its Kenya's most famous landmark appearing in movies like *Out of Africa* and several books including *Ghosts of the Happy Valley*. It's only 150 km north of Nairobi. Several old houses and their history dot the small valley. No one has really sold it as destination. Yet from 1920 to around 1941 when its doyen Lord Errol died it was the playground of the rich and affluent from UK, America, France and other parts of the world. Some like American Alice De Janze is buried there.



Figure 4. A house in the Happy Valley formerly owned Alice de Janze (own photo)

### Tea plantations



Figure 5. Tea farm near Limuru, Kenya

Tea plantations in Sri Lanka, India or Kenya are some of the most breath-taking scenes but rarely marketed as destinations. We are eager to visit wineries and taste wine. Why not tea estates? Curiously, most tea estates are very near urban centres like Nairobi. But their link to farming makes them lose their coolness. Add tea processing from picking to packaging the destination becomes more attractive. The history behind tea plantation passing from old colonial era to present add to the allure.



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### Police Stations and prisons



Figure 6. A plaque at a Kenyan police Station celebrating history (own photo)

Police Stations and prisons may be feared because we rarely visit there for fun. But as this plaque in a Kenya police station show, they hold lots of history. Can they allow access to records from those imprisoned during the colonial era to the present? The fact that we know men and women who have ever had a brush with law makes police stations and prisons more homely. My dad spent four months in a prison in Embu, Kenya. Would love to see the records. Their architecture has been preserved too.

### Carnegie House: The Scotland Connection



Figure 7. Carnegie Houses (own photo)

Major Robert Francis Carnegie build these houses on the Nyahururu-Nyeri Road overlooking Mr. Kenya. The house on the left is clinic while the right one is the administrative block of Ngobit girls School. Next to these houses was an airstrip, now disused. There several such houses in the former white highlands, white because British and Afrikaan settlers made them their home. Some of the houses are in private hands while others are in owned by institutions. They form an important link between the past and the present. Of great ineptest is the way the new settlers used local materials to build houses.



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Major Robert Francis Carnegie came from Scotland and was born in 1869. He died in Ngobit, Kenya in 1947. His spouse who appears in CIVIL APPEAL NO. 57 OF 1981 was Violet Mabel Carnegie. She died in 1982 and was born in 1903. They had three sons. David James Carnegie (1915-1994), Robert Murray Carnegie (1917- 1954) and John Fraser Carnegie (1922- 2011). It is still an open question if he is related the American magnate Andrew Carnegie.

The graves of three Carnegies were desecrated by people looking for gold. There was a rumour that they were buried with treasures.

### Anne Spoerry House: The German Connection



Figure 8. The front and back office of Dr Anne Spoerry House at Ol Kalou, Kenya (own photo)

The founder of Africa flying doctor service once worked in this clinic taking care of the mostly settler community from British to Afrikaans (Boers). Today its nondescript and even owners are not aware who owned it. Spoerry's time in a German prison during the world war II and the suggestion she collaborated with Nazi would make her former clinic and home a great destination (Komireddi, 2018).

### Indian Connection



Figure 9. An Indian duka(shop) build in 1940 at Ol Kalou, Kenya (own photo)

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Figure 10. Major White, as Australian is buried in Kenya, 200 km northwest of Nairobi

Not far from Sperry house are Indian build houses in 1940. With a population of over 1.4 billion, this would be a great destination for Indians looking for their kin and kith. Other houses like this, their architecture intact dot the country. While Indians have been in Kenya for 100 years, we rarely think their landmarks as worthy destinations. Their most memorable landmark is the rail line from Mombasa to Uganda.

### The Australian connection



Figure 10. A historical house once owned by J. Etherington (own photo)



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This house was formerly owned by J. Etherington who immigrated to Australia. The house is now a health clinic. Two other Australians whose parents lived in Kenya came back to Kenya as Ambassadors. Can we build that connection and make Kenya a popular destination for Australians? Harold White's grandson became Australia's ambassador to Kenya.

### Schools



Figure 12: University of Nairobi and Starehe Boys Center (own photo)

The University of Nairobi on the left dates to 1956 and was the pioneer university in Kenya with its unique architecture. Starehe, a boy's school was built in 1959. It caters for less fortunate members of the society. These two destinations hold an emotional attachment across generations.

### Afrikaans (Boers) connection



Figure 13. The Dutch Reformed Church in Kenya which was sold after Kenya gained independence. (Own photo)

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Figure 14. This house was owned by an Afrikaan who married two African women Wangechi and Kagure

The shingles roof shows clearly the age of the house. The house is about 170 km northwest of Nairobi 25km. Many Afrikaans would love visiting this place.

### Golf courses



Figure 15. Golf courses are not just playgrounds, they hold history.

The first golf course in Kenya was built in 1906. We now have about 40 golf courses in Kenya. They can be great attractions like Royal & Ancient in Scotland. We have the advantage of endless summers with sunshine 265 days a year.

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### Graveyards



Figure 16. A Commonwealth cemetery in Nairobi (own photo)

Graves represent the link between the past and the present. Egyptians through pyramids have exploited our attachment to the past to make their country one of the most popular destinations. In Kenya, we have commonwealth cemeteries where British soldiers who died in WWI and WWII are buried. Old churches have cemeteries too.



Figure 17. Wreckage of a WW II Blenheim bomber in the Aberdares mountains in Kenya.

This plane went down on a training mission during WWII. It had a crew of three South Africans on board and crashed on July 4, 1942. The plane wreckage was found on January 9, 1943 by Morgan-Grenville who lived in Kenya. The crew were deemed as 'Missing in Action' and despite the plane being found, the bodies were never recovered. This is a great destination that would include mountain climbing.



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### CONCLUSION

The Britons and Afrikaans who first visited Kenya were fascinated by the flora and fauna, including huge herds of wild animals. The writer Earnest Hemingway found the herds which he hunted and took away trophies in 1933. President Theodore Roosevelt had hunted big game in East Africa before him around 1909. Since then new attractions have been added by technology. But they are unknown, uncelebrated. They could be marketed to put Kenya at par with Egypt, Greece or Morocco in attracting tourists and their dollars. These attractions need minimal investment beyond publicity. If county and national governments took up the marketing, and package them, tourism in Kenya would flourish. Other countries in the region would use Kenya as model. Covid-19 was awake up call, demanding that we think beyond the traditional destinations.

### REFERENCES

- Barnes, M. (2016). Discussed her life in Kenya's colonial period. (Personal communication).
- Davis, J. (2017). Climate action and global food security depend on healthy drylands – IUCN. Retrieved September 14, 2020, from <https://www.iucn.org/news/secretariat/201709/climate-action-and-global-food-security-depend-healthy-drylands-%E2%80%93-iucn>
- Deloitte (2016). Kenya Economic Outlook 2016: The story behind the numbers. Retrieved from <https://www2.deloitte.com/content/dam/Deloitte/ke/Documents/tax/Economic%20Outlook%202016%20KE.pdf>
- Kenya Gazette. (1906, November 1). Mombasa.
- Kenya Gazette. (1921, April 20). Mombasa.
- Kenya Gazette. (1928, February 28). Mombasa.
- Kibuko, K. (2017). Shared experience working for Afrikaans. (Personal communication).
- Klopp, J. M., Sang, J. K. (2011). Maps, power, and the destruction of the Mau Forest in Kenya. *Georgetown Journal of International Affairs*, 12(1), 125-134.
- Kolezynski, C. (2014). Sustainability decreases poverty. Retrieved August 23, 2020, from <https://borgenproject.org/sustainability-decreases-poverty/>
- Komireddi, K. (2018). Book review: The tale of a Nazi collaborator who became Africa's 'saint'. *The National*.
- Leo, C. (1981). Who benefited from the Million-Acre Scheme? Toward a class analysis of Kenya's transition to independence. *Canadian Journal of African Studies / Revue Canadienne des Études Africaines*, 15(2), 201-222.
- MacKenzie, J. (1988). *The empire of nature: Hunting, conservation and British imperialism*. Manchester University Press, Manchester.
- Moen, B. (2014). Theodore Roosevelt in Kenya. Retrieved from <https://festival.si.edu/blog/2014/theodore-roosevelt-in-kenya/>
- Moss, D. (2010). *Quavers near Equator*. CPI Group (UK).



## Conference Proceedings

Mutiga, M. (2017). Violence, land, and the upcoming vote in Kenya's Laikipia region. International Crisis Group.

NASA. (2015). 20 intriguing exoplanets. Retrieved from <https://www.nasa.gov/feature/jpl/20-intriguing-exoplanets>

National Council for Law Reporting. (2012). Environmental Management and Co-ordination Act paper 387 (Revised Edition 2012 [1999]).

O'Brien, T., Kim, H. (2015). Kenya's road to growing prosperity. Harvard Africa Policy Journal.

Population Action International & African Institute for Development Policy (2012). Population, climate change, and sustainable development in Kenya. Retrieved from [https://pai.org/wp-content/uploads/2013/01/Kenya\\_PIB\\_Final.pdf](https://pai.org/wp-content/uploads/2013/01/Kenya_PIB_Final.pdf)

Steinhart, E. I. (2000). Elephant hunting in 19th-century Kenya: Kamba society and ecology in transformation. *The International Journal of African Historical Studies*, 33(2), 335-349.

Statista (n.d.). International visitor arrivals in Kenya. Retrieved from <https://www.statista.com/statistics/1140047/international-visitor-arrivals-in-kenya/>





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## INFLUENCE OF OWNERSHIP STRUCTURE ON SUSTAINABILITY DISCLOSURE OF BREWERY FIRMS IN NIGERIA

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DOI: 10.5937/EEE240230  
JEL: M11, O13, Q01  
Original Scientific Paper

### ABSTRACT

*The ownership structure of brewery firms in Nigeria may impact the extent and quality of sustainability disclosure, potentially influencing stakeholders' ability to make informed decisions and threatening the long-term sustainability of these firms. The study therefore examined the influence of ownership structure on sustainability disclosure of brewery firms in Nigeria. The study made use of an ex-post facto research design for the collection of secondary data. The population for the study consisted of listed brewery firms in Nigerian Exchange Group (NSG) as at 31st December, 2022. The sampled firms must fulfil the responsibility of disclosing their financial statements for eleven consecutive years for the period 2012- 2022. The filtering method of sample selection was used to select four (4) brewery firms. The study adopted the use of the robust least square regression technique in the analysis of data. The empirical findings revealed that institutional ownership has a significant positive influence on sustainability disclosure at 5% level of significance, foreign ownership has a significant positive influence on sustainability disclosure at 5% level of significance while managerial ownership has an insignificant positive influence on sustainability disclosure at p-value >0.05. The recommended that sustainability disclosure of brewery firms in Nigeria is driven by the presence of institutional ownership and foreign ownership, hence management should allocate more stakes to institutional and foreign investors.*

### KEYWORDS

*foreign ownership, institutional ownership, managerial ownership, ownership structure and sustainability disclosure*

## INTRODUCTION

Ownership structure (OS) is seen as a unique corporate element that has the propensity of influencing sustainability disclosure among listed brewery firms (Baba, Baba, 2021). Brewery firms are so much connected to operating in the area of sustainability disclosure. Gimbason and Yahaya (2024) argued that

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disclosure of sustainability is a means of providing quantitative, descriptive, financial and non-financial information to stakeholders regarding the assessment of the economic, social and environmental significance impact on the economic decision making of firm. The rationale behind the presence of sustainable development goals to internal and external stakeholders is tied to sustainability disclosure which is function of measurement, disclosure, and accountability of organisational performance. Bakti and Nengzih (2023) stressed that the components of sustainable practices are based on economic, social, and environmental sustainability reporting. The activities of brewery firms in Nigeria and around the world are carried out within the purview of sustainability information. The presence of sustainability activities helps to create social, environmental, and economic benefits for all stakeholders relating to the business organisation. However, sustainability is an important tool companies use to leave their stakeholders with a positive impression of their actions and impacts on the society at large.

Abdullah, et al. (2018) argued that OS is the rudiment principle of corporate governance for minimising the conflicting of interests between controlling shareholders and minority shareholders. The concept has been fully concentrated and it has the tendency of feeding the management favourable incentives in order to maximize the value of the firm by bridging the gap between management and shareholders' interests (Barontini, Bozzi, 2008). Meanwhile, ownership is always regarded as the corporate owners, while directors are agents or representatives of shareholders who are supposed to allocate business resources in a way to increase their wealth. OS is a process where shareholders target the long-term survival of a firm and maintain their own reputation which aims at maximizing the firm's market value and economic behaviour (Nosa, et al., 2018). The findings of scholars and researchers had been tailored to developed countries on the relationship between OS on sustainability disclosure (Khairredine, et al., 2020). On the contrary, few studies tend to focus on developing or emerging countries like Nigeria (Li et al., 2022, Amosh, Mansor, 2020). Therefore, the motivation for this study is to examine the influence of OS on sustainability disclosure by using a sample of listed brewery firms on the Nigeria Exchange Group (NGX) covering the period of 2012 to 2022.

## LITERATURE REVIEW AND HYPOTHESES DEVELOPMENT

### Sustainability Disclosure of Brewery Firms

The brewery section form part of the manufacturing companies in Nigeria. According to Farisyi, et al. (2022), sustainability disclosure is an instrument explored by management of manufacturing organisations for positively improving the economy, environment, and the society at large. Sustainability disclosure is a medium of communicating extra efforts which the company has made in a reporting period towards value creation in relation to operating business environment. It is demanded from management to provide accounting disclosure of sustainability information relating to social, economic and environmental in its audited annual reports accounts. Chowdhury, et al. (2020) sustainability disclosure of social and environmental issues is a vital tool for communicating companies' environmentally friendly activities to the relevant stakeholders. Accounting' for environmental activities is major issues that is affecting the community which environmental inclined companies are carrying their daily operations. Iliemena, et al. (2022) posited that sustainability disclosure is seen as sustainable development that is considered in every business operations without any impact on the environment. A growing number of investment professionals are starting to pay attention to business performance as they become aware that profitability alone in itself is an insufficient metric for measuring a company's



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long-term growth potential of the brewery industry in Nigeria. Sustainability reporting is disclosure of information on raw material extraction and acquisition, production, distribution, use and maintenance, to end-of-life reuse, recycling, treatment or disposal are the stages of manufacturing company product's life-cycle stage which is core value of sustainability practice (Mesquita & Missimer, 2021).

### Overview of Ownership Structure

Ownership of listed brewery firms and the crisis associated with the style of ownership has also become a center of agenda for both business leaders and regulators all over the world. The extent to which the board can monitor executives will be affected by ownership concentration and distribution (e.g. institutional, block, and director shareholdings) and the influence of these owners, particularly major shareholders," (Sanchez-Marin & Baixauli-Soler, 2014). Anwar (2019) added OS as institutional and managerial ownership. OS is the distribution of ownership within bank's stakeholders to reduce agency problem for the ability and incentives to control the management. In this study, the following parameter of OS was explored as foreign ownership, institutional ownership and managerial ownership.

### Managerial Ownership and Sustainability Disclosure

Managerial ownership (MO) had been proxied by the number of shares held by the executive directors sitting on the board and managing director in a firm. In some cases, MO is regarded as insider shares percentage (Ogabo, et al., 2021). MO is the combination of executives, directors, and block-holders that are part investors of the company. Aniktia (2015) argued that management is interested in the corporate goal actualization of listed firms as well as their investments in the firm. This indicates that managerial ownership gives the management the liberty to put more efforts in creating benefits for the firm. MO intend to maximize shareholders' wealth, creditors and to beat analysts' forecast and to make the taxes as low as possible. Herdjiono and Indah (2017) stated that MO is mathematically computed as the percentage of shares owned by the management. The stakeholders expect the management (accountants) who prepare these financial statements to observe high ethically standards because they rely on the financial statements to make informed choices and investments decisions. Indy, et al. (2021) used listed firms from Indonesia Stock Exchange for the period of 2015 to 2019 to examine the effect of managerial ownership and institutional ownership on sustainability reporting. The regression result revealed that managerial ownership and institutional had no significant effect on sustainability reporting. Similarly in Indonesia, Diantimala and Amril (2018) studied impact of ownership structure on corporate environmental disclosures. From the regression results, it was found out that managerial and institutional ownership had significant negative impact on corporate environmental disclosures. *The hypothesis is proposed that: Managerial ownership has a significant positive relationship with sustainability disclosures.*

### Institutional Ownership and Sustainability Disclosure

Institutional shareholders are likened to short-term financial gains resulting from responsiveness to the society and other stakeholders' requirements (Wei, et al, 2024). Aryani, et al. (2023) defined institutional ownership as an equity holding entitled to investment firms, banks, insurance companies, and other



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institutional entities from a proportion of stock held by institutional investors. Institutional ownership is a form of ownership structure which is fully concentrated and has the tendency of feeding the management favorable incentives in order to maximize the value of the firm by bridging the gap between management and shareholders' interests. Li et al. (2022) opined that institutional ownership is hinge on firm's management which is characterized by a fraction of shareholders that bears the costs of actively engaging in sustainability disclosure. Wei, et al. (2024) conducted a study in China on the impact of ownership structure on environmental information disclosure.

Panel data were collected from listed firms for the period of from 2009 to 2019. The result showed that managerial ownership has a significant positive relationship with environmental disclosure, while institutional ownership and state ownership has a significant negative relationship with environmental disclosure. Acar, et al. (2021) studied the relationship between ownership type and sustainability disclosure proxied by environmental disclosure. The findings revealed that institutional ownership and sustainability disclosure is negatively and significantly related. The study of Diantimala and Amril (2018) in Indonesia covering the period of 2010 to 2014 showed that institutional ownership is strongly related with sustainability disclosure. Ismail, et al. (2018) conducted a study on the determinants of corporate environmental disclosure quality of oil and gas industry in developing countries. The empirical findings revealed that institutional ownership had insignificant influence on sustainability environmental disclosure. *The hypothesis is proposed that: Institutional ownership has a significant positive relationship with sustainability disclosures.*

## Foreign Ownership and Sustainability Disclosure

Foreign ownership (FO) has the tendency of affecting sustainability disclosure both in advanced and developed economies of the world as well as emerging countries like Nigeria. OS is skewed to foreign investors from development countries coupled with potential investor right have the likelihood of maintaining sound corporate governance (Li, et al., 2021a). Ownership is always regarded as the corporate owners, while directors are agents or representatives of shareholders who are supposed to allocate business resources in a way to increase their wealth. Nnabuiife, et al (2017) added that ownership structure of the firms that are traded in the capital market is complex and challenging to succour based on the facts that companies are always changing their ownership from one majority shareholder to another. Foreign investors normally engage minority shareholders in decision making process concerning conservatism principle of accounting in relating to earnings management. FO instigates companies to enhance the level of transparency and minimize managerial accounting opportunistic. FO is foreign investors whom are interested in high investments devoid of information asymmetry and uncertainty (LaFond & Watts, 2008).

Arman (2015) asserted that FO is seen as foreign individuals, foreign business organisation, and foreign governments that carry out investment in the territory of another country. However, the percentage of company's stock ownership by foreign investors is the size of FO. Pham, et al. (2024) examined the relationship between foreign ownership and corporate social responsibility in Vietnam listed firms covering 2015 to 2019 and found from the OLS results that foreign has a significant positive impact on corporate social responsibility. Masum, et al. (2020) used cross-sectional data for period of 2018 to impact of Ownership Structure (OS) on corporate voluntary disclosure in Bangladesh and established from the multiple regressions that foreign ownership, institutional ownership and director ownership has no significant impact on voluntary disclosure while public ownership has a significant negative relationship with voluntary disclosure. Gerged (2020) studied the relationship between ownership structure sustainability disclosures in Jordan. It was discovered from the empirical findings that foreign



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ownership had a significant positive relationship with sustainability disclosures proxied by corporate environmental disclosure while managerial ownership, institutional ownership and ownership concentration has a significant negative relationship with sustainability disclosures. *The hypothesis is proposed that: Foreign ownership has a significant positive relationship with sustainability disclosures.*

### Theoretical Review

The theoretical review in this study is based on the stakeholder theory. Freeman developed the theory in the year (1984), and it is primary on legitimacy power, to mount pressure on management for the maximisation of wealth for their interest from the operating business environment of the host community. Bakti and Nengzih (2023) opined that the theory ensures that a firm must perform its functions fairly to benefits all its stakeholders through cordial relationship between the firm and its constituents. These constituents (group or people) mostly influence and contribute to the goals and objectives of the firm. Freeman (1984) stressed that management vested with mantle of strategy development and implementation with effective resource usage and withholding mechanisms are influenced by the firm's stakeholders. However, it is stressed that the pressures exercised on organisations by different stakeholders' condition listed brewery firm's behaviour in Nigeria. The underlying principle of the theory is that sustainability information concerning the environment has to be communicated to the shareholders.

### METHODOLOGY

The study employed expo-facto research design to examine the influence of ownership structure on sustainability disclosure. The justification for using ex-post facto research design is that the variables cannot be altered or controlled by the researcher. The population of the study consisted of all listed brewery firm Nigerian Exchange Group (NGX). The filtering method was applied to select four (4) Nigeria Brewery Plc, International Brewery Plc, Champion Brewery and Guinness Nigeria Plc for the period of 2012 to 2022.

#### Model Specification and Measurement of Variables

The Robust Least Square Regression model is specified to examine the influence of ownership structure on sustainability disclosure. The regression was functionally represented below:

$$SD = f(MO, IO, FO) \dots\dots\dots (1)$$

The regressions with error term ( $e_t$ ) is expressed in the econometric equation below:

$$SD = \beta_0 + \beta_1 MO + \beta_2 IO + \beta_3 FO + e_t \dots\dots\dots (2)$$

Where;

SD = Sustainability disclosure: This was measured by dummy a variable that was proxy by social disclosure index (Nguyen & Nguyen, 2020).

MO = Managerial ownership. This was measured by percentage of shares held by managers and board members (Wei, et al, 2024).



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IO = Institutional ownership. This was measured by percentage of shares held by institutional investors (Gerged, 2020).

FO = Foreign ownership. This was measured by the proportion of shares held by foreign investors and individuals (Oyedokun, et al., 2020)

### Method of Data Analysis

The Robust Least Square Regression technique econometric technique was adopted in this study to test the formulated hypotheses. In this study, descriptive statistics and correlation analysis were used to properly describe the nature of our data. The study also conducted descriptive statistics and correlation analysis. The analyses in this study were conducted using E-views 9.0 econometric software.

## FINDINGS AND DISCUSSION OF RESULTS

The descriptive statistics on the influence of ownership structure on sustainability disclosure of brewery firms in Nigeria for the period of 2012 to 2022 is given Table 1 below.

Table 1. Descriptive Statistics

Categories	SD	MO	IO	FO
Mean	0.830000	0.871500	52.67500	51.66350
Median	0.800000	0.050000	65.00000	54.00000
Maximum	1.000000	5.500000	86.00000	87.27000
Minimum	0.600000	0.010000	6.000000	0.000000
Std. Dev.	0.115913	1.494203	26.41618	26.39319
Skewness	-0.004002	1.557680	-0.648193	-1.013791
Kurtosis	2.850475	4.175092	2.009500	3.124878
Jarque-Bera	0.037370	18.47719	4.436183	6.877801
Probability	0.981489	0.000097	0.108817	0.032100
Sum	33.20000	34.86000	2107.000	2066.540
Sum Sq. Dev.	0.524000	87.07311	27214.78	27167.42
<b>Observations</b>	<b>40</b>	<b>40</b>	<b>40</b>	<b>40</b>

Source: EViews 9.0 Output

It was observed from Table 1 above, sustainability disclosure (SD) has an average value of 0.83 with a standard deviation value of 0.11. Given the media value of 0.80, it implies that there is high level of sustainability disclosure among the listed brewery firms in Nigeria. Managerial ownership structure (MO) has an average value of 0.87 and a standard deviation value of 1.49, institutional structure (IO) has an average value of 52.67 and a standard deviation value of 26.41 and foreign structure (FO) has an average value of 51.66 and a standard deviation value of 26.39. The Jarque-Bera revealed that managerial ownership and foreign ownership was normally distributed while sustainability disclosure and institutional ownership was abnormally distributed.



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### Correlation Analysis

The correlation analysis result was presented in Table 2 below.

Table 2. Correlation Analysis

<b>Correlation</b>				
<b>t-Statistic</b>	<b>SD</b>	<b>MO</b>	<b>IO</b>	<b>FO</b>
SD	1.000000			
	-----			
MO	-0.315305	1.000000		
	-2.048147	-----		
IO	0.308079	-0.819255	1.000000	
	1.996219	-8.807058	-----	
FO	-0.083010	0.529524	-0.824834	1.000000
	-0.513479	3.847963	-8.993359	-----

Source: EViews 9.0 Output

From Table 2, it would be observed that managerial ownership (MO) is negatively and moderately correlated with sustainability disclosure (SD=-0.3153) with t-statistic value of -2.04 which implies a significant relationship. Institutional ownership (IO) is positively and moderately correlated with sustainability disclosure (SD=0.3080) with t-statistic value of 1.99 which implies a significant relationship. Foreign ownership (FO) is negatively and weakly correlated with sustainability disclosure (SD=-0.0830) with t-statistic value of -0.51 which implies an insignificant relationship. Looking vividly at the correlation coefficient, a negative relationship exists among the variables. The presence of multicollinearity problem exists among the independent variables (IO and MO =0.81, FO and IO =0.82). Then, variance inflation factor conducted to check the existence which is shown in Table 3 below.

Table 3. Variance Inflation Factor

	<b>Coefficient</b>	<b>Uncentered</b>	<b>Centered</b>
<b>Variable</b>	<b>Variance</b>	<b>VIF</b>	<b>VIF</b>
C	0.031107	105.1991	NA
MO	0.000519	5.149883	3.817817
IO	3.74E-06	43.64578	8.594800
FO	1.71E-06	19.36148	3.927373

Source: EViews 9.0 Output

It was deduced from Table 3 above that managerial ownership (MO) has VIF value of 2.81, institutional ownership (IO) has VIF value of 8.59 and foreign ownership (MO) has VIF value of 3.92. The VIF values of the variable were < 0.10. This indicates that there is absence of multicollinearity problem.

### Regression Analysis

The regression result is presented in the Table 4 below.



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Table 4. Robust Regression Result

Variable	Coefficient	Std. Error	z-Statistic	Prob.
C	0.401641	0.176686	2.273196	0.0230
MO	0.017088	0.022813	0.749036	0.4538
IO	0.004861	0.001936	2.510574	0.0121
FO	0.002929	0.001310	2.235836	0.0254
R-squared	0.173952	Adjusted R-squared		0.105115
Rw-squared	0.262912	Adjust Rw-squared		0.262912
Akaike info criterion	36.33723	Schwarz criterion		45.72227
Deviance	0.375330	Scale		0.110093
Rn-squared statistic	11.36569	Prob(Rn-squared stat.)		0.009904
Mean dependent var	0.830000	S.D. dependent var		0.115913
S.E. of regression	0.109740	Sum squared resid		0.433543

Source: EViews 9.0

**Decision Rule:** Hypotheses is tested at 5% (0.05) at level of significance. The null hypothesis ( $H_0$ ) was accepted, if the probability value (P-value) > 5% (0.05) otherwise rejected.

It was observed from Table 3 above that  $R^2$  value of 0.173952 implies 17% variation in sustainability disclosure which is jointly explained by institutional ownership, foreign ownership and managerial ownership. This is supported by adjusted  $R^2$  value of 0.105115. The  $R_n$ -  $R^2$  statistic value of 11.36 and its associated probability of 0.00 indicated that all the independent variables taken holistically significantly explain the dependent variable. Hence, the explanatory power of the model is highly predictive.

Based on the individual relationship of the independent variables, the signs of the z-statistics showed that managerial ownership (MO) exerted a positive (0.74) and insignificant (0.45) influence on sustainability disclosure at  $p$ -value >0.05. This implies that increase in managerial ownership would increase the level of sustainability disclosure in the long-run. Institutional ownership (IO) exerted a positive (2.51) and significant (0.01) influence on sustainability disclosure at 1% level of significance. This implies that increase in institutional ownership would strongly increase the level of sustainability disclosure among listed brewery firms in Nigeria. Foreign ownership (FO) exerted a positive (2.23) and significant (0.02) influence on sustainability disclosure at 5% level of significance. This implies that more foreign ownership would strongly increase the level of sustainability disclosure among listed brewery firms in Nigeria.

## DISCUSSION

The regression result revealed that institutional ownership has a significant positive influence on sustainability disclosure at 1% level of significance. The result is in consonance with the findings of Wei, et al. (2024) in China that institutional ownership and state ownership has a significant negative relationship with environmental disclosure. The findings of Acar, et al. (2021) that institutional ownership has a significant negative influence on sustainability disclosure. The result is contrary to the findings of Ismail, et al. (2018) that institutional ownership had insignificant influence on sustainability





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environmental disclosure. This indicates that the hypothesis is accepted that institutional ownership has a significant positive relationship with sustainability disclosures. Foreign ownership has a significant positive influence on sustainability disclosure at 5% level of significance. The result is in consonance with the findings of Gerged (2020) in Jordan that foreign ownership had a significant positive relationship with sustainability disclosures. The result is also in consonance with the findings of Pham, et al. (2024) that foreign has a significant positive impact on corporate social responsibility. This indicates that the hypothesis is accepted that foreign ownership has a significant positive relationship with sustainability disclosures. Managerial ownership has an insignificant positive influence on sustainability disclosure at  $p\text{-value} > 0.05$ . The result is in consonance with the findings of Masum, et al. (2020) and Indy, et al. (2021) that managerial ownership has no significant effect on sustainability reporting while contrary with the findings of Diantimala and Amril (2018) in Indonesia that managerial had significant negative impact on corporate environmental disclosures. The findings of Wei, et al. (2024) in China also negate the result that managerial ownership has a significant positive relationship with environmental disclosure. This indicates that the hypothesis is rejected that managerial ownership has a significant positive relationship with sustainability disclosures.

## CONCLUSION AND RECOMMENDATION

The study examined the influence of ownership structure on sustainability disclosure of brewery firms in Nigeria. The study concluded from the findings that institutional ownership has a significant positive influence on sustainability disclosure at 1% level of significance, foreign ownership has a significant positive influence on sustainability disclosure at 5% level of significance while managerial ownership has an insignificant positive influence on sustainability disclosure at  $p\text{-value} > 0.05$ .

It was recommended that, sustainability disclosure of brewery firms in Nigeria is driven by the presence of institutional ownership and foreign ownership, hence management should allocate more stakes to institutional and foreign investors. The policy implication is that when more equity shareholdings is skewed to institutional and foreign investors, there is going to be high level of compliance on sustainability disclosure which tends to enhance the performance of the firm.

## REFERENCES

- Abdullah, N.A.I.N., Ali, M.M., Haron, N.H. (2018). Ownership structure, firm value and growth opportunities: Malaysian Evidence. *Advanced Science Letters*, 23(8), 7378–7382.
- Acar, E., Tunca Çalıyurt, K., Zengin-Karaibrahimoglu, Y. (2021). Does ownership type affect environmental disclosure? *International Journal of Climate Change Strategies and Management*, 13(2), 120-141.
- Amosh, H.A., Mansor, N. (2020). The implications of ownership structure on the environmental disclosure in Jordan. *International Journal of Academic Research Business and Social Sciences*, 10(3), 330-346.
- Aniktia, R.M.K. (2015). Pengaruh Mekaniseme Good Corporate Governance Dan Kinerja Keuangan Terhadap Pengungkapan Sustainability Report. *Accounting Analysis Journal*, 4(3), 1–10.



## Conference Proceedings

- Anwar, S. (2019). The influence of ownership structure, asset structure, and earning volatility on debt policy in Indonesia. *Journal of Accounting and Strategic Finance*, 2(1), 93-106.
- Arman, A. (2015). The effect of foreign ownership on financial performance of banking companies listed on the Indonesia Stock Exchange (IDX). *Journal of Economics, Business, and Accountancy Ventura*, 18(3), 381-390.
- Aryani, D., Afrizal, Yulisman (2023). The influence of corporate governance mechanisms on financial reporting fraud (A Study on Property & Real Estate Sector Companies Listed on IDX in the Years 2018-2022). *Indonesian Journal of Economic & Management Sciences*, 1(3), 389-404.
- Baba, B.U., Baba, U.A. (2021). The effect of ownership structure on social and environmental reporting in Nigeria: the moderating role of intellectual capital disclosure. *Journal of Global Responsibility*, 12, 210-244.
- Bakti, I.T., Nengzih, N. (2023). The effect of financial performance, company characteristics and corporate governance on the quality of sustainability report disclosure (In manufacturing companies listed on the Indonesia Stock Exchange 2017-2020). *Saudi Journal of Economies and Finance*, 7(1), 9-21.
- Barontini, R., Bozzi, S. (2008). Executive compensation and ownership structure: Empirical evidence for Italian listed companies, 1-30.
- Chowdhury, A.A., Dey, M., Abedin, T. (2020). Firms attributes and environmental disclosure: Evidence from listed firms in Bangladesh. *Asian Journal of Accounting perspectives*, 13(2), 57-77.
- Diantimala, Y., Amril, T.A. (2018). The effect of ownership structure, financial and environmental performances on environmental disclosure. *Accounting Analysis Journal*, 7, 70-77.
- Farisyi, S., Musadieg, M.A., Utami, H.N., Damayanti, C.R.A. (2022). Systematic literature review: Determinants of sustainability reporting in developing countries. *Sustainability*, 14, 1-19.
- Freeman, R.E. (1984). *Strategic management. In a stakeholder approach*. Pitman, Boston.
- Gimbason, J.T., Yahaya, O. A. (2024). Ownership structure and sustainability reporting. *Entrepreneurship and Sustainability Issues*, 12(1), 77-102.
- Gerged, A.M. (2020). Factors affecting corporate environmental disclosure in emerging markets: the role of corporate governance structures. *Business Strategic Environment*, 30(1), 609-629.
- Herdjiono, I., Indah, M.S. (2017). The effect of corporate governance on the performance of a company: Empirical findings from Indonesia, *Journal of Management and Business Administration*, 25(1), 33-52.
- Indy, L.A., Uzliawati, L., Mulyasari, W. (2021). The effect of managerial ownership and institutional ownership on sustainability reporting and their impact on earning management. *Journal of Applied Business, Taxation and Economics Research*, 1(2), 243-256.
- Iliemena, R.O., Egolum, P.U., Goodluck, H.C., Ozue, C.C. (2022). Material resources management as means to satisfactory profit and environmental sustainability: Looking beyond COVID-19 pandemic era. *European Journal of Accounting, Auditing and Finance Research*, 10(1), 55-70.
- Ismail, A.H., Abdul Rahman, A., Hezabr, A.A. (2018). Determinants of corporate environmental disclosure quality of oil and gas industry in developing countries. *Humanomics*, 34, 527-563.
- Khairiddine, H., Salhi, B., Aljabr, J., Jarboui, A. (2020). Impact of board characteristics on governance, environmental and ethical disclosure. *Social Business Review*, 15, 273-295.



## Conference Proceedings

LaFond, R., Watts, R.L. (2008). The information role of conservatism. *The Accounting Review*, 83(2), 447-478.

Li, Q., Ruan, W., Li, R., Li, H. (2022). Do institutional investors' holdings affect corporate environmental information disclosure? Evidence from China. *Environmental Development and Sustainability*, 25. 14733-14751.

Masum, M.H., Latiff, A.R.B., Osman, M.N.H. (2020). Ownership structure and corporate voluntary disclosures in transition economy. *Journal of Asian Finance, Economics and Business*, 7(10), 601–611.

Mesquita, P.L., Missimer, M. (2021). Social sustainability work in product development organizations. An empirical study of three Sweden-based companies. *Sustainability*, 13, 1-20.

Nguyen, A.H., Nguyen, L.H. (2020). Determinants of sustainability disclosure: Empirical evidence from Vietnam. *Journal of Asian Finance, Economics and Business*, 7(6), 73-84.

Nnabuife, E., Augustine, I.J., Sunday, A., Alex, A.A., Inalegwu, I. (2017). Ownership structure and financial performance of selected banks in Nigeria: 2000-2015. *International Journal of Business and Management Invention*, 6(12), 55-64.

Nosa, O., Akrawah, O.D., Oseghale, O.E. (2018). Wealth creation and firm specific characteristics. *International Journal of Governance and Development*, 5(2), 92-97.

Ogabo, B., Ogar, G., Nuipoko, T. (2021). Ownership structure and firm performance: the role of managerial and institutional ownership: Evidence from the UK. *American Journal of Industrial and Business Management*, 11(7), 859-886.

Oyedokun, G.E., Isah, S., Awotomilusi, N.S. (2020). Ownership structure and firm value of quoted consumers' goods firms in Nigeria. *Journal of Accounting and Strategic Finance*, 3(2), 214-228.

Pham, T. T., Nguyen, N. K. L., Do, P. T. (2024). The impact of foreign ownership on corporate social responsibility. *Corporate Governance and Organizational Behavior Review*, 8(1), 169–179.

Sanchez-Marin, G., Baixauli-Soler, J.S. (2014). CEO reputation and top management team compensation: The moderating role of corporate governance. *Management Decision*, 52(3), 540-558.

Wei, M., Wang, Y., Giamporcaro, S. (2024). The impact of ownership structure on environmental information disclosure: Evidence from China. *Journal of Environmental Management*, 352, 100120.

### APPENDIX: DATA REGRESSION

SN	YEAR	COMPANIES	SD	MO	IO	FO
1	2012	Guinness Nig	0.8	0.08	54	54.00
	2013	Guinness Nig	0.8	0.07	54	54.00
	2014	Guinness Nig	0.8	0.07	54	54.00
	2015	Guinness Nig	0.8	0.07	54	54.00
	2016	Guinness Nig	0.8	0.07	54	54.00
	2017	Guinness Nig	0.8	0.09	54	54.00
	2018	Guinness Nig	0.8	0.08	58	58.00
	2019	Guinness Nig	0.8	0.03	58	58.00
	2020	Guinness Nig	0.8	0.03	65	58.00
	2021	Guinness Nig	0.8	0.03	69	58.00



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	2022	Guinness Nig	0.8	0.03	69	58.00
2	2012	International Breweries	0.6	5.50	19	72.00
	2013	International Breweries	0.8	3.89	19	72.00
	2014	International Breweries	0.8	3.89	19	72.00
	2015	International Breweries	0.8	3.54	19	72.00
	2016	International Breweries	0.8	3.54	19	72.00
	2017	International Breweries	0.8	3.32	10	75.00
	2018	International Breweries	1	2.54	10	75.00
	2019	International Breweries	1	2.44	6	87.00
	2020	International Breweries	0.6	1.68	6	87.00
	2021	International Breweries	0.6	1.65	9	87.27
	2022	International Breweries	0.6	1.67	9	87.27
3	2012	Nigeria Breweries	0.8	0.19	68	54.00
	2013	Nigeria Breweries	0.8	0.18	68	54.00
	2014	Nigeria Breweries	0.8	0.01	68	54.00
	2015	Nigeria Breweries	1	0.02	65	54.00
	2016	Nigeria Breweries	1	0.01	66	54.00
	2017	Nigeria Breweries	1	0.02	66	54.00
	2018	Nigeria Breweries	1	0.01	66	54.00
	2019	Nigeria Breweries	1	0.01	66	54.00
	2020	Nigeria Breweries	1	0.01	66	54.00
	2021	Nigeria Breweries	1	0.01	66	54.00
	2022	Nigeria Breweries	1	0.01	66	54.00
4	2016	Champion Breweries	0.8	0.01	83	0.00
	2017	Champion Breweries	0.8	0.01	83	0.00
	2018	Champion Breweries	0.8	0.01	83	0.00
	2019	Champion Breweries	0.8	0.01	83	0.00
	2020	Champion Breweries	0.8	0.01	85	0.00
	2021	Champion Breweries	0.8	0.01	85	0.00
	2022	Champion Breweries	0.8	0.01	86	0.00



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# REFLECTION ON THE GENERATION DIVIDE THROUGH THE PRISM OF SOCIAL FIELDS THEORY

Janez Kolar<sup>1</sup>

DOI: 10.5937/EEE24024K

JEL: E22, G32, M14, O32

Review Scientific Paper

## ABSTRACT

*This paper reflects on the generational divide in contemporary society, observed through the prism of Social fields theory, developed by Pierre Bourdieu and especially the expanded version introduced by Jens Beckert. It discusses how different generations navigate social structures, cultural norms, and technological advancements. By analyzing key concepts such as habitus, capital, and field, the paper highlights a possible approach to observe how and why generations perceive economic opportunities, technological innovations, and social change. Opportunities and challenges vary through time and influence on observable characteristics of a particular generation. The implications of these generational differences could be profound for social cohesion, intergenerational dialogue, intergenerational agreements and collaborative problem-solving of future challenges. Recommendations are also presented to improve intergenerational cooperation, particularly in economic and technological fields.*

## KEYWORDS

*generation divide, social fields theory, social cohesion, capital, intergenerational dialogue, technological innovation*

## INTRODUCTION

As generations form times, times shape generations. Various variables, including the general level of technological advancement, political situation and availability of food shape general conditions where generations are being built and formed. Kondratieff's long waves (Kolar, 2020) in economic life could bring us insights and understanding of different generations through time (Figure 1).

The generational divide, that are characterized by differences in values, attitudes, and behaviours among age cohorts, has emerged as a central topic in contemporary social science. Rapid technological developments, shifts in economic landscapes, and evolving cultural norms have deepened this divide. These factors have not only created tensions between generations but have also presented unique opportunities for collaboration. Understanding and managing these differences is critical in today's increasingly interconnected and digitalized world.

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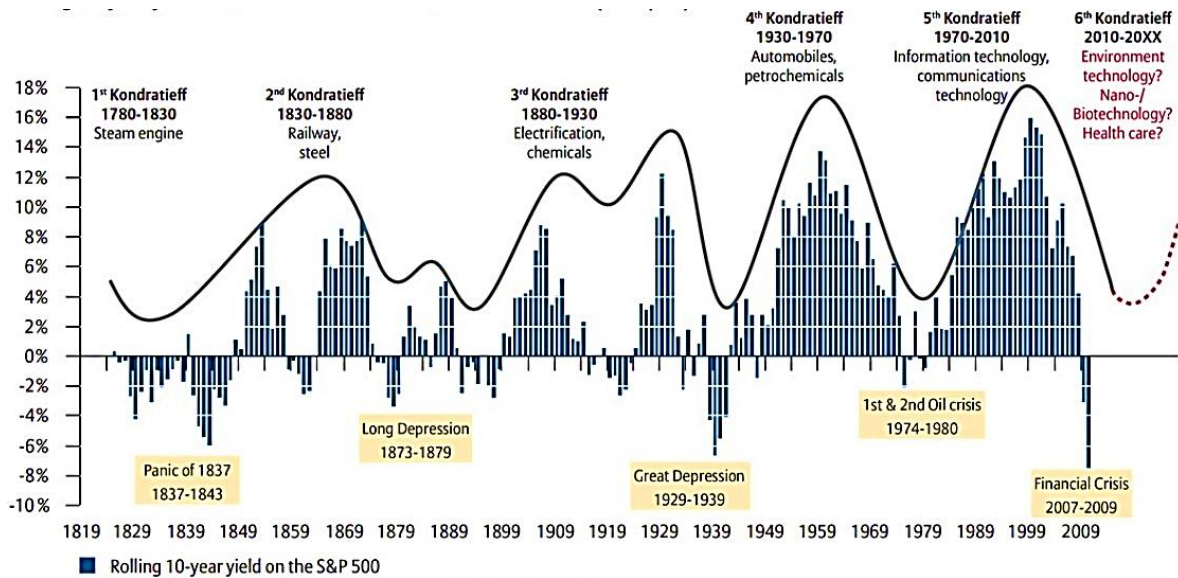


Figure 1. Kondratieff waves representations with S&P 500 10-year yields

Source: Kolar, Besednjak Valic, 2021

The so-called Cycle of influence between Technology and society is presented in Figure 2.

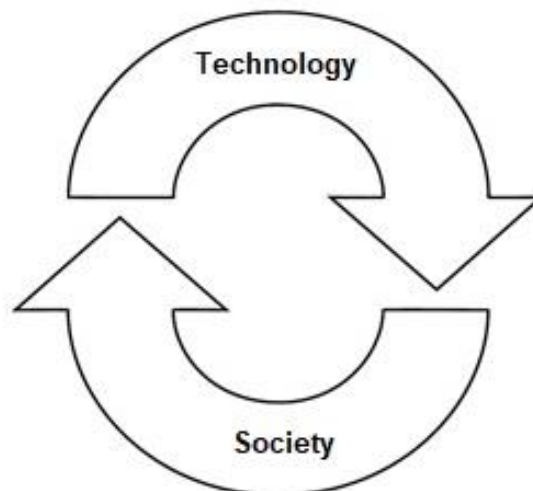


Figure 2. The cycle of influence between Technology and society

Source: Vannoy, 2010

Generational conflict, which also originates in differences in cognitive frames adopted by a particular generation, is often framed as a clash between tradition and modernity and manifests across multiple domains—politics, workplaces, social interactions, and technological adoption. For example, younger generations are often seen as more progressive in their views on social issues, while older generations may hold more traditional perspectives shaped by past experiences. Such divisions are intensified in settings where rapid technological change disrupts established practices and introduces new forms of value/capital, which can be unfamiliar to older generations. A great example can be social networks or



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digitalisation in general, which is much easier and thus faster adopted by younger generations. Meanwhile, older generations struggle with coping even with an idea,

Social fields theory, developed by Pierre Bourdieu, offers a comprehensive framework to analyze these intergenerational dynamics. Bourdieu's key concepts—habitus, capital, and field—help explain how individuals and groups operate within social structures and how they accumulate and deploy various forms of capital to navigate fields of power. Habitus refers to the deeply ingrained dispositions formed by an individual's upbringing, while capital includes social, cultural, economic, and symbolic resources that influence how effectively one can compete within a given field. The field itself is a social space where struggles for these resources occur, and within these fields, the generational divide becomes most visible.

Jens Beckert further expanded Bourdieu's framework by focusing on how fields – particularly economic ones—are shaped not only by material forces but by collective expectations, social narratives, and what he terms "fictional expectations" (Beckert, 2010). Beckert's insights are particularly relevant in understanding how different generations perceive economic risks and opportunities, especially in the context of rapid technological advancement and global economic shifts.

This paper explores the generational divide through the theoretical lens of social fields theory, particularly emphasising economic and technological fields. By understanding the distinct ways different generations approach social and economic opportunities, we can better address the challenges and opportunities presented by generational differences. Moreover, this analysis underscores the importance of fostering intergenerational dialogue and cooperation, which are essential for maintaining social cohesion in an era of increasing complexity and uncertainty.

## THE GENERATION DIVIDE AND ITS CHARACTERISTICS

Generational differences, often called the "generation gap," have been extensively studied in sociological, psychological, and economic literature. Each generational cohort is shaped by the historical, social, and economic conditions that dominate during their formative years. Scholars typically identify four key generational groups in contemporary society: Baby Boomers, Generation X, Millennials, and Generation Z (Howe, Strauss, 2000) – Figure 3.

Baby Boomers (born between 1946 and 1964) came of age during a period of post-World War II economic expansion, leading to the development of values centred on hard work, stability, and loyalty to institutions. Their worldview was largely shaped by the Cold War, civil rights movements, and the rise of consumer culture, which fostered an emphasis on material security and long-term planning. In contrast, Generation X (born between 1965 and 1980) matured during a time of economic uncertainty and increasing globalization, leading them to prioritize individualism, adaptability, and self-reliance.

Millennials (born between 1981 and 1996) and Generation Z (born after 1997) were raised in a period of fast technological innovation, marked by the rise of the internet, social media, and the gig economy. As a result, these younger generations tend to place a higher value on flexibility, innovation, and social responsibility. They are more likely to embrace technology and view it as a tool for social change, whereas older generations may approach technological advancements with scepticism or caution. These distinctions between generations manifest across multiple social fields, influencing everything from political views to workplace dynamics and economic behaviour.

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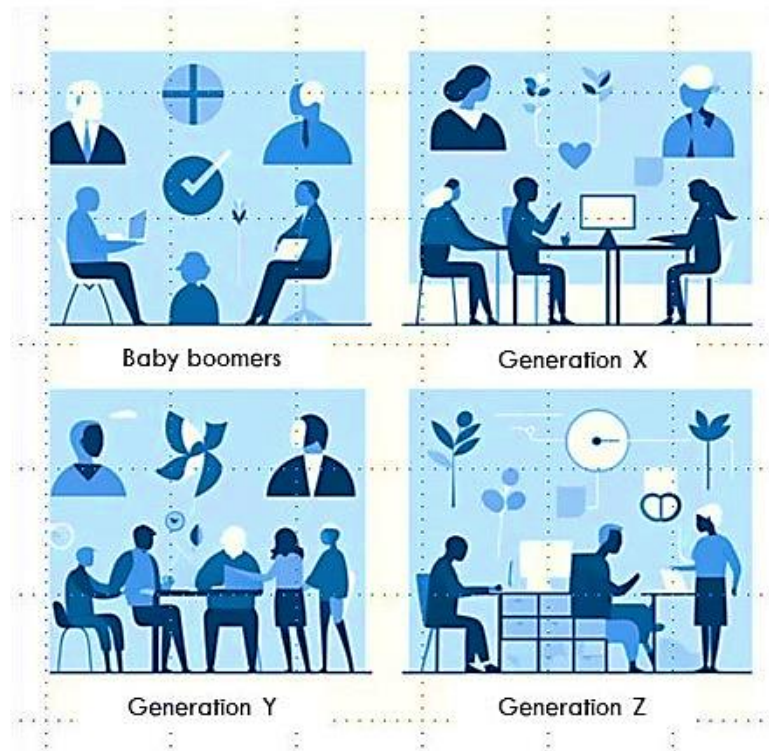


Figure 3. Four generations in the work environment

*Source: Author*

## SOCIAL FIELDS THEORY BY BOURDIEU

Pierre Bourdieu's social fields theory provides a powerful framework for understanding the mechanisms that drive the generational divide. Bourdieu argued that societies consist of various fields, each with its own set of rules, norms, and forms of capital (Bourdieu, 1986). Individuals or groups struggle within these fields to accumulate the types of capital most valued in that context. These forms of capital include:

- **Economic Capital:** Financial resources that can be used to secure power and influence.
- **Cultural Capital:** Educational qualifications, knowledge, and cultural competencies.
- **Social Capital:** Networks of relationships that provide support and access to resources.
- **Symbolic Capital:** Prestige, honour, or recognition that confers authority or legitimacy.

Habitus, which refers to the disposition individuals develop through socialization, shapes how they engage with and navigate these fields. Generational habitus reflects the historical and cultural conditions in which different age cohorts were raised. For instance, older generations may rely more on traditional forms of social and cultural capital, while younger generations leverage their digital fluency as a form of economic and cultural capital in increasingly tech-centric fields.

Bourdieu's concept of field highlights the competitive nature of social spaces where individuals and groups vie for dominance. The generational divide becomes most evident in such contexts, as each



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cohort brings different forms of capital and habitus into the field, leading to both conflict and collaboration.

### EXPANDED SOCIAL FIELDS THEORY BY BECKERT

Jens Beckert’s contribution to social fields theory, particularly his concept of “fictional expectations,” provides an additional layer of understanding of how fields evolve (Beckert, 2010). Beckert emphasizes that economic behaviour is not driven purely by rational calculations but is heavily influenced by collective imaginaries of the future. These expectations, often shaped by generational experiences, influence how individuals and groups perceive risk, opportunity, and the trajectory of social change.

As shown in Figure 3, these three fields, institutions, social networks and Cognitive frame, are interconnected, and each field influences the other two and vice versa. Checking Institutions makes values socially relevant and influences the structure of social networks. Due to accelerating technical development, especially in the 20th century, institutions clearly had a hard time following their role in this model and influencing the structure of social networks, and we are witnessing the decline of various institutions. With dynamic social networks, the influence of social networks to establish collective power to shape institutions was also speeded up. With differently structured social networks, their influence on cognitive frames changed also, and since social networks shape and diffuse cognitive frames, they also changed.

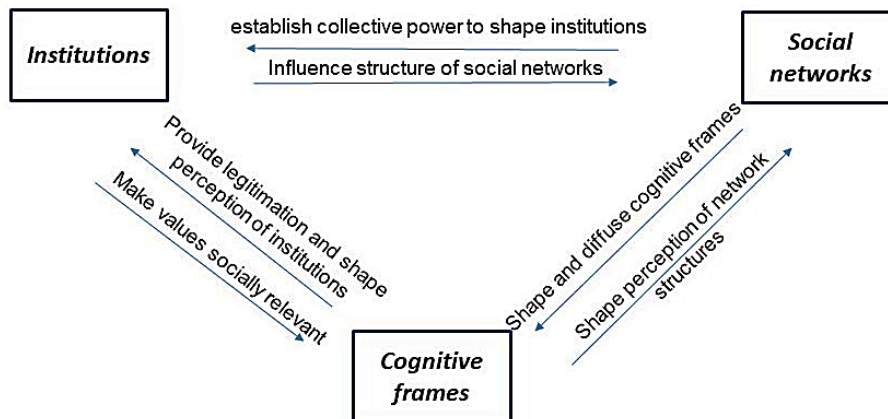


Figure 4. The reciprocal influence of the three social forces in market fields

Source: Beckert, 2010

For example, Millennials and Generation Z, having come of age during periods of rapid technological innovation, tend to have more optimistic views of the future, seeing opportunities in the gig economy, digital entrepreneurship, and new forms of economic exchange (e.g., cryptocurrencies and social media monetization). In contrast, older generations may approach these same trends cautiously, shaped by experiences of economic crises or the challenges of adapting to technological disruptions.

Beckert’s framework helps explain why generational perspectives on economic opportunities and risks diverge so sharply. The “fictional expectations” held by different generations influence their strategies for navigating social and economic fields, contributing to both intergenerational conflict and the potential for collaboration.



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# ANALYSIS AND DISCUSSION

Economic and technological fields are among the most exemplary arenas where the generational divide plays out. Baby Boomers and Generation X, shaped by relatively stable post-war economies, often emphasize security, long-term planning, and traditional forms of capital accumulation (such as homeownership and pension plans). These generations tend to view economic success as a linear progression achieved through stable employment and prudent financial management.

In contrast, Millennials and Generation Z have faced a more precarious economic environment, marked by the global financial crisis, stagnant wages, and the rise of the gig economy. As a result, these younger generations prioritize flexibility, adaptability, and using digital platforms to create new forms of economic capital. They are more likely to engage in non-traditional career paths, such as freelance work, digital entrepreneurship, and remote employment, which older generations may view as unstable or risky.

Technological fluency is a key form of capital distinguishing younger generations from their older counterparts. Millennials and Generation Z have grown up with digital technologies, making them more adept at using tools like social media, online networks, and collaborative platforms to build social and economic capital. For these generations, digital capital is a tool for economic gain and a means of social engagement and activism. As technological changes are further accelerating, we might expect these effects to follow a rapid pace also.

Conversely, Baby Boomers and Generation X may struggle to adapt to the fast-changing environment of technological change, often relying on more established forms of social and cultural capital. This disparity in digital capital can lead to conflicts in professional settings, where younger workers may be seen as more innovative, while older workers may possess institutional knowledge and experience that is undervalued in tech-driven environments, but the value of this knowledge and experience may vary a lot among different generations.

Technological disruption has exacerbated generational tensions, particularly in the workplace. As younger generations leverage their digital fluency to navigate increasingly tech-centric fields, older generations may feel alienated or threatened by the speed of change. This can lead to misunderstandings, miscommunication, and, in some cases, outright conflict. For example, younger employees may push for adopting new digital tools or remote work policies, while older employees may resist these changes, preferring more traditional work structures and communication methods.

However, technological disruption also offers opportunities for intergenerational collaboration, but should not be taken for granted. Younger workers can share their digital expertise with older colleagues while benefiting from the institutional knowledge and long-term perspectives that older workers bring. Organizations that actively promote intergenerational knowledge-sharing are more likely to foster innovation, creativity, and resilience in the face of rapid change.

## CONCLUSION

This extended theoretical exploration of the generational divide through the lens of social fields theory underscores the complexity of intergenerational dynamics in contemporary society. Differences between generations are not merely a matter of age but are deeply embedded in the social structures and fields where individuals and groups compete for capital. More accurately, they compete for different forms of capital.



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By understanding these differences, we can better address the challenges posed by generational conflict and, therefore, harness the potential for intergenerational collaboration and also attract and employ younger colleagues.

The generational divide manifests in distinct ways across social, economic, and technological fields. While older generations may rely on traditional forms of capital and long-term strategies, younger generations leverage digital capital and prioritize flexibility in navigating increasingly complex and dynamic fields. Recognizing these dynamics is essential for fostering effective intergenerational dialogue and cooperation.

Recommendations for improving intergenerational cooperation are:

1. Encourage environments where knowledge-sharing between generations is institutionalized.
2. Develop mentorship programs that allow older workers to pass on institutional knowledge while learning from younger colleagues' digital expertise.
3. Foster a culture of flexibility and adaptability in organizations, recognizing that different generations bring unique strengths to the table.

Further theoretical research could explore how globalization, migration, and technological innovation intersect with generational dynamics. Additionally, examining the long-term effects of major global events (e.g., pandemics, economic crises, international conflicts or natural disasters) on intergenerational perspectives of risk and opportunity could provide valuable insights into the evolving nature of the generational divide.

Another trajectory of research on this topic may follow the colourful environment of the Danube region countries or wider, seeking to understand trends and situations.

## REFERENCES

- Beckert, J. (2010). How Do Fields Change? The Interrelations of Institutions, Networks, and Cognition in the Dynamics of Markets. *Organization Studies*, 31(5), 605–627.
- Beckert, J. (2016). *Imagined Futures: Fictional Expectations and Capitalist Dynamics*. Harvard University Press, Cambridge.
- Bourdieu, P. (1986). The Forms of Capital. In J. Richardson (Ed.), *Handbook of Theory and Research for the Sociology of Education* (pp. 241-258). Greenwood, Westport.
- Howe, N., Strauss, W. (2000). *Millennials Rising: The Next Great Generation*. Vintage, New York.
- Kolar, J., Besednjak Valic T. (2020). *Social aspects of technology diffusion: Danube region – HPC case*. Vega Press, London.
- Prensky, M. (2001). Digital Natives, Digital Immigrants. *On the Horizon*, 9(5), 1-6.



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# STRATEGIC MANAGEMENT PRACTICES FOR VALUE CHAIN OPTIMIZATION IN THE CIRCULAR ECONOMY

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DOI: 10.5937/EEE24025N  
JEL: M21, Q56  
Review Scientific Paper

### ABSTRACT

*This study investigates the role of strategic management practices in optimizing value chains within circular economies. Drawing on relevant scholarly papers, the research identifies six key strategic management practices crucial for circularity: long-term perspective and systems thinking, strategic sourcing and supplier collaboration, design for circularity, reverse logistics, performance measurement, and stakeholder engagement. The analysis highlights the significant differences between linear and circular business models, emphasizing the need for a strategic shift towards resource efficiency and closed-loop material use. The research concludes that while some companies are embracing circularity principles, there is a need for realignment in strategic focus. By effectively implementing these practices, businesses can unlock the full potential of circular business models and contribute to a more sustainable future.*

### KEYWORDS

*Circular economy, strategic management, value chain optimization, circular business models*

## INTRODUCTION

Businesses have for the past century based their operations on the traditional linear economic model of take-make-use-dispose. This approach of conducting business has however reached a critical juncture, recording increased proportions of resource depletion and environmental degradation (Korhonen et al., 2018). In response, the circular economy (CE), which emphasizes closed-loop systems and resource recovery, has become a compelling alternative (Bakker et al., 2018). This shift necessitates a paradigm shift in the approach on strategic management practices in order to optimize value chains that operate within this new framework. Maximizing efficiency and cutting costs are the main goals of traditional value chain optimization. Traditionally, metrics like return on investment and cost per unit are prioritized (Da Costa et al., 2020). According to Genovese et al. (2017), majority of the strategic decisions made by business organizations have often prioritized its short-term needs and shareholders value. This might result in outsourcing, a focus on primary skills, and minimization of production costs. Although these components are still essential, maximizing circular value chains requires a more comprehensive approach that incorporates a number of factors among them being social and environmental factors (Masi et al., 2017).

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Even with increasing attention in the CE, a critical gap exists in our understanding of how to translate strategic management practices into effective circular value chain optimization (Da Costa et al., 2020). Existing frameworks for measuring progress towards a circular economy offer valuable guidance, but lack specific details on tailoring strategic management approaches to this new paradigm (Bakker et al., 2018). This paper seeks to address this gap to determine how businesses can be empowered as they navigate the transition towards a circular economy.

## LITERATURE REVIEW

The circular economy (CE) framework transcends the traditional take-make-use-dispose model of resource use, offering a regenerative proposal for a sustainable future. Contrasting the linear model that leads depletion of resources and pollution of the environment, the CE underscores closed-loop systems that optimize on resource value through diverse strategies (Korhonen et al., 2018). To fully utilize strategic management in CE company models, it is important to understand the fundamental ideas and components of this said framework. The suitability of Michael Porter's (1985) value chain model for examining the shift to a CE was evaluated by Eisenreich et al. (2021), arguing that Porter's framework has significant limitations when taking CE principles into account, despite the fact that it is still widely used in strategic management.

A key criticism of Porter's model is that it does not incorporate any "reverse logistics & recovery" related tasks. Porter's value chain model reflects traditional linear business methods that more often than not, overlook the end-of-life stage of products. Eisenreich et al. (2021) contends that this category should be included as part of the main activities within the value chain, since it provides for key activities that are necessary to enable the closing the loop in a circular economy. The key activities included in reverse logistics and recovery include product collection, disassembly, refurbishment, remanufacturing, and recycling (Kalmykova et al., 2018). The integration of this stage within the value chain architecture emphasizes the vital role it plays in enabling multiple product life cycles, which is a fundamental component of the CE.

An additional criticism focuses on Porter's model's little attention to relationships both inside and outside the value chain. While Porter acknowledges interfaces between activities and linkages to external stakeholders, his primary focus remains on optimizing individual value chain categories for competitive advantage (Porter, 1985). It is however necessary that, at every stage of the value chain, firms embrace increased collaboration with external stakeholders including distributors, suppliers, and customers as this will enhance the chances of successful transition to a circular economy. According to De Angelis et al. (2018), the framework should graphically illustrate these interactions in order to highlight their critical importance in the implementation of CE, therefore recommending that the traditional business models need to be adjusted for the circular economy. While Porter's value chain model provides a valuable foundation for understanding business operations, it requires adjustments to fully comprehend the complexities of a circular system. Integrating reverse logistics & recovery activities, adopting a circular representation, and emphasizing interconnections are crucial steps towards a more comprehensive framework for analyzing and implementing a circular economy (De los Rios, Chamley, 2017).

Eisenreich et al. (2021) further argue that the linear structure of Porter's model fails to capture the essence of a circular economy. Porter's framework reflects a "cradle-to-grave" mentality, assuming a single product life cycle with disposal as the end point. In contrast, CE embraces "cradle-to-cradle" principles, aiming to keep

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products and materials in use for as long as possible. They suggest modifying the graphical representation to depict the primary activities in a circular fashion as illustrated in Figure 1.

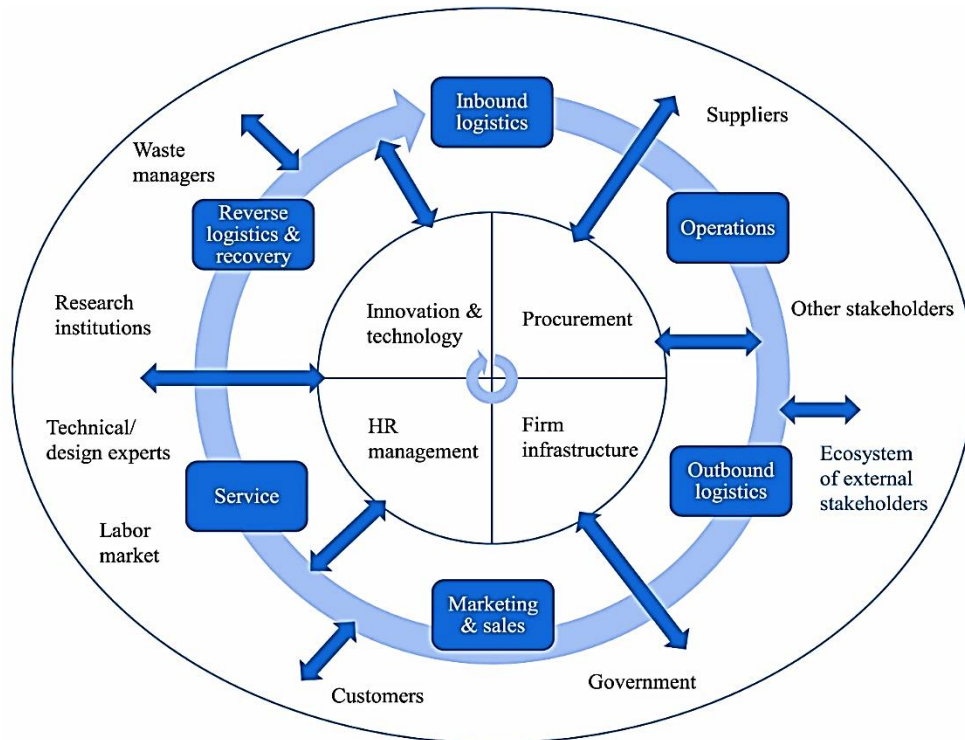


Figure 1. Circular Economy Value Chain Model

Source: Eisenreich et al., 2022

Circular value chain optimization necessitates a strategic shift towards a "Triple Bottom Line" approach, balancing economic, environmental, and social aspects (Genovese et al., 2017). This requires expanding traditional financial metrics to incorporate additional circular economy metrics. Life cycle assessments (LCA) and resource recovery rates become crucial for evaluating the environmental impact of products and processes (Da Costa et al., 2020). Strategic decision-making in the CE context prioritizes resource efficiency, waste reduction, and extending product lifespans (Bakker et al., 2018). Collaboration with stakeholders throughout the value chain becomes central for establishing efficient closed-loop systems for resource recovery and reuse (Hofmann, Jaeger-Erben, 2020).

Strategic management is a comprehensive approach to formulating, implementing, and evaluating decisions that enable an organization to achieve its objectives. The concept involves the integration of various management practices, including strategic planning, resource allocation, and performance monitoring, to steer an organization towards its long-term goals. At its core, strategic management is about positioning an organization effectively within its environment, leveraging its strengths, mitigating its weaknesses, and navigating through threats and opportunities (Porter, 1985). This process requires a clear understanding of the external environment and internal capabilities, as well as the ability to adapt to changes and maintain a competitive edge.

The modern business landscape is characterized by unprecedented levels of uncertainty and change, driven by factors such as digital transformation, economic fluctuations, and socio-political shifts. In response, contemporary strategic management practices have become more iterative and inclusive,



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incorporating real-time data analysis, scenario planning, and stakeholder engagement (Teece et al., 1997). Organizations are increasingly recognizing the importance of agility, resilience, and sustainability in their strategic approaches. This shift underscores the necessity for strategic management to not only focus on competitive advantage but also on creating long-term value and ensuring organizational sustainability in a rapidly evolving environment. In the context of the circular economy (CE), strategic management plays a critical role in optimizing value chains and fostering a sustainable future (Svensson, Funck, 2019). However, the traditional, static approaches to strategy formulation are ill-suited for the dynamic and interconnected nature of the CE.

The transition towards a circular economy necessitates a paradigm shift in how we approach resource management and product lifecycles. Three key theoretical perspectives illuminate different aspects of this transformation. Systems thinking provides a framework for understanding the interconnectedness between various actors and processes within the circular economy (Linder, Williander, 2017). The product life cycle theory highlights the limitations of the traditional "take-make-dispose" model and emphasizes the need for extending product lifespans and considering end-of-life options (Awan et al., 2021). Finally, dynamic capabilities theory explores how businesses can develop the adaptability and innovation required to thrive in a circular economy (Bocken et al., 2016). These three theories, each offering a unique lens, contribute to a comprehensive understanding of the evolving landscape of resource management within a circular system.

## METHODOLOGY

This research employed a systematic literature review (SLR) methodology to explore the influence of strategic management practices on value chain optimization within the CE framework. An SLR offers a rigorous and transparent approach for identifying relevant academic publications through a predefined search strategy and inclusion/exclusion criteria (Tranfield, Denyer, Smart, 2003)

A comprehensive search of three primary academic databases (Elsevier, Google Scholar, and ResearchGate) was conducted. To ensure comprehensiveness, a pilot search was initially conducted with a smaller set of terms to refine the final search string. Boolean operators ("AND," "OR," "NOT") were then utilized to combine search terms related to the three core concepts:

- ❖ Strategic Management: "strategic management," "strategic business practices," "business model innovation".
- ❖ Circular Economy: "circular economy," "circular business models".
- ❖ Value Chain Optimization: "value chain optimization," "circular value chains," "closed-loop supply chain".

This search strategy aimed to capture relevant articles that explicitly address the intersection of these three domains.

A two-stage screening process was implemented to refine the initial search results. Articles were included based on the following criteria:

- ❖ **Publication Date:** Published within the last 15 years (2009-2024) to ensure the incorporation of recent advancements in the field.



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- ❖ **Publication Type:** Peer-reviewed academic journals with a high impact factor to maintain the credibility and quality of the research. Additional quality assessment criteria, such as author reputation and methodological rigor, may be considered during the screening process.
- ❖ **Language:** Written in English for accessibility and consistency during analysis.
- ❖ **Content Focus:** Explicitly address the relationship between strategic management practices, value chain optimization, and the circular economy.

Articles that did not meet these criteria were excluded from the review process.

Following the search strategy and applying the inclusion/exclusion criteria, relevant articles were retrieved and stored in a reference management software for efficient organization. A standardized data extraction form was developed to capture key information from each article, such as:

- ❖ Author(s) and publication year
- ❖ Title and abstract
- ❖ Specific strategic management practices explored
- ❖ Value chain optimization approaches within a circular economy context
- ❖ Theoretical frameworks or models presented

A thematic analysis was employed to analyze the extracted data. This qualitative approach involved a systematic coding process to identify recurring themes and categorize the articles based on the specific strategic management practices explored in the context of circular economy and value chain optimization. Thematic saturation, the point where no new themes emerge from additional articles, was used to determine the completion of the analysis. The results of this thematic analysis will be presented in detail in a subsequent section.

## DISCUSSION

The synthesis of findings from a review of scholarly works on strategic management and value chain optimization in circular economies reveals a growing body of research dedicated to transforming traditional linear models into sustainable, circular ones. Scholars such as Geissdoerfer et al. (2017) and Kirchherr et al. (2018) have extensively explored the theoretical underpinnings of circular economy principles, highlighting the necessity of integrating economic, environmental, and social dimensions into business strategies. These studies emphasize the holistic nature of circular value chains, which require a comprehensive understanding of the entire lifecycle of products and the interconnectedness of various components within the value chain. Research has also delved into practical applications and strategic management practices essential for optimizing circular value chains. For instance, Lieder and Rashid (2016) provide a thorough examination of the implementation challenges and opportunities in the manufacturing sector, while Eisenreich et al. (2021) focus on product design and business model strategies that facilitate circularity. The table below highlights a selection of scholarly works that address the concept of strategic management and value chain optimization in the circular economy.





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Table 1: Selection of scholarly works focusing on the concept of strategic management and value chain optimization in the circular economy.

Study	Authors	Key Focus	Key Findings
Towards the Circular Economy: Economic and business rationale for an accelerated transition	Ellen MacArthur Foundation (2013)	Business case for circular economy	Circular economy offers economic benefits beyond environmental sustainability, such as cost savings from resource efficiency and new market opportunities.
A framework for measuring progress towards a circular economy	Bakker, C., et al. (2018)	Measuring circularity	Proposes a framework with various metrics to track progress towards circularity, including resource recovery rates and closed-loop material use.
Product life extension – a review of incentives and barriers for consumer repair and product service systems	Bocken, A. M., Bakker, C., & Pauw, I. (2016)	Product design and consumer behavior	Highlights the importance of product design for disassembly and repair, alongside consumer education and incentives for extending product lifespans.
Redefining the circular economy: circularity by design	Bracken, P., Murray, A., & Bryson, A. (2019)	Systemic approach to circularity	Emphasizes the need for a systemic approach to circular economy, moving beyond individual stages of the value chain and focusing on design for circularity.
The Circular Economy: A new sustainability paradigm?	Geissdoerfer, M., Savaget, P., Bocken, N. M. P., & Hultink, E. J. (2017)	Shifting from linear to circular models	Analyzes the conceptual shift from linear to circular models in value chains, highlighting the need for new strategic management practices.
Measuring circular economy performance: A new tool integrating environmental and economic assessments	Sauvé, S., Bernard, S., & Sloan, P. (2016)	Performance measurement for circularity	Proposes a new performance measurement tool that integrates environmental and economic assessments to track progress towards circular economy.
New business models for product service systems – a sketch	Tukker, A., (2015)	Business model innovation for circularity	Explores business model innovation for circularity, emphasizing product-as-a-service models that decouple ownership from product use.
A review of methods for design for disassembly and recyclability in end-of-life product management	Prieto-Flores et al. (2019)	Design for disassembly and recyclability	Reviews various design methods that facilitate product disassembly and recyclability, crucial for circular value chains.
Thinking in systems: A primer	Kirchherr, J.; Reike, D.; Hekkert, M. (2017)	Systems thinking for circular economy	Emphasizes the importance of systems thinking in circular economy, understanding the interconnectedness of actors and processes within the value chain.

Source: Author, 2024.



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The synthesis of these findings underscores the critical role of strategic sourcing, supplier collaborations, design for circularity, reverse logistics, performance measurement, and stakeholder engagement in achieving a sustainable circular economy.

This table below summarizes the key strategic management practices identified that are key for optimizing circular value chains, along with the corresponding studies that address each practice.

Table 2. Key strategic management practices for value chain optimization in circular value chains

<b>Strategic Management Practice</b>	<b>Scholarly References</b>
Long-Term Perspective & Systems Thinking	Bakker et al. (2018); Bracken et al. (2019), Sarja et al. (2021)
Strategic Sourcing & Supplier Collaboration	Bocken et al. (2016); Ellen MacArthur Foundation (2013); Alhawari et al. (2021)
Design for Circularity	Bracken et al. (2019); Prieto-Flores et al. (2019); Tukker (2015)
Reverse Logistics & Recovery Strategies	Govindan & Hasanagic (2018); Kirchherr et al. (2017)
Performance Measurement	Bakker et al. (2018); Govindan & Hasanagic (2018)
Stakeholder Engagement	Bocken et al. (2016); Ellen MacArthur Foundation (2013); Kirchherr et al. (2017)

*Source: Author, 2024*

Long perspective and system thinking are regarded as strategic management practices because they enable organizations to navigate complex and dynamic environments by focusing on long-term sustainability and recognizing the interconnectedness of various elements within the business ecosystem. Kirchherr, Reike and Hekkert (2017) argue that adopting a long-term perspective helps businesses "anticipate future resource constraints and market demands" (p. 222), which is essential for strategic planning and sustainability. This forward-thinking approach allows companies to invest in sustainable practices that yield benefits over time, rather than focusing solely on short-term profits. Similarly, Geissdoerfer et al. (2017) emphasize that "system thinking enables organizations to identify and leverage the synergies between economic, environmental, and social dimensions of sustainability" (p. 759). By recognizing these interconnections, businesses can make more informed strategic decisions that enhance overall sustainability and resilience.

In a circular business model, long perspective and system thinking are put into practice in several ways. According to Ellen MacArthur Foundation (2013), companies adopt lifecycle thinking to design products that are durable, repairable, and recyclable. This involves considering the entire lifecycle of a product, from raw material extraction to end-of-life disposal, and designing for longevity and easy disassembly. This helps firms to focus on the long-term use and reuse of products, thus reducing waste and extending the value of materials. Lieder & Rashid further argue that system thinking encourages businesses to optimize resource use by creating closed-loop systems where materials are continually reused and recycled. This can involve setting up take-back programs and reverse logistics to reclaim end-of-life products and reintegrate them into the production process (Lieder, Rashid, 2016).



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Strategic sourcing involves the deliberate selection and management of suppliers based on long-term objectives and sustainability criteria. This practice ensures that companies secure high-quality, sustainable, and recyclable materials, which are foundational for a circular economy. Linear business models typically engage in transactional relationships with suppliers, focusing primarily on cost reduction and efficiency rather than sustainability. Supplier selection is often based on the lowest bid, with little consideration for the environmental or social impacts of procurement decisions. Innovation is limited to incremental improvements in cost or efficiency, rather than transformative changes aimed at sustainability. Geng et al. (2012) however highlights that strategic sourcing "ensures the quality and sustainability of inputs" (p. 220), which is critical for maintaining a competitive edge and achieving long-term sustainability goals.

Similarly, collaborating with suppliers is essential for co-developing new materials and technologies, optimizing supply chain processes, and ensuring mutual growth. In linear models, there is often a lack of integration and collaboration with suppliers, resulting in missed opportunities for joint innovation and the development of sustainable practices. The supply chain operates in silos, with minimal information sharing or coordination between different stages of the value chain. This limits the ability to implement closed-loop systems and recover materials effectively. Lieder and Rashid (2016) emphasize that supplier collaborations "can lead to the co-development of new materials and technologies that are essential for closing the loop in product lifecycles" (p. 40). Supplier collaboration aligns with strategic management by fostering innovation, enhancing supply chain resilience, and creating shared value for all stakeholders.

Designing for circularity is a key strategic management practice because it fundamentally transforms the product lifecycle to prioritize sustainability and resource efficiency in circular business models. It moves beyond the traditional linear model's focus on creating products for single-use and disposal. Instead, it prioritizes designing products with their entire lifecycle in mind, aiming to keep resources in use for as long as possible (Geissdoerfer et al., 2017). The Ellen MacArthur Foundation (2013) highlights that "designing products with their end-of-life in mind is a key principle of the circular economy." Bocken et al. (2016) add that modular design and design for disassembly are strategies that enable companies to "extend the lifecycle of products, thereby reducing the need for virgin materials."

Reverse logistics, often referred to as the "aftermarket supply chain," plays a critical role in circular business models (Lieder & Rashid, 2016). It's the strategic practice of managing the movement of goods from their point of consumption back up the value chain (Genovese et al., 2017). This goes beyond simply handling product returns – it encompasses the entire process of collecting, sorting, and reintegrating used products or materials into the production cycle for reuse, refurbishment, or recycling. Scholars like Jonker and Montenegro Navarro (2018) highlight the strategic importance of reverse logistics for several reasons. Firstly, it enables companies to capture value from used products. By collecting and remanufacturing returned goods, businesses can extend product lifespans, reduce reliance on virgin materials, and potentially create new revenue streams. Secondly, robust reverse logistics networks contribute to a company's environmental sustainability efforts. By diverting used products from landfills and promoting material recovery, businesses can minimize their environmental footprint and align with circular economy principles. Finally, efficient reverse logistics operations enhance customer satisfaction. Take-back programs and easy return options foster customer loyalty and encourage responsible product use.

In the context of circular business models, stakeholder engagement transcends mere communication. It becomes a strategic management practice that fosters collaboration and shared value creation (Jonker & Montenegro Navarro, 2018). As Bocken et al. (2016) point out, actively engaging stakeholders in the development and implementation of circular strategies is crucial for ensuring their acceptance and



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support. This is so important because circular business models often disrupt traditional value chains, requiring cooperation across various actors in the system. Suppliers may need to source recycled materials, consumers might need to adopt new product usage habits, and policymakers may need to create supportive regulations. Effective stakeholder engagement creates a platform for open dialogue and collaboration, allowing businesses to address potential concerns and identify opportunities for mutual benefit.

Performance measurement in a circular economy context requires metrics that go beyond traditional financial indicators to include environmental and social dimensions. Geng et al. (2012) suggest that "developing comprehensive indicators for circular economy performance is critical for tracking progress and identifying areas for improvement" (p. 222). Sauv , Bernard, and Sloan (2016) advocate for integrating metrics such as resource efficiency, waste reduction, and carbon footprint into the performance measurement framework. Scholars like Geng et al. (2012) and Sauv , Bernard, and Sloan (2016) emphasize the strategic importance of performance measurement in circular economies. It provides businesses with a crucial tool for:

- 1) Tracking Progress where by establishing clear metrics, companies can monitor their progress towards circularity goals, and this data can reveal areas for improvement and inform strategic decision-making.
- 2) Demonstrating Transparency whereby adopting robust performance measurement systems allow businesses to communicate their environmental and social impact transparently to stakeholders which fosters trust and strengthens brand reputation.
- 3) Benchmarking and Improvement whereby circular economy metrics enable companies to compare their performance against industry benchmarks and identify best practices for continual improvement.

## CONCLUSION

The investigation of the literature on strategic management practices in CE reveals several key insights. Firstly, it is clear that strategic management practices are not merely adaptable to a circular economy; they are fundamental to its success. The findings high-lights the critical role of these practices in optimizing circular value chains. Design for circularity, reverse logistics, performance measurement, and stakeholder engagement, as identified by this analysis, are not merely operational considerations, but strategic choices that influence a company's entire approach to resource management and business success within a circular economy.

The research also underscores the significant differences between linear and circular business models. Linear models, with their focus on short-term profit maximization and single-use products, necessitate a different set of strategic priorities compared to circular models. Circular models, on the other hand, require a long-term perspective that prioritizes resource efficiency, closed-loop material use, and collaboration across the value chain. This necessitates a shift in strategic management practices to ensure alignment with these new goals.

The question then arises: are current strategic management practices being employed effectively in the context of circular business models? While there are certainly examples of companies embracing circularity principles, there is also evidence that some businesses struggle to fully integrate these



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practices into their existing strategies. A key challenge lies in overcoming traditional mindsets focused on linear models and production efficiency.

To achieve true value chain optimization in a circular economy, companies need to realign their strategic focus in several key areas. Firstly, design for circularity must become a core principle, with products designed for disassembly, repair, and material recovery. Secondly, robust reverse logistics networks are essential to collect and reintegrate used products back into the production cycle. Thirdly, implementing a comprehensive performance measurement system that captures environmental and social impacts alongside financial metrics is crucial for tracking progress and informing strategic decisions. Finally, prioritizing stakeholder engagement through open communication and collaboration with all actors in the value chain fosters innovation and shared value creation.

## REFERENCES

- Alhawari, O., Awan, U., Bhutta, M.K.S., Ali Ülkü, M. (2021). Insights from circular economy literature: A review of extant definitions and unravelling paths to future research. *Sustainability*, 13(1), 859.
- Awan, U., Sroufe, R., Shahbaz, M. (2021). Industry 4.0 and the circular economy: A literature review and recommendations for future research. *Business Strategy and the Environment*, 30(8), 2038-2060.
- Bocken, N. M., de Pauw, I., Bakker, C., van der Grinten, B. (2016). Product design and business model strategies for a circular economy. *Journal of Industrial and Production Engineering*, 33(5), 308-320.
- Bocken, N. M., Bakker, C., Pauw, I. (2016). Product life extension – A review of incentives and barriers for consumer repair and product service systems. *Resources, Conservation and Recycling*, 104, 25-43.
- Bracken, P., Murray, A., Bryson, A. (2019). Redefining the circular economy: circularity by design. *Journal of Cleaner Production*, 214, 1106-1115.
- Bakker, C., Mugge, R., Deakin, M. (2018). A framework for measuring progress towards a circular economy. *Journal of Industrial Ecology*, 22(3), 802-814.
- De Angelis, R., Howard, M., Miemczyk, J. (2018). Supply chain management and the circular economy: Towards the circular supply chain. *Production Planning & Control*, 29(6), 425-437.
- Da Costa Fernandes, S., Pigosso, D. C. A., McAloone, T. C., Rozenfeld, H. (2020). Towards product-service system oriented to circular economy: A systematic review of value proposition design approaches. *Journal of Cleaner Production*, 257, 120507.
- De los Rios, I. C., Charnley, F. (2017). Skills and capabilities for a sustainable and circular economy: The changing role of design. *Journal of Cleaner Production*, 160, 109-122.
- Eisenreich, A., Füller, J., Stuchtey, M. (2021). Open circular innovation: How companies can develop circular innovations in collaboration with stakeholders. *Sustainability*, 13(23), 13456.
- Ellen MacArthur Foundation (2013). Towards the circular economy: economic and business rationale for an accelerated transition. Available at: <http://www.ellenmacarthurfoundation.org/assets/downloads/publications/Ellen-MacArthur-Foundation-Towards-the-Circular-Economy-vol.1.pdf> . (Accessed 24 June 2024)
- Ellen MacArthur Foundation (2015). Growth within: a circular economy vision for a competitive Europe. Available at: [https://www.ellenmacarthurfoundation.org/assets/download/s/publications/EllenMacArthurFoundation\\_Growth-Within\\_July15.pdf](https://www.ellenmacarthurfoundation.org/assets/download/s/publications/EllenMacArthurFoundation_Growth-Within_July15.pdf) . (Accessed 24 June 2024).



## Conference Proceedings

- Geissdoerfer, M., Savaget, P., Bocken, N. M. P., Hultink, E. J. (2017). The circular economy – A new sustainability paradigm? *Journal of Cleaner Production*, 143, 757-768.
- Geng, Y., Zhu, Q., Doberstein, B., Fujita, T. (2012). Developing the circular economy in China: Challenges and opportunities. *Journal of Industrial Ecology*, 16(1), 219-234.
- Govindan, K., Hasanagic, M. (2018). A systematic review on drivers, barriers, and practices towards circular economy: A supply chain perspective. *International Journal of Production Research*, 56(1-2), 278-311.
- Hofmann, F., Jaeger-Erben, M. (2020). Organizational transition management of circular business model innovations. *Business Strategy and the Environment*, 29(6), 2770-2788.
- Jonker, J., Montenegro Navarro, V. (2018). Reverse logistics in a circular economy – A review of academic literature. *Resources, Conservation and Recycling*, 135, 13-25.
- Kalmykova, Y., Sadagopan, M., Rosado, L. (2018). Circular economy – From review of theories and practices to development of implementation tools. *Resources, Conservation and Recycling*, 135, 190-201.
- Kirchherr, J., Piscicelli, L., Bour, R., Kostense-Smit, E., Muller, J., Huibrechtse-Truijens, A., & Hekkert, M. (2018). Barriers to the circular economy: Evidence from the European Union. *Ecological Economics*, 150, 264-272.
- Kirchherr, J., Reike, D., Hekkert, M. (2017). Conceptualizing the circular economy: An analysis of 114 definitions. *Resources, Conservation and Recycling*, 127, 221-232.
- Korhonen, J., Honkasalo, A., Seppälä, J. (2018). Circular economy: The concept and its operationalization. *Journal of Cleaner Production*, 175, 59-69.
- Lieder, M., Rashid, A. (2016). Towards circular economy implementation: A comprehensive review in context of manufacturing industry. *Journal of Cleaner Production*, 115, 36-51.
- Masi, D., Day, S., Godsell, J. (2017). Supply chain configurations in the circular economy: A systematic literature review. *Sustainability*, 9(9), 1602.
- Porter, M. E. (1985). *Competitive Advantage: Creating and Sustaining Superior Performance*. Free Press.
- Prieto-Flores, V., Jaca, C., Santos, J., Baumgartner, R.J., Ormazabal, M. (2019). Key strategies, resources, and capabilities for implementing circular economy in industrial small and medium enterprises. *Corporate Social Responsibility and Environmental Management*, 26, 1473–1484.
- Sarja, M., Onkila, T., Mäkelä, M. (2021). A systematic literature review of the transition to the circular economy in business organizations: Obstacles, catalysts and ambivalences. *Journal of Cleaner Production*, 286, 125492.
- Sauvé, S., Bernard, S., Sloan, P. (2016). Environmental and social performance measurement: A review of current practices and future trends. *Journal of Business Ethics*, 136(1), 21-37.
- Svensson, N., Funck, E. K. (2019). Management control in circular economy. Exploring and theorizing the adaptation of management control to circular business models. *Journal of Cleaner Production*, 233, 390-398.
- Teece, D. J., Pisano, G., & Shuen, A. (1997). Dynamic capabilities and strategic management. *Strategic Management Journal*, 18(7), 509-533.
- Tranfield, D., Denyer, D., Smart, P. (2003). Towards a Methodology for Developing Evidence Informed Management Knowledge by Means of Systematic Review. *British Journal of Management*, 14(3), 207-222.
- Tukker, A. (2015). Product services for a resource-efficient and circular economy – A review. *Journal of Cleaner Production*, 97, 76-91.



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# NAVIGATION OF MULTIDIMENSIONAL AND DIGITAL EDUCATION STRATEGIES

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DOI: 10.5937/EEE24026R

JEL: I20, I21, I25

Review Scientific Paper

### ABSTRACT

*Education, a fundamental process occurring universally and continuously, transcends conventional boundaries of time and place. Evolving pedagogical methods, educational institutions, technological advancements, industrial demands, entrepreneurial pursuits, shifting lifestyles, and the quest for knowledge have reshaped educational landscapes. These advancements have facilitated the development of innovative learning approaches and teaching practices. Since its inception, education has embraced multidimensionality, striving for comprehensive and specialized learning, contextual understanding, and interpersonal skills. Effective teaching requires educators to comprehend the diverse dimensions through which students naturally engage in the learning process. Technological advancements have catalyzed the design of new learning methodologies, complemented by traditional approaches, empowering educators worldwide to achieve new heights. Educators face the imperative to equip youth for rapid economic and social changes, preparing them for emerging professions, technologies yet to be invented, and unforeseen societal challenges. The global education system has faced significant disruption due to the Covid-19 pandemic, a challenge likely to persist for some time. Nevertheless, technological innovations, including free online courses, universities like UoPeople, and a multitude of web-based apps, have ensured continuity in education despite these disruptions. This article explores various dimensions, approaches, strategies, and methodologies in contemporary education, aiming to illuminate the dynamic landscape of multidimensional and digital educational practices.*

### KEYWORDS

*education, digital education, multidimensional strategies*

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# INTRODUCTION

The evolving landscape of education now emphasizes acquiring not only relevant knowledge and skills but also personal qualities essential for navigating both familiar and unfamiliar situations effectively. As educational demands shift, it becomes imperative to broaden our understanding of learning principles and regularly revise learning philosophies. Benjamin Franklin famously asserted that "An investment in knowledge pays the best interest," highlighting education's enduring value. The term "education" derives from the Latin word "educare," meaning to bring forth or to extract the best in individuals (Franklin, 1962, 1964, 1970). But, on the contrary, Alisdair MacIntyre, in his attempt to resuscitate a morality based on the virtues, has dismissed Franklin's moral ideal as shallow and utilitarian (MacIntyre 1984).

While education encompasses various aspects of teaching, pedagogy focuses on methods, strategies, and techniques tailored for children, while andragogy addresses learning among adults. Despite these distinctions, the fundamental process of learning remains consistent across age groups, evolving from external motivations like peer pressure in childhood to more intrinsic motivations in adulthood. The directed instruction model has its foundations embedded in the behavioral learning perspective (Skinner, 1938, 1968)

The process of teaching and learning is inherently natural and can occur anywhere and anytime, independent of prescribed setups or curricula. Recent advancements in pedagogical methods, the establishment of educational institutions, technological innovations, changing industrial demands, entrepreneurial pursuits, evolving lifestyles, and the pursuit of knowledge have profoundly transformed educational settings. Teachers increasingly utilize new technological tools to innovate their teaching methods and adopt new learning approaches (Namitha, 2018)

According to Andreas Schleicher of the OECD, educational institutions face the challenge of preparing students for unprecedented economic and social changes, anticipating future job roles, leveraging technologies yet to be developed, and addressing emerging societal issues whose nature remains uncertain (Reinhold et al., 2019; Schiepe-Tiska et al., 2019, 2021). The global education system has endured significant disruptions due to the Covid-19 pandemic, with ongoing challenges likely to persist. However, advancements in technology and the proliferation of online resources, such as UoPeople (<https://www.uopeople.edu/>) and numerous educational apps, have enabled continued educational continuity amidst these disruptions (Rene and Valdes, 2007; Khaddage et al, 2009; Looi et al, 2010; Hong-Ren Chen, Hui-Ling Huang 2011).

Achieving educational goals requires a multifaceted strategy that integrates various approaches to comprehensively fulfil its mission. Multidimensional education aims to balance inclusive and specialized learning, contextual understanding, and interpersonal skills. It demands that educators possess deep knowledge of the diverse ways students naturally interact with learning processes, employing a range of methods, tactics, and strategies to effectively assess and implement complex teaching tasks (Jayarama Reddy, 2022)

Reflecting on historical educational practices, such as the Panchatantra method from India's rich educational heritage, underscores the enduring evolution of education. The ancient Vedic tradition exemplified oral education, transmitting knowledge through storytelling, while the enduring Guru-Shishya system fostered continuous learning over millennia, preserving Indian scriptures across generations. Over time, education has evolved globally, adapting to meet contemporary challenges while retaining its foundational principle. Traditionally, the focus of teaching is mostly on strengthening achievement development and performance (Schiepe-Tiska, 2019).



## DIMENSION OF EDUCATION

According to Knud Illeris of Roskilde University, Denmark (2002), the multidimensional approach to pedagogy encompasses cognitive, emotional, and social dimensions of learning (Figure 1). Martin and Reigeluth further expand this view, identifying six dimensions of affective learning: emotional, social, esthetic, moral, spiritual, and motivational (Chabot, 2006; Chaffar Soumaya et al, 2005). Additionally, theatre pedagogy integrates both theatre and pedagogy into an independent discipline. Another significant approach is the free school movement, which advocates for alternative, community-driven educational models aimed at reforming traditional schooling aims (Watson, Rayner, 1920; Engelhart, 1970).

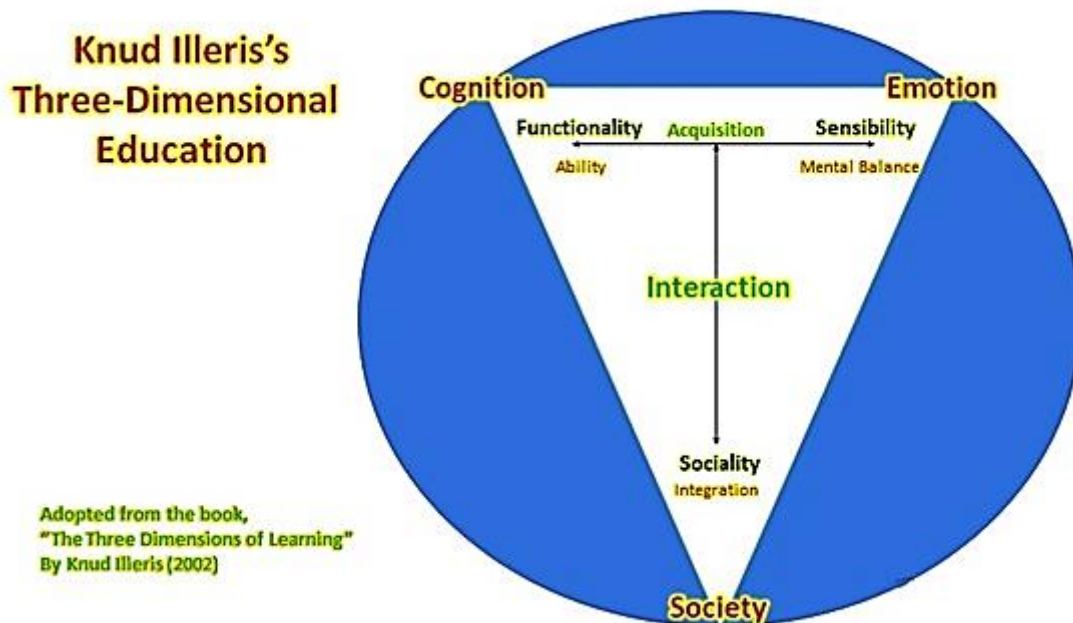


Figure 1. Three-Dimensional Education

Joni Mäkivirta's Cognitive Emotional Pedagogy builds on cognitive psychology and constructivist learning theory to enhance learning by integrating inventive and diverse experiences into educational content. Social pedagogy, emphasizing humanitarian values such as mutual respect and equity, adopts a holistic, relationship-centered approach in educational settings across the lifespan. Emotions play a crucial role in cognitive processes, influencing perception, attention, memory, cognition, and problem-solving, particularly in language acquisition and concept attainment (Mäkivirta, 2002; Confrey, 1990)

Charles Fadel, in his book "Four-Dimensional Education," outlines knowledge, skills, character, and metacognition as essential dimensions (Figure 2). Fadel advocates for deep specialization coupled with interdisciplinary understanding to address contemporary challenges effectively. He stresses the importance of critical thinking, creativity, communication, and collaboration skills, which students must apply to solve new problems. Moreover, Fadel argues that character development—fostering qualities such as mindfulness, curiosity, courage, resilience, ethics, and leadership—is crucial for shaping a better world alongside acquiring knowledge and skills.

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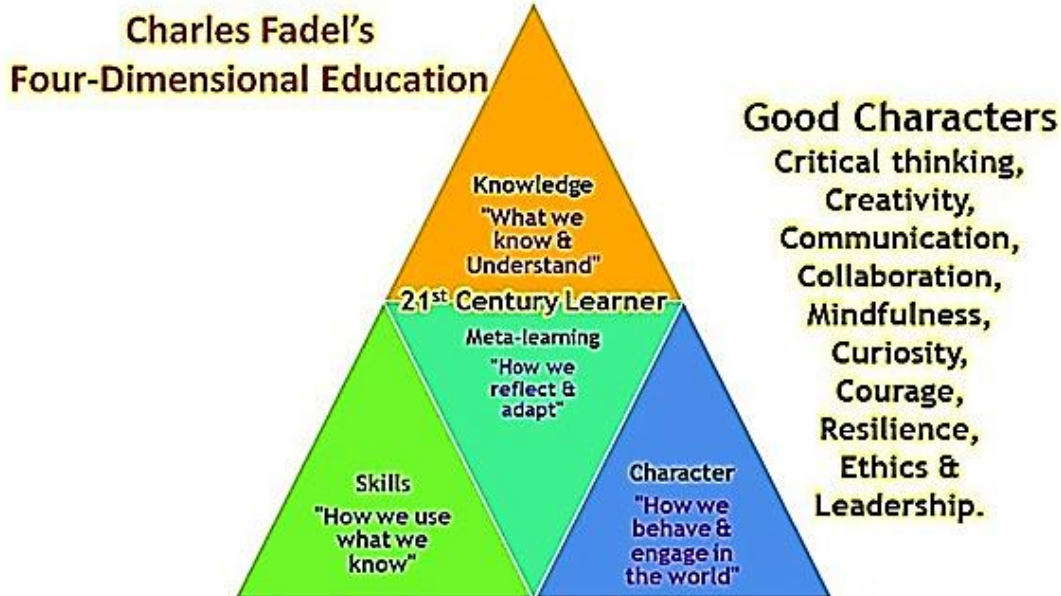


Figure 2. Four-Dimensional Education

## TECHNOLOGY IN EDUCATION

We live in a world where technology pervades every aspect of life, and learners increasingly rely on it more than on traditional teaching methods. Our current era is deeply embedded in a web-based environment where the Internet of Things (IoT) has become ubiquitous. Learners across all stages naturally integrate technology into every facet of their lives. Digital technologies are now crucial in diverse educational settings, enhancing curiosity, engagement, learning comprehension, and understanding.

Conventional approaches to teaching and learning have already undergone significant transformations to meet the needs of 21st-century learners and enhance educators' professional practices. We stand on the cusp of a digital and virtual future, where high-tech and low-tech approaches define educational practices. High-tech teaching involves the use of educational apps such as Google Classroom, Dreambox, Kahoot, and others, leveraging technological advancements to enrich learning experiences. These tools are just the beginning, with more innovative products in development. High-tech, teacher-centered approaches encompass online quizzes, Google Forms for tests, Prezi presentations, video-sharing for information dissemination, and online presentations through various platforms. These methods are in high demand, especially amid the ongoing Covid-19 pandemic, where online apps have become essential as traditional classroom teaching takes a back seat (Rene, Valdes, 2007; Khaddage et al, 2009; Looi et al, 2010; Hong-Ren Chen, Hui-Ling Huang 2011).

Conversely, low-tech methods are employed when technology is inaccessible or unaffordable, or when educators are hesitant to embrace change. These methods include paper-based learning, chalkboard teaching, and hands-on projects. Low-tech, teacher-centered approaches involve direct instruction, integrating worksheets, hands-on activities, and projects. Despite its limitations, low-tech teaching fosters interpersonal relationships and develops soft skills, often overlooked in today's high-tech environment.



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Pedagogically, approaches can be teacher-centered or learner-centered, employing either low-tech or high-tech methodologies. Teacher-centered learning emphasizes direct instruction, lectures, and content delivery based on the teacher's knowledge. In contrast, student-centered learning positions students as active participants in their own educational journey, with teachers assuming roles as facilitators, coaches, or mentors. Assessment in student-centered learning is frequent and objective, aimed at evaluating understanding and knowledge acquisition.

Both teacher-centered and student-centered approaches have their advantages and drawbacks. The most effective educational approach often combines these methodologies to cater to the diversity of students within the education system. Pedagogy focuses on accommodating various learning styles, such as Howard Gardner's theory of Multiple Intelligences, which identifies eight distinct ways of learning: Visual-Spatial, Linguistic-Verbal, Interpersonal, Intrapersonal, Logical-Mathematical, Musical, Bodily-Kinesthetic, and Naturalistic. Understanding these styles helps teachers effectively support each learner's strengths and weaknesses.

Neil Fleming's VARK model categorizes learners into visual, aural, reading/writing, and kinesthetic preferences. Each style dictates how students best process information, whether through visual aids, auditory learning, reading/writing materials, or kinesthetic involvement. Pedagogical approaches like Constructivist, Collaborative, Inquiry-Based, Integrative, and Reflective teaching cater to diverse learning needs and preferences. These methods encourage active learning, group collaboration, problem-solving skills development, interdisciplinary connections, and reflective practice among educators (Wright, Stokes, 2009, Zhu et al, 2013).

As educators navigate the increasing array of tools and technologies available, understanding the benefits of these innovations is crucial. Traditional teaching methods are either evolving or complemented by new practices, equipping students and teachers to thrive in a digitally interconnected world. However, it's essential to recognize that achieving educational goals requires a balanced approach that blends both modern and time-tested methodologies. Embracing this blend ensures that education remains effective and relevant in preparing learners for the complexities of the future (Rene, Valdes, 2007; Khaddage et al, 2009, Looi et al, 2010, Hong-Ren Chen, Hui-Ling Huang 2011).

## APPROACHES TO THE TEACHING

New learning approaches are increasingly designed with the aid of technology, yet older methods continue to support these innovations, enabling educators worldwide to reach new heights (Schiepe-Tiska et al., 2019, 2021). Below are several approaches that align with Charles Fadel's Four-Dimensional Education framework, or even surpass it:

1. **Student-created Content:** This approach, akin to student-centered learning, empowers students to create and share their own learning materials. Modern tech tools facilitate collaborative content creation among peers, enhancing understanding through diverse perspectives. Tools like "Explainer engines – Mysimpleshow" support digital and effective student-generated content. However, rigorous monitoring is essential to ensure students grasp the content accurately, often reinforced by teachers. This method is steadily gaining traction in educational systems and is poised to dominate in the future, as all educational tools are ultimately for the benefit of students.
2. **Problem-based Learning:** Moving away from rote learning, teaching practices increasingly focus on competency and skill development. This approach emphasizes understanding



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concepts, problem-solving, and effective communication. Whether termed problem-based, project-based, or inquiry-based learning, the goal is to shift to student-centered designs that foster critical thinking. This method prepares students to creatively tackle complex issues that they will encounter in their futures. It also promotes interdisciplinary connections and global collaboration, preparing students for the interconnected world ahead (Radović-Marković, 2012, Schiepe-Tiska et al., 2019, 2021)

3. **Collaborative Learning:** Learning can now happen anytime and anywhere with the aid of modern technology. Online platforms like Skype, Google Meet, WebEx, and Zoom (despite controversy) facilitate international communication and collaborative learning. This approach extends beyond traditional classroom walls, accommodating diverse learner preferences and enhancing skills such as intercultural understanding and creative thinking. This is just the beginning; the future promises even more revolutionary changes, potentially rendering classroom-based teaching obsolete in favor of virtual reality. Global collaborations without barriers will broaden perspectives and increase awareness, fostering exploration of diverse cultures and global issues through web-based interactions.
4. **Competency-based Learning:** Technology is driving the evolution of competency-based education, focusing on effective learning rather than time-based achievements. This approach allows students to learn at their own pace, whether through in-person teaching, e-learning platforms, or digital lectures. By decoupling learning from rigid time constraints and focusing on mastery of subjects, this method aligns with the needs of modern learners who seek efficient and effective learning experiences. Free online courses offered by platforms like Udacity, Coursera, and Khan Academy, as well as institutions like UoPeople, are democratizing education and offering learners unprecedented opportunities.
5. **Activity-based Learning:** Active learning involves hands-on experience where students learn by doing. It encourages experimentation, collaboration, and critical thinking. In this approach, teachers act as guides rather than lecturers, supporting students as they explore various learning methods and ideas. Incorporating fun into the learning process is crucial, ensuring that students remain engaged and enthusiastic about learning (Schiepe-Tiska et al., 2019, 2021)
6. **Blended Learning:** This approach combines traditional classroom methods with online digital media. Students attend physical classes while completing digital tasks and assignments at home, fostering a multi-modal learning experience. Blended learning optimally integrates in-person instruction with digital tools, enhancing educational outcomes through flexibility and adaptability.
7. **Flipped Learning Dimension:** Flipped learning reverses traditional teaching methods by delivering content digitally and increasing student-teacher interaction in the classroom. Students access content at home through digital media, such as short instructional videos, and engage in deeper discussions and activities in class. This approach enhances student engagement and comprehension by shifting content delivery outside the classroom and focusing on application and discussion within it.
8. **Integrated Discipline Dimension:** This advanced approach encourages students to create and use their own learning materials, moving beyond subject-specific boundaries to integrated, cross-curricular studies. It exemplifies the interconnected nature of the world we live in, allowing students to choose subjects freely and create personalized learning paths. Systems like the Choice Based Credit System (CBCS) in India and similar models in Europe



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and the USA encourage interdisciplinary learning, offering students diverse educational opportunities.

## CONCLUSION

Multidimensional educational goals provide a framework encompassing both cognitive and non-cognitive outcomes. Unlike cognitive outcomes, non-cognitive outcomes are characterized by constructs that are not associated with traditional indicators of cognitive capability or intellectual functioning (Rieger et al., 2017). Multiple reviews and studies have shown that these factors are essential for success in both education and occupation (Almlund et al., 2011, Kautz et al., 2014, Radović-Marković, 2023a). They are also crucial prerequisites for lifelong learning and active participation in society (Schiepe-Tiska, Roczen et al., 2016). Non-cognitive outcomes shape the identity and personality of students, influencing their decisions about educational pathways alongside cognitive outcomes (Parker et al., 2014). This is particularly relevant as the United States and Europe report an increasing need for STEM (science, technology, engineering, and mathematics) professionals at various levels of expertise (Cedefop, 2017).

This trend continues to grow with technological progress and digitalization. While theoretical advancements in education are substantial, practical implementations often fall short, as the focus shifts towards job-oriented outcomes and financial gains. Students often choose courses solely for their career prospects, while institutions prioritize financially lucrative courses over fundamental disciplines. In my view, education should primarily teach students "how to learn." The skills of learning—such as critical thinking, information interpretation, and innovative problem-solving—are paramount in an era where information is readily available (Radović Marković, 2023). These skills transcend specific subjects and equip students to navigate any discipline they encounter in the future. Ultimately, education should empower students with social, environmental, and humanitarian concerns, enabling them to create, innovate, and contribute positively to society.

## REFERENCES

- Almlund, M., Duckworth, A. L., Heckman, J., Kautz, T. (2011). *Personality Psychology and Economics*. National Bureau of Economic Research, Cambridge.
- Cedefop (2017). *Annual Report 2016*. Brussels, Germany. Available at: [https://www.cedefop.europa.eu/files/4154\\_en.pdf](https://www.cedefop.europa.eu/files/4154_en.pdf). doi:10.2801/474919
- Chabot, Michel (2006): *Emotional Pedagogy*. Trafford Publishing, Victoria.
- Chaffar Soumaya *et al.* (2005). *The Emotional Conditions for Learning*. Available at: <http://www.aaai.org/Papers/FLAIRS/2005/Flairs05-033.pdf>
- Confrey, J. (1990). What constructivism implies for teaching. In: Davis, Maher and Noddings (Eds.) *Constructivist views on the teaching and learning of mathematics*. JRME Monograph, Reston.
- Engelhart, M. D. (1970). [Review of Measurement and evaluation in psychology and education]. *Journal of Educational Measurement*, 7(1), 53–55. Retrieved from <http://www.jstor.org/stable/1433880>
- Franklin, B. [1907] 1970. *The Writings of Benjamin Franklin*. Ed. Albert Henry Smyth. 10 vols. Reprint. New York: Haskell House.



## Conference Proceedings

- Franklin, B. (1962). Benjamin Franklin on Education. Ed. John Hardin Best. Columbia University Teachers College, New York.
- Franklin, B. (1964). The Autobiography of Benjamin Franklin. Ed. Leonard W. Labaree, Ralph L. Ketcham, Helen C. Boatfield, and Helene H. Fineman. New Haven: Yale University Press.
- Hong-Ren Chen, Hui-Ling Huang (2011). User acceptance of mobile knowledge management learning system: Design and analysis. *Educational Technology & Society*, 13(3), 70-77.
- Jayarama R. (2022). Past, Present and Future of Multidimensional Education. *Education Times*, 9(12), 118-129
- Kautz, T., Heckman, J. J., Diris, R., ter Weel, B., Borghans, L. (2014). Fostering and Measuring Skills: Improving Cognitive and Non-cognitive Skills to Promote Lifetime success. OECD Publishing, Paris.
- Khaddage, F., Lanham, E., Zhou, W. (2009). A mobile learning model for universities: reblending the current learning environment. *The International Journal of Interactive Mobile Technologies*, 1(1).
- Looi, C. K., Seow, P., Zhang, B., So, H. J., Chen, W., Wong, L. H. (2010). Leveraging mobile technology for sustainable seamless learning: a research agenda. *British Journal of Educational Technology*, 41(2), 154-169.
- Mahamad, S. et.al (2010). M-Learning: a new paradigm of learning Mathematics in Malaysia. *International Journal of Computer Science & Information Technology*, 2(4).
- MacIntyre, A. (1984). *After Virtue: A Study in Moral Theory*. University of Notre Dame Press, Notre Dame.
- Miles, R. D. (1957). The American Image of Benjamin Franklin. *American Quarterly*, 9, 117-43.
- Mäkivirta, J. (2002). Cognitive Emotional Learning. *Journal of Cognitive Pedagogy*, 1, 12-40.
- Namitha, C. (2018). Modern methods of teaching. *Journal of Applied and Advanced Research*, 3 (Suppl. 1), 39-41.
- Parker, P. D., Marsh, H. W., Ciarrochi, J., Marshall, S., Abduljabbar, A. S. (2014). Juxtaposing Math Self-Efficacy and Self-Concept as Predictors of LongTerm Achievement Outcomes. *Educ. Psychol.* 34 (1), 29-48.
- Radović Marković, M. (2023). Digitalization, Workforce Transformation and Education in the Global Economy, Eliva, Moldova.
- Radović-Marković, M. (2023a). Digitalization And New Skills in The Workplace. *IPSI Transactions on Advanced Research*, 19(1), 37-41.
- Radović -Marković, M. (2012). Creative education and new learning as means of encouraging creativity, original thinking and entrepreneurship. In: "Humanities and the Contemporary world". Montenegrin Academy of Sciences and Arts, Podgorica.
- Reinhold, F., Reiss, K., Diedrich, J., Hofer, S., Heinze, A. (2019). Mathematische Kompetenz in PISA 2018 – aktueller Stand und Entwicklung [Mathematics competence in PISA 2018 - Current status and development]. In: PISA 2018: Grundbildung im internationalen Vergleich. Editors K. Reiss, M. Weis, and E. Klieme (Münster, Germany: Waxmann), 187-210.
- Rene, C.J., Valdes, C.M.E. (2007). Are you ready for mobile learning? *Educase Quarterly*, 2(1).



## Conference Proceedings

Rieger, S., Göllner, R., Spengler, M., Trautwein, U., Nagengast, B., Roberts, B. W. (2017). Social Cognitive Constructs Are Just as Stable as the Big Five between Grades 5 and 8. *AERA Open*, 3(3), 233285841771769.

Schiepe-Tiska, A., Heinle, A., Dümig, P., Reinhold, F., Reiss, K. (2021). Achieving Multidimensional Educational Goals Through StandardOriented Teaching. An Application to STEM Education. *Frontiers of Education*, 6, 592165.

Schiepe-Tiska, A. (2019). Mehrdimensionale Bildungsziele in internationalen Large-Scale Assessments: Konzeptualisierung, Entwicklung und Entstehungsbedingungen am Beispiel der MINT-Fächer [Multidimensional educational goals in international large-scale assessments: Conceptualisation, development and conditions of emergence using the example of MINT subjects] [Habilitation]. Munich: Technical University of Munich. Available at: <https://mediatum.ub.tum.de/doc/1523295/1523295.pdf>.

Schiepe-Tiska, A., Roczen, N., Müller, K., Prenzel, M., Osborne, J. (2016). Science-related Outcomes: Attitudes, Motivation, Value Beliefs, Strategies,” in *Assessing Contexts of Learning: An International Perspective*. Editors S. Kuger, E. Klieme, N. Jude, D. Kaplan, Sprimnger, New York.

Schoenholtz-Read, J., Rudestam, K.E. (2002). *Handbook of online learning: innovations in higher education and corporate training*. SAGE, Thousand Oaks.

Skinner, B. F. (1938). *The behavior of organisms*. Appleton-Century, New York. Retrieved from <http://s-f-walker.org.uk/pubsebooks/pdfs>

Skinner, B. F. (1968). *The technology of teaching*. Appleton-Century-Crofts, East Norwalk.

Watson, J. B., Rayner, R. (1920). Conditioned emotional reactions. *Journal of Experimental Psychology*, 3(1), 1-14. Retrieved from <http://psychclassics.yorku.ca/Watson/emotion.htm>

Wright, S., Stokes, A. (2009). The application of VARK learning styles in introductory level economics units. *Economic Papers. A journal of applied economics and policy*, 28(4), 444-456. *Journal of Distance Education*, 18(2), 121-135.

Zhu, H., Zeng, H., Zhang, H., Zhang, H., Wan, F., Guo, H., Zhang, C. (2013). The preferred learning styles utilizing VARK among nursing students with bachelor degrees and associate degrees in China. *Journal of Advanced Nursing*, 69(6), 1361-1369.



## Conference Proceedings

# EXPORT PERFORMANCE IN INTERNATIONAL BUSINESS

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DOI: 10.5937/EEE24027V  
JEL: D21, F15, R11:  
Review Scientific Paper

### ABSTRACT

*The improvement and retention of the competitive advantage of small and medium-sized enterprises on the international market is directly influenced by the effective application of innovation strategies, high quality products and services, and adequate market orientation. Studying the connection between innovation and export performance is one of the prerequisites for the growth and expansion of small and medium-sized companies on international markets, which also contributes to strengthening their market position. The aim of the paper is to analyze the relationship between innovation and export interpreted through the theory of "self-selection" or "learning by exporting". On the other hand, previous studies have shown that the most important barriers to entering the European Union market for Serbian exporters are the complexity of export documentation, poor organization of the company's export department, poor product design and entrance to export markets, high costs of transporting goods and inadequate promotion of the company on export markets.*

### KEYWORDS

*Export performance, innovation, small and medium enterprises, export barriers*

## INTRODUCTION

International business can be defined as a set of business transactions that take place across national borders. This broad definition includes very small companies that export or import small quantities of products within the territory of only one country, as well as very large global companies with integrated operations and strategic alliances around the world (Cvijanović, Mihailović, 2012). Therefore, it can be said that international trade represents the turnover of goods, services and rights in which the exchange is carried out between subjects of different countries and that is because the object of purchase crosses the customs line and the territory of the seller's country (export) or the buyer's country (import) and that is based on the concluded international foreign trade agreements (Gilić, Perović, 2013).

International business, i.e. trade, is dominated by the effort to introduce the principle of free movement of goods, knowledge and capital over as large a geographical area as possible. The role of international business in the market is influenced by a number of different factors such as: the socio-economic system as the basis for the economic system (market and planned), the level of development of production

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forces and the division of labor and specialization carried out, concentration in commodity and financial flows, diversification and increase in the volume of consumption, types of products and goods in circulation. The movement towards this goal is imposed by the globalization of the market, telecommunications and information, and is under strong pressure from the most developed countries of the world individually or through regional and international associations and other forms of market linking that have already been carried out (Grandov, 2009). The process of globalization is characterized by the increasing mutual conditionality and connection of the economies of individual countries, as well as their aspiration towards the creation of a single, global market (Marković, Lazić, 2008).

In the conditions of globalization, it is difficult for an individual company to remain outside the flow of international business. With the development of international business, different approaches to the internationalization of companies were also developed. The process of internationalization of companies is a frequent subject of analysis in academic literature, and it is defined as the geographical expansion of economic activities of a country (state) beyond its borders. It can also be seen as a process in which the company carries out its activities, such as e.g. strategy, resources, structure, etc., adapts to the international environment or connects with it by establishing a business relationship with subjects of other countries through integration, expansion or penetration (Ruzzier, Hirsch and Antoncic, 2006). Thus this paper aims to analyze the determinants of export performance of the small and medium-sized enterprises (SME) sector, as well as to provide insight into the interrelationship between export performance and innovation in SMEs.

## LITERATURE REVIEW

The internationalization of the company through export marketing means the internationalization of the market function of the company, and the basic characteristic of export is the transfer of products to the world market while maintaining production in the country. Export includes the development of business activities in those markets, the establishment of a marketing organization, the realization of business transactions, the transportation of goods to selected markets, the management of documentation, etc. (Đorđević, 2005). It is necessary that the strategy of appearing on international markets has as a basis methods of market selection as well as products for those markets, which are based on a system of collecting, processing and distributing information about export markets. It is also necessary that the performance strategy contains information on the structure of demand in the selected markets, which includes answers to the questions for which products need promotion in relation to their placement on a certain market, as well as to which markets the products should be exported (Vesić, 2010).

When a company selects a specific market (country) based on research and analysis, it must determine the best way to enter that market. Each market entry strategy implies a certain commitment, control, risk, but also the potential for profit (Kotler and Keller, 2006). In addition to increasing sales revenue and profit, increasing market share is considered an important goal of marketing activities in export performance. It is much easier for a company to develop with the growth of the market than to increase its participation in the existing market, especially if it does not have a favorable strategic position at the start (Milisavljević, 2010).

Rakita (2005) states that export represents the fastest, most widespread and simplest form of internationalization of a company or its entry and operation in a selected international market. One of the approaches to internationalization is the network approach, according to which internationalization is defined as the process of establishing and building relationships with partners in a horizontal and vertical chain abroad. In this way, a network of business relations is formed and developed on an



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international scale and the advantage of joint collection of relevant information is gained, and thus access to a wider base of knowledge, resources and abilities, which affects the improvement of competitiveness on international markets and the acceleration of the process of internationalization (Cavusgil, 1980).

The role and importance of international trade in the economic life of every country is great and is reflected in the following:

- in supplying the domestic economy with products that it cannot produce or does not produce in sufficient quantities to satisfy domestic consumption,
- contributes to the world division of labor, and thus to the reduction of production costs, and facilitates the movement of capital and
- increases competition and prevents the creation of monopolies and the deformation of commodity prices.

Due to the great importance of international trade for the economic development of the country, the nature of business, the riskiness and political sensitivity of any international business - this activity is subject to control in all countries and is carried out in accordance with the concept of the economic system (Grandov, 2009).

In order to develop and improve production and international trade, it is necessary to have capable entities that will be their carriers. Subjects in the international economy are divided into:

- those who directly perform production and international business – production and service companies,
- those who perform financial operations – banks, stock exchanges, investment funds and insurance organizations i
- those who determine economic conditions with a system of economic instruments – states and state administration bodies, including international institutions (Unković, 2007).

Two opposite groups of companies operate on the international market today – very large, such as multinational and transnational companies, and small and medium-sized companies. The role of transnational companies is of particular importance in international trade because they influence the volume of international trade by concentrating a large part of world production. However, this activity is not limited only to production because with their power and activity they influence not only the position of domestic companies, but can also influence the overall political and economic structure of the domestic state (Vukadinović, 2005). Despite the fact that the experiences of developed market economies show that transnational companies play a decisive role, the world market offers great opportunities and plenty of free space for successful export and other forms of international business for small and medium-sized companies (Todorović, 2007).

Both in production and in consumer goods, every society has a certain structure of needs. Needs, i.e. consumption, are met partly from domestic production and partly from imports. Also, part of domestic production is consumed in the country, and part is exported and sold to consumers in other countries. Based on the above, the conclusion is reached that "import represents a part of national consumption (work tools, raw materials, consumer goods) that is satisfied by the purchase of foreign goods", and "export represents a part of national production that is sold to foreign entities (non-residents) in with the aim of meeting certain of their needs" (Unković, 2010). Import and export represent an integral part of the relationship in the social reproduction of every country, regardless of its economic structure, level of development and the social system it develops. Exports show which products and industries have comparative advantages, while imports show which domestic industries are uncompetitive or



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insufficient to meet the needs of consumers on the domestic market. It is very important that every country has a continuous and stable export orientation and that it represents a necessary factor of development. On the other hand, it is necessary to take care not to fall into great dependence on other countries when importing. It is concluded that it is necessary to maintain a balance and to combine import and export policies well in order to contribute to growthproductivity, standard of living, employment and income (Unković, Kordić, 2015).

There is a certain relationship between the market structure and the way companies behave. The market structure, determined by the conditions of supply and demand, shapes the behavior of sellers and buyers, which affects the bottom line performance. Companies strive to find a defensive position in relation to the competition. In order for them to succeed, it is necessary to create a competitive advantage. In order for a company to operate successfully both on the domestic and international markets, it is necessary to achieve certain results on the market - sales volume, sales growth, competitive market share and strength of market position (Milojević, 2011).

In order to achieve good results on the international market, it is also relevant to establish quality relations with participants on the international market, i.e. with consumers/customers and industrial customers. It is necessary to fulfill the basic marketing goal of the company, to ensure an increase in sales and profits in the long term by satisfying the needs and wishes of consumers. The consumer should be in the center of attention because information about consumer behavior and their satisfaction is a real basis for planning the company's marketing strategies, such as product differentiation, setting up an adequate product mix, etc. (Novaković Rajčić, 2005). Before deciding to buy, the consumer gathers information about a certain product, and often about its manufacturer, and it is of great importance that the manufacturer has a positive reputation in order to leave a positive impression on the consumer, creating trust and facilitating his purchase (Salai, Jovičić, 2010). Customer satisfaction has a very large impact on retaining and attracting new customers. The cost of losing customers usually exceeds the cost of efforts to improve their satisfaction. Loyal consumers or consumers who repeat purchases represent the most profitable group of consumers, and their satisfaction is achieved with relatively small marketing efforts, which enables high profitability (Ljubojević, 2002). Therefore, special emphasis in the work is placed on consumer perception related to product quality, retention of regular and acquisition of new customers, and their satisfaction.

## STUDIES ON EXPORT PERFORMANCE

The complexity of business expansion to foreign markets, in the first stages usually through export, requires new competencies and new knowledge of employees. In addition to the numerous requirements of international business, they are also more complex organizationally. In order for companies to adequately respond to consumer demands, they need to constantly innovate their products and services. New products and services are not only the result of the technological innovation process, but also the impact of intangible resources in the company.

The innovativeness of the company was seen as a very important driver of international business back in the 60s of the last century. The impact of innovation on exporting companies has been the subject of many studies (Van Beveren, Vandebussche, 2010; Roper, Love, 2002) in which the existence of a positive relationship between innovation and export has been proven. Vapa-Tankosić, Vapa (2017) point out the actuality of the dilemma citing two generally accepted positions in the literature: innovations that stimulate exports ("self-selection" theory – Figure 1) or, on the other hand, exports stimulate innovations ("learning by exporting" theory - Figure 2).

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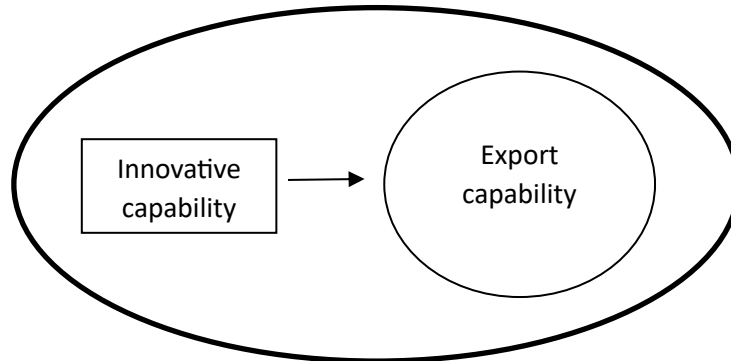


Figure 1. Graphic representation of the theory of self-selection  
*Source: Vapa-Tankosić, Vapa, 2017.*

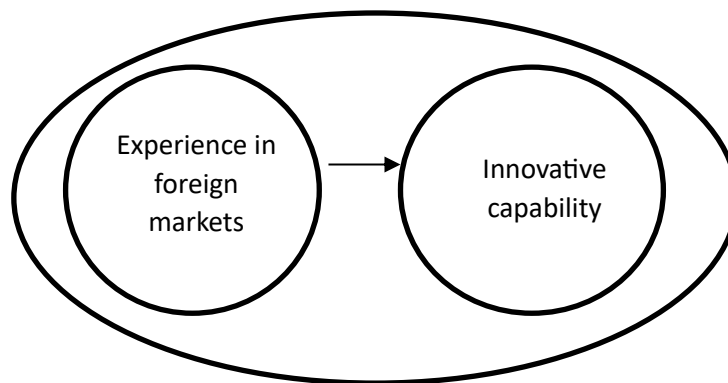


Figure 2. Graphic representation of the theory of learning by exporting  
*Source: Vapa-Tankosić and Vapa, 2017*

Certainly, learning through export, through increased interaction with partners and customers on the foreign market, contributes to increasing the competitive advantages of small and medium-sized enterprises. On the one hand, the improvement of export experience and performance on the foreign market has a direct impact on innovation. On the other hand, innovative companies have a significant export competitive advantage. Thus, in the research conducted in Serbia, the connection between export and innovation was shown. It was established that (Cerović, Mitić, Nojković, 2014):

- exporters introduce a greater number of innovations in all segments of the marketing mix compared to companies that do not export,
- exporters, compared to non-exporters, develop all categories of new products more often, starting with the improvement of new products and ending with the creation of new products for the foreign market and
- a greater number of exporters are more successful than non-exporters in introducing new products compared to direct competition.

Analyzing the types of innovations in the Republic of Serbia, it is observed that the participation of innovators is greater in manufacturing than in service companies (Kokeza, 2016). Also, the success of international



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export business, the definition and implementation of an adequate export marketing strategy dominantly depend on human resources, their knowledge, competences and abilities (Mitić, 2014).

In a study on export performance in a reduced sampling frame of 49 SMEs with the majority of firms that have answered the questionnaire were clients of Development Bank of Vojvodina in Novi Sad and Serbian ECA (AOFI, Belgrade) and classified as SMEs with up to 50 employees with a turnover less than EUR 2,5 m and balance sheet total less than EUR 1 million (Vapa Tankosić et al., 2015). After a descriptive analysis the following results were obtained.

The results from the Table 1 indicate that the exporters consider the ineffective national export promotion programmes (As=4.27), red tape in domestic public institutions (As=4.00), lack of government assistance in overcoming export barriers (As=3.98) and the existence of a strong international competition (As=3.82).

Table 1. Export Barriers values

Export Barriers	Mean
Ineffective national export promotion programmes	4.27
Red tape in Serbian public institutions	4.00
Lack of government assistance in overcoming export barriers	3.98
Strong international competition	3.82
High transportation costs	3.37
High cost of capital to finance exports	3.33
Insufficient information about overseas markets	3.18
Inadequate promotion in export markets	3.18
Inability to self-finance exports	3.04
Complexity of export documentation requirements	3.04
Lack of competitive prices	2.69
Lack of education on foreign currency exposure products	2.53
Difficulty in meeting importer's product quality standards	2.33
Lack of "experts" in export consulting	2.29
Lack of personnel qualified in exporting	2.00
Ineffective communication with overseas customers and language barriers	1.98
Poor product design and style for export markets	1.92
Poor quality in export packaging	1.90
Poor organization of firm's export department	1.84

Source: Vapa Tankosić et al., 2015

Once again, the crucial role that the government can play in the development of successful export activities, this finding gives credibility to the importance of those studies focusing on the appraisal of public policy programmes for export promotion (Kotabe, Czinkota, 1992; Seringhaus, 1986; Seringhaus, Botschen, 1991). On the other hand, the results suggest that the exporters consider their staff to be qualified for the exporting arrangements (As=2.00), to have effective communication with overseas customers with no language barriers (As=1.98), that product design and style for export markets is satisfactory (As=1.92), of proper quality in export packaging (As=1.90) and that the export department organization is absolutely satisfactory (As=1.84).



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Table 2. Export Strategy values

Export Strategy	N	Mean
Company has set export goals for export operations	49	4.02
Company has in the last three years increased the number of export products	49	3.86
Company has identifies target countries as part of the export strategy	49	3.65
Company has good resources and knowledge on gathering information and promotion on foreign markets	49	3.63

*Source: Vapa Tankosić et al., 2015*

## CONCLUSION

SME sector is of great importance for the economy of the entire country. Access to financial resources and the relationship with the financial sector as a whole is of key importance for the SME sector. For the most part, most countries in transition have accepted that SMEs are an essential part of economic reforms. The transition to a market economy has a strong connection with the development of the private sector, and especially with SMEs, which play a major role in the reform process.

The competitive advantage of SMEs on the foreign market can be contributed by the effective application of the strategy of incremental innovation, high quality of products and services, as well as focusing on specific markets (Vapa et al., 2018). The strategy of continuous incremental innovations achieves the advantage of SMEs, which is reflected in flexibility and adaptation to consumer demands in a fast and efficient manner. Continuous improvement of production through innovation ensures that these companies achieve a competitive advantage over their rivals on the market, and achieve positive business results.

An important prerequisite for the realization of this strategy is the availability of quality and trained workforce. The superior quality of products and services can to a certain extent level the price competitiveness of large enterprises based on the effects of scale. One of the most effective ways to retain consumers and ensure their loyalty is precisely the high quality of the product. Focusing companies on certain export markets is a very important strategic move that can improve their competitive advantage. Further study of the connection between innovation and export is one of the preconditions for the better positioning of SMEs on the international market.

## REFERENCES

- Cavusgil, S. T. (1980). On the internationalization process of firms. *European research*, 8(6), 273–281
- Cerović, B., Mitić, S., Nojković, A. (2014). Improving competitiveness of Serbian firms: the role of intangible capital. In: 10th Int. Conf. of ASECU: Towards Post-Crisis Prosperity: Alternative Economic Policies and Institutional Reforms in South and Eastern Europe (str. 264–294). Cluj-Napoca: Babes Bolyai University Faculty of Economics and Business Administration



## Conference Proceedings

- Cvijanović, D., Mihailović, B. (2012). Međunarodni marketing kao faktor razvoja izvozne konkurentnosti. Institut za ekonomiku poljoprivrede, Beograd.
- Đorđević, M. (2009). Uloge marketinga i proizvodnje u savladavanju krize. *Marketing*, 40(2), 83–88
- Gilić, K., Perović, V. (2013). Spoljna trgovina kao element unapređenja konkurentnosti privrede. *Zbornik radova Fakulteta tehničkih nauka*, 28(6), 1000–1003
- Grandov, Z. (2009). Međunarodna ekonomija i globalizacija. Beogradsko trgovačko društvo, Beograd.
- Kokeza, G. (2016). Uloga inovacija menadžmenta u inovativnoj i kreativnoj ekonomiji. *Ekonomski vidici*, 21(2–3), 145–157
- Kotabe, M., Czinkota, M.R. (1992). State government promotion of manufacturing exports: gap analysis. *Journal of International Business Studies*, 23(4), 637–658.
- Kotler, P., Keler, K. L. (2006). *Marketing menadžment*. Datastatus, Beograd.
- Ljubojević, Č. (2002). *Marketing usluga: put ka potpunoj satisfakciji potrošača*. Stylos, Novi Sad.
- Marković, S., Lazić, B. (2008). Transnacionalne kompanije u globalnom ekonomskom svetu. *Ekonomika*, 54(3–4), 69–81
- Milislavljević, M. (2010). *Strategijski marketing*. Ekonomski fakultet, Beograd.
- Milojević, S. (2011). Tehnike za rano otkrivanje signala latentne krize preduzeća. *Škola biznisa*, (1), 123–137.
- Mitić, S. (2014). *Upravljanje izvozom: nematerijalni i marketinški aspekti konkurentnosti*. Ekonomski fakultet, Centar za izdavačku delatnost, Beograd.
- Novaković Rajčić, B. (2005). *Ponašanje potrošača*. Evropski univerzitet, Beograd.
- Roper S., Love, JH. (2002) Innovation and export performance: evidence from the UK and German manufacturing plants. *Research policy*, 31(7), 1087–1102.
- Ruzzier, M., Hirsch, D. R., Antoncic, B. (2006). SME internationalization research: past, present, future. *Journal of Small Business and Enterprise Development*, 13(4), 476–497
- Salai, S., Jovičić, D. (2010). *Tržišno komuniciranje: integrisano marketing komuniciranje*. Visoka poslovna škola strukovnih studija, Novi Sad.
- Seringhaus, F.H. R. (1986). The impact of government export marketing assistance, *International Marketing Review*, 3(2), 55–65.
- Seringhaus, F.H.R., Botschen, G. (1991). Cross-national comparison of export promotion services: the views of Canadian and Austrian companies. *Journal of International Business Studies*, First Quarter, 115–133.
- Todorović, L. V. (2007). Mala i srednja preduzeća i njihov uticaj na izvoz. *Ekonomika*, 2(7–8), 75–84.
- Unković, M. (2010). *Međunarodna ekonomija 5. izd.*. Univerzitet Singidunum, Beograd.
- Unković, M., Kordić, N. (2015). *Međunarodna ekonomija (2. izd)*. Univerzitet Singidunum, Beograd.
- Van Beveren, I., Vandenbussche, H. (2010). Product and process innovation and firms' decision to export. *Journal of Economic Policy Reform*, 13(1), 3–24.



## Conference Proceedings

Vapa–Tankosić, J., Ignjatijević, S., Gardašević, J. (2015). Analysis of export performance factors of enterprises from the Republic of Serbia in the process of European integration. *Teme*, 39(4), 1257-1276.

Vapa, Tankosić J., Vapa, B. (2017) The effect of product development and innovation on SMEs export performance. *Thematic Proceedings (Conference) Innovation, ICT and Education for the next generation*, Faculty of Economics and Engineering Management, Novi Sad, pp.154-171.

Vapa, B., Vapa Tankosić, J., Carić M. (2018) Determinante povezanosti inovativnosti i izvoza malih i srednjih preduzeća. *Thematic Proceedings (Conference) Innovation, ICT and Education for the next generation*, Novi Sad: Faculty of Economics and Engineering Management, pp.71-85.

Vesić, D. (2010). Uticaj globalizacije poslovanja na privredni sistem Srbije. *Međunarodni problemi*, 62(1), 136–164

Vukadinović, R. D. (2005). *Međunarodno poslovno pravo: opšti deo*. Centar za pravo Evropske unije Pravnog fakulteta u Kragujevcu, Kragujevac.





## Conference Proceedings

# EMPLOYEE MOTIVATION AND THE ROLE OF MANAGERS: A CASE STUDY OF A CROATIAN FINANCIAL CONSULTING COMPANY

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DOI: 10.5937/EEE24028P  
JEL: A10, A14, B10, D23, D63, D83, M5  
Review Scientific Paper

## ABSTRACT

*Advancements in technology and the challenges of economic science bring significant changes to the business environment. In this context, human resources play a crucial role in ensuring the competitiveness of a company. People management and resource development have become central topics, with a particular emphasis on various motivational theories that explain and encourage employee motivation from different professional perspectives. Motivation is a key element in promoting creativity, innovation, professional development, and employee retention within an organization. Therefore, employee motivation has become one of the most important tasks for managers, as it directly influences the success and competitive advantage of the company. Motivation is a complex process influenced by numerous factors, which is why managers must have a good understanding of their employees and various motivational theories to apply them effectively. A quality motivational system is essential for achieving organizational goals, with a satisfied and motivated employee becoming the driving force of the organization. Successful application of motivational theories ensures employee satisfaction and successful task performance, leading to the overall success of the organization.*

## KEYWORDS

*motivation, motivational theories, employees, organization, success, satisfaction, managers*

## INTRODUCTION

The business environment is undergoing numerous changes due to technological advancements and the significant challenges faced by economic science. The adaptability, progress, and growth of a company, as well as its creativity in tackling these challenges, heavily depend on the qualifications, capabilities, and commitments of its employees, highlighting the need for their active involvement in the business. Human resources, specifically employees, represent the most crucial resource for any company and must be invested in to achieve increased business performance (Jambrek, Penić, 2008).

Motivating employees is one of the key tasks of management, as motivated and satisfied employees are essential for achieving desired results and organizational goals. Despite numerous studies on this topic,

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it remains challenging to pinpoint exactly what motivates employees, primarily because motivation is defined as an internal feeling that varies from one individual to another (Brnad, Stilin, Tomljenović, 2016).

Motivation can be described as a process involving a series of interconnected reactions such as needs, desires, tensions, actions, and satisfactions. Numerous theories address the issue of motivation, aiming to answer questions such as: what is motivation, how to motivate people to better achieve goals, and how to enhance work performance (Bahtijarević Šiber, 1999). Despite extensive research and theories on motivation, it is difficult to definitively determine what motivates employees. This difficulty arises because motivation is defined as an internal feeling, making it immeasurable and unique to each individual. Therefore, different factors motivate different employees, often requiring various combinations of multiple elements to achieve satisfactory results (Brnad, Stilin, Tomljenović, 2016).

Satisfaction and motivation are closely related concepts. While motivation primarily refers to the desire and effort to fulfil wishes or goals, satisfaction pertains to the fulfilment felt when these desires are met. Motivation focuses on the desire for results, while satisfaction represents the consequence of achieving those results (Brnad, Stilin, Tomljenović, 2016). Satisfaction can also be explained as an individual's mental attitude toward their work environment and other factors such as family, health, and love, as these aspects also influence an individual's work and performance (Marušić, 2006).

If employees are satisfied, their satisfaction will impact the results achieved by the organization. According to a study conducted by Rutherford in 2009, key elements for achieving satisfaction include: satisfaction with the supervisor, job description, company policy, advancement opportunities, material conditions, interpersonal relationships, and customer satisfaction (Brnad, Stilin, Tomljenović, 2016). Motivation may mean different things to different individuals, as everyone reacts differently to the same situation. Management's task is to discover what motivates employees to guide them appropriately, ensuring they perform their tasks as effectively as possible. Management plays a crucial role in motivating employees; however, it is also important for employees to have a certain level of self-motivation.

## EMPLOYEE MOTIVATION AND THEORIES OF MOTIVATION

Employee motivation represents one of the most important factors in human resource management. In the narrowest sense, motivation can be explained as encouraging an individual to achieve the goals of the company and personal goals, which are intertwined, and the achievement or realization of one can influence the achievement of the other – Figure 1.



Figure 1. The process of motivation  
*Source: Bahtijarević–Šiber, 1999.*



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"The motives and motivation of employees are a psychological category that, from the very beginning of the affirmation of management as a theory and practice, profession and science, has become indispensable and as such an essential tool for human resource management" (Gutić, Martinčić Gutić, 2018) .

The motives that drive an individual can be intrinsic, coming from within the person, or extrinsic, coming from the environment. Intrinsic motives relate to desires such as the desire for achievement or the desire for a sense of satisfaction and are relatively stable, thus resulting in fewer negative outcomes. Extrinsic motives relate to success, rewards, money, and similar factors, and are short-term, which can lead to undesirable side effects. It can be concluded that people are motivated if certain actions lead to the achievement of a goal or a reward that will satisfy their needs. For this reason, it is important for organizations to provide a work environment where high levels of employee motivation can be achieved through various initiatives, rewards, and opportunities for learning and skill development. The manager plays a key role in this within the organization.

"Employee motivation and satisfaction have become the foundation of interest in contemporary human resources management because only by building a quality motivational system can the desired competitive advantage and overall value be achieved. Motivated people will invest more effort in their work than those who are not motivated. Improvements in productivity, efficiency, creativity, and the quality of work life will be achieved through motivation" (Bahtijarević-Šiber, 1999). To achieve the best possible employee efficiency, managers need to combine material and moral forms of stimulation to achieve full employee engagement. This will reflect on the efficiency, economy, and rationality of employees.

"The fundamental task of human resource management, after finding the right people, is to make them capable of working together successfully, dealing effectively with the problems they face, and ensuring their strengths are effective while their weaknesses are insignificant. A capable person should not be made to feel weak or insecure, as weakness and insecurity are a constant source of dissatisfaction and a direct threat to both the employees and the organization itself" (Jambrek, Penić, 2008). Managers must use motivators that will lead people to work successfully and create an environment that stimulates certain drives in people that they can utilize in their work. For example, an employee who has built a reputation for high quality and a good name in their work will be motivated by incentives aimed at further contributing to that reputation.

Considering the above, it is important to understand compensation. "Compensations are the total rewards that workers receive for their work in the company, linked to work results, and some are related to the mere belonging to the company. They consist of salary, salary compensation, and profit sharing" (Buble 2006). Material compensations can be direct and indirect. Direct compensations represent the system of salaries and other material financial gains related to work and constitute direct rewards for work. "Indirect material compensations are benefits that contribute to the material status but not in the form of money. These are benefits arising from work, not distributed based on performance, but received by an individual through employment with a particular company" (Bahtijarević-Šiber, 1999). Non-material compensations increase employee motivation by satisfying their needs that are not related to money. The more needs a person can satisfy, the higher their motivation for work will be. Therefore, it is crucial for management to accept workforce diversity and develop the ability to recognize the capabilities of their employees.

Numerous theories aim to define and analyze motivation and explain how it functions in individuals. These theories can be categorized into three types: content theories, process theories, and contemporary theories. Content theories, also known as need theories, propose that individuals have certain needs that drive their behavior. Among the most significant content theories are:

- Maslow's Hierarchy of Needs Theory,



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- Alderfer's Three-Stage Hierarchy Theory,
- the Achievement Motivation Theory,
- the Two-Factor Theory of Motivation, and
- the Role Motivation Theory.

Maslow's Hierarchy of Needs Theory, introduced by Abraham Maslow in the 1950s, suggests that individuals have five general needs arranged in a hierarchical pyramid: physiological needs, safety needs, belongingness and love needs, esteem needs, and self-actualization needs. Each need is dependent on the satisfaction of the previous one. Alderfer's Three-Stage Hierarchy Theory modifies Maslow's theory, dividing needs into existence, relatedness, and growth and development needs. The Achievement Motivation Theory, primarily focused on work motivation, identifies the need for achievement as a driving force, emphasizing the desire for success and the avoidance of failure. The Two-Factor Theory of Motivation, developed by Frederick Herzberg, distinguishes between hygiene factors (extrinsic) and motivator factors (intrinsic), suggesting that while hygiene factors prevent dissatisfaction, motivator factors lead to job satisfaction.

The Role Motivation Theory, proposed by John Miner, highlights different motivational structures for different organizational roles, such as managerial, professional, and entrepreneurial, underlining the importance of understanding the motives of key employees. Process theories of motivation focus on factors such as perception, expectations, and values, suggesting that people's needs alone are not sufficient to explain motivation. Significant process theories include:

- Vroom's cognitive model of motivation,
- Porter-Lawler's expectancy model,
- Lawler's expectancy model, and
- Adams' equity theory.

Vroom's cognitive model of motivation emphasizes individuals' choices between alternative behaviors based on their assessment of potential outcomes, introducing concepts such as valence, expectancy, and instrumentality. Porter-Lawler's expectancy model expands on Vroom's model, considering additional factors such as individual abilities, role perceptions, and satisfaction. Lawler's expectancy model further refines the concept of expectancy, considering factors such as objective situations, individual perceptions, and the attractiveness of expected outcomes. Adams' equity theory examines the relationship between individuals and organizations as an exchange relationship, exploring the conditions and consequences of perceived injustice and inequality in the workplace.

Contemporary theories of motivation include:

- McClelland's need theory,
- cognitive evaluation theory,
- goal-setting theory,
- self-efficacy theory,
- support theory,
- equity theory, and
- expectancy theory.



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McClelland's need theory expands on the achievement motivation theory, focusing on the needs for achievement, power, and affiliation. Cognitive evaluation theory explains the impact of extrinsic motivation on intrinsic motivation, suggesting that introducing external rewards can decrease intrinsic motivation. Goal-setting theory emphasizes the importance of specific goals and feedback in enhancing task performance and individual commitment. Self-efficacy theory highlights the role of an individual's confidence in their ability to perform a task, identifying mastery experiences, vicarious experiences, verbal persuasion, and arousal as key factors influencing self-efficacy. Support theory focuses on environmental events following an individual's activity, suggesting that behavior is solely influenced by the environment. Equity theory suggests that employees compare their inputs and outcomes with those of others, seeking fairness in the distribution of organizational rewards. Expectancy theory, developed by Victor Vroom, emphasizes that an individual's effort depends on their belief that it will lead to desired outcomes and the attractiveness of those outcomes. These theories provide valuable insights into the complex nature of motivation, offering frameworks for understanding and enhancing individual and organizational performance.

## RESEARCH AND THE RESULTS

The company Sintel Ltd. was founded in 2011, headquartered in Slavonski Brod, Republic of Croatia. Its business focuses on auditing, accounting services, and financial consulting, fulfilling legal obligations regarding bookkeeping and improving economic processes, and providing information to clients' managements to enable timely decision-making. The company has offices in three locations (Slavonski Brod, Osijek, and Vinkovci) and is a leader in this industry in the Slavonia region. The company's clients are legal entities engaged in various activities including services, production, and retail. The organizational structure of the company consists of departments: management, audit and forensic accounting department, accounting department, legal department, and marketing and sales department. The company employs 22 employees, with a tendency for growth in the last two years.

For the purpose of a professional-scientific study, an empirical research was conducted to collect necessary data on the attitudes of employees in the company regarding the impact of motivation on employee satisfaction. The research is conducted in two phases: in the first phase by a quantitative method, i.e., a questionnaire, and then qualitatively by interviews in the second phase.

The questionnaire is anonymous, covering all 22 employees, and was conducted from February 1st to 9th, 2023. The questionnaire about motivation factors and their importance to employees consists of 16 questions, to which employees could respond with ratings from 1 to 5, with the following response options: 1 – does not motivate me, 2 – slightly motivates me, 3 – moderately motivates me, 4 – fairly motivates me, and 5 – strongly motivates me.

The interview involves one managerial person in the company and consists of nine questions with necessary sub-questions, conducted in June 2024, obtained in written form as Appendix 2. Appendix 1 displays the questionnaire. Employees were asked the following statements within the questionnaire: comfortable and modern office equipment, salary level, job security, good relationships with superiors, good relationships with colleagues, stimulation with monthly salary, encouragement and praise from superiors, interesting and creative work, demanding job responsibility, autonomy at work, co-decision-making at the company level, opportunity for advancement, achievement of company goals, opportunity for education or advancement, and achievement of personal goals.

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After analyzing the questions posed, the following responses were obtained, from which conclusions regarding employee motivation in the surveyed company can be drawn. On the question regarding comfortable and modern office equipment, 5% of respondents answered that it does not motivate them, 9% that it slightly motivates them, 23% that it moderately motivates them. Equal percentages were for the statements it fairly motivates them and strongly motivates them, 32%.

Table 1. Responses to Questions from the Questionnaire

	Comfortable and modern office equipment	Salary level	Job security
1	5%	5%	0%
2	9%	0%	0%
3	32%	27%	14%
4	32%	59%	32%
5	32%	9%	55%

*Source: Authors*

From table 1, it is evident that employees are fairly motivated by salary at 59%. However, it is also noticeable that more than salary, job security motivates them, as the highest number of responses indicated that it fairly or strongly motivates them, a total of 85%.

Table 2. Answers II to the questionnaire questions

	Incentive with monthly salary	Good relationships with superiors	Good relationships with colleagues
1	5%	0%	0%
2	1%	5%	5%
3	32%	18%	0%
4	36%	14%	32%
5	27%	64%	64%

*Source: Authors*

From table 2, it is evident that incentive with monthly salary moderately motivates employees, unlike good relationships with superiors, where 78% of employees responded that it fairly or strongly motivates them, or in good relationships with colleagues, which fairly or strongly motivates 86% of them. Good relationships with colleagues are more motivating for them than good relationships with superiors.

Table 3. Answers III to the questionnaire questions

	Challenging job	Encouragement and praise from superiors	Interesting and creative work
1	0%	0%	0%
2	0%	0%	0%
3	18%	9%	18%
4	32%	36%	32%
5	50%	55%	50%

*Source: Authors*



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From table 3, it is evident that job demand is a quite important aspect in the workplace for employees, which can also be associated with the responses for interesting and creative work, where the majority of respondents answered that it fairly or strongly motivates them. Encouragement and praise from superiors are of significant importance, with 91% of them indicating that it fairly or strongly motivates them.

Table 4. Answers IV to the questionnaire questions

	Job responsibility	Autonomy at work	Participation in company-level decision-making
1	0%	0%	0%
2	0%	0%	0%
3	27%	18%	41%
4	36%	41%	32%
5	36%	41%	27%

*Source: Authors*

From table 4, it is evident that employees are slightly less motivated by co-decision-making at the company level, where 41% of them responded with a rating of 3, indicating motivation. Autonomy in the workplace motivates them fairly or strongly, with 41% of responses each. Job responsibility motivates them slightly less than the previous statements, with 27% responding that it motivates them, while all others responded that it fairly or strongly motivates them. It is interesting to note that none of the respondents provided a rating of 1 or 2 for this group of questions, indicating that it does not motivate them or only slightly motivates them.

Table 5. Answers V to the questionnaire questions

	Opportunity for advancement	Achievement of company goals	Opportunity for education/training	Achievement of personal goals
1	0%	0%	0%	0%
2	5%	0%	0%	0%
3	5%	14%	9%	18%
4	36%	45%	45%	59%
5	55%	41%	45%	23%

*Source: Authors*

Table 5 provides results related to the possibility of advancement, achieving company goals, the opportunity for education or training in the workplace, and achieving personal goals. From the given responses, it can be seen that employees find the possibility of advancement in the workplace equally motivating, at 91%, as well as achieving personal goals, at 92%, which fairly or strongly motivates them. Additionally, the opportunity for education motivates them fairly or strongly, with 90% of them responding positively. It is evident that none of these offered workplace motivators were responded to by employees as not motivating them at all, nor did they respond that they were only slightly motivating. Only 5% of them mentioned that the possibility of advancement only slightly motivates them. Considering the provided responses, it can be concluded that employees are motivated in their



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workplaces, and that job security, praise from superiors, good relationships with colleagues, and the opportunity for advancement are the most motivating factors for them.

### **THE ROLE OF MANAGERS IN EMPLOYEE MOTIVATION**

Employee motivation represents a key factor in the success of any organization. Throughout history, managers have been recognized as key players in maintaining a high level of motivation among team members. Employee motivation directly impacts their productivity, engagement, and job satisfaction, all of which contribute to the organization's success. Research shows that motivated employees tend to achieve more, be more innovative, and demonstrate greater loyalty to the organization (Deci, Ryan, 2000; Amabile, 1996). Employee motivation is not just mere encouragement to perform tasks but a complex process involving psychological, social, and organizational factors. Accordingly, managers play a crucial role in understanding the needs and desires of their subordinates and in creating an environment that fosters their motivation, engagement, and commitment to the job.

Throughout history, managers have played a crucial role in employee motivation. Starting from the industrial revolution, when Frederick Taylor and Henri Fayol laid the foundation for modern management, the emphasis was on efficiency and productivity through employee motivation. Taylor introduced the principles of scientific management, where the focus was on optimizing work through precisely defined tasks and incentives for workers. On the other hand, Fayol emphasized the importance of managerial functions such as planning, organizing, leading, and controlling, which are key components in employee motivation. Since the late 1970s, the concept of transformational leadership, developed by James MacGregor Burns (1978) and later expanded by Bernard Bass (1985), emphasizes the role of managers as inspirational leaders who motivate employees through vision, charisma, intellectual stimulation, and individualized attention. This approach has been proven effective in various contexts, including corporate, educational, and non-profit organizations.

In this paper, we explore how managers, especially at Sintel company, use various strategies and methods to maintain a high level of motivation among their team members. A conducted interview in June 2024 with a managerial figure at Sintel provides a detailed insight into the approaches used by the company to motivate its employees, ensure their productivity, and maintain a high level of engagement. The aim of this research is to analyze specific methods that Sintel uses for employee motivation and to identify key factors contributing to their effectiveness. The research method includes a semi-structured interview with the director of Sintel, designed to gain a deeper understanding of the strategies and practices the company employs to motivate its employees. According to motivation theories, managers play a crucial role in motivating employees by recognizing their needs and desires and creating an environment that fosters their engagement and dedication to the job. At Sintel, managers regularly analyze what motivates their employees to ignite a desire for work and achieving high results.

The managerial figure at Sintel emphasizes the importance of continuous participation in workshops and seminars to further strengthen their skills and competencies in the field of people management. These educations include:

- sales manager coaching,
- transactional analysis psychotherapy,
- organizational transactional analysis, and
- HR management.





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**Strategies and methods for motivating teams** – To ensure better efficiency and motivation of teams, Sintel involves team members in the process of setting short-term and long-term goals. This way, the belonging of each individual to the team is ensured and defined. Simple and concrete motivational models that Sintel uses have proven to be very effective.

**Communication of goals and vision** – Regular weekly meetings and internal monthly seminars serve as platforms for exchanging information and adopting a culture of feedback. This practice is crucial for the success of employees, their motivation, productivity, and the growth and development of Sintel. Sintel ensures that employees understand the company's goals and vision through regular communication channels.

**Monitoring and improving motivation** – Sintel uses anonymous annual surveys to track employee satisfaction. Employees respond to questions on a Likert scale (from 1 to 5) and have the opportunity to express their opinion on what would contribute to their motivation and better working atmosphere.

**Concrete motivation initiatives** – One of the successful employee motivation programs is the introduction of a free Friday each month for each employee, which has led to increased productivity and efficiency. This program rewards successfully completed weekly goals and monthly tasks, leading to improvements in work processes and employee motivation.

**Dealing with demotivation and decreased productivity** – To cope with demotivation or decreased productivity, managers at Sintel use an individual approach to each employee, using Maslow's hierarchy of needs. By recognizing the needs of employees, managers can proactively address the possibility of demotivation and further highlight the security and respect employees enjoy within the company. For example, Sintel has introduced one free Friday per month for each employee as a reward for successfully completed weekly goals and monthly tasks, leading to increased motivation and productivity. This allows for the recognition and proactive handling of potential individual demotivation. Engagement and productivity monitoring is conducted through regular evaluations and individual discussions with employees.

**Employee professional development** – Encouraging employee professional development is also a key motivation factor. Sintel pays for employees' education, seminars, tuition, and training, thereby increasing not only employee competencies but also their motivation for work.

**Rewarding success** – Sintel uses a strategy of both material and non-material rewards. In addition to the thirteenth salary and occasional joint lunches, the company rewards employees through gifts for birthdays, International Women's Day, Christmas presents, and team-building activities. Employee performance is measured through concrete numbers, and the results are used for rewarding and setting an example within the team.

The interview with the director of Sintel provided a detailed insight into the employee motivation strategies and practices used by this company. It is concluded that effective methods include: setting clear goals, providing support, promoting teamwork, maintaining fairness and transparency, and providing regular feedback. One of the key ways in which managers influence employee motivation is by setting clear goals and expectations. When organizational goals are transparent, and when employees clearly understand how their work contributes to those goals, they feel motivated to invest additional effort and energy into achieving those goals. At Sintel, managers ensure that employees understand the company's goals and vision through regular weekly meetings and internal monthly seminars. This practice allows for the exchange of information and the adoption of a feedback culture crucial for motivation and productivity.

Managers also play a role in providing support to employees by ensuring they have the necessary resources, tools, and training to perform their jobs successfully. When employees feel they have the support of their superiors, they feel valued and motivated to achieve their goals. For example, Sintel



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conducts annual anonymous surveys among employees to collect feedback and understand what would further contribute to their motivation and a better working atmosphere. Based on this feedback, managers can adjust their approaches and ensure necessary resources. In creating a motivating work environment, managers also have the task of promoting positive interpersonal relationships, teamwork, and open communication. When employees feel that their ideas and opinions are valued and that they have the opportunity to grow and develop within the organization, their motivation is higher, and their job engagement is stronger. Sintel nurtures a culture of feedback and teamwork through regular meetings and seminars, which further encourages employee motivation and productivity.

Furthermore, managers play a crucial role in maintaining fairness and transparency within the organization. When employees perceive that they are rewarded and recognized based on their contributions, they feel motivated to continue providing a high level of performance. Sintel uses a strategy of both material and non-material rewards, including the thirteenth salary, occasional joint lunches, birthday and International Women's Day gifts, and annual team-building activities. Moreover, managers are tasked with providing regular feedback to employees and recognizing them for a job well done. Regular feedback and recognition of achievements are crucial for employee motivation, encouraging them to remain engaged and motivated to achieve excellence. Sintel uses feedback through weekly meetings and monthly seminars to ensure that employees are informed about their performance and opportunities for improvement.

Research has shown that highly motivated employees have higher productivity. For example, a study conducted by Deci and Ryan (1985) on the self-determination theory showed that internal motivation, which is fostered through a sense of autonomy, competence, and relatedness, significantly increases employee engagement and performance. Motivated employees are more prone to creative thinking and innovation. Amabile (1996) emphasized in her theory of creativity components that internal motivation plays a crucial role in the creative process. Companies with highly motivated teams often achieve a higher number of innovations and adaptations to the market. Employee motivation is also associated with a higher level of job satisfaction, which reduces the employee turnover rate and increases loyalty to the organization. A Gallup study (2017) showed that companies with highly engaged employees have a 21% higher profitability and 17% higher productivity.

## CONCLUSION

The most important resource of any company is its employees. Investing in human potential is crucial today, and managers are faced with the challenge because each person is an individual, and different things motivate each person. Motivation for each employee represents something different and greatly influences their job satisfaction. Motivation is achieved through a chain of reactions such as needs, desires, tension, action, and satisfaction. Satisfaction and motivation are closely related concepts. While motivation relates to the desire and effort to satisfy wishes or goals, satisfaction relates to the fulfilment we feel from meeting those desires. Motivation is aimed at achieving results, while satisfaction represents the consequence of achieved results.

The motives that drive an individual can be intrinsic, coming from within, or extrinsic, coming from the environment. Intrinsic motives, such as the desire for success or the feeling of satisfaction, are relatively stable and result in fewer negative outcomes. Extrinsic motives, such as success, rewards, and money, are short-term and can have unwanted side effects. We conclude that people are motivated if certain actions lead to the achievement of a goal or reward that satisfies their needs. Motivating employees is one of the key tasks of management because motivated and satisfied employees are the foundation for achieving desired results and organizational goals. The role of managers in employee motivation is



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complex and multifaceted. By setting clear goals, providing support, promoting positive interpersonal relationships, maintaining fairness and transparency, and providing regular feedback and recognition, managers can significantly influence employee motivation and productivity. Examples from Sintel show how effective strategies can be applied in practice, ensuring a high level of engagement and success within the organization.

## REFERENCES

- Adams, J. S. (1963). Toward an Understanding of Inequity. *Journal of Abnormal and Social Psychology*, 67(5), 422-436.
- Amabile, T. M. (1996). *Creativity in Context: Update to the Social Psychology of Creativity*. Westview Press, Boulder.
- Bahtijarević–Šiber, F. (1999)1. *Human Resource Management*. Golden marketing, Zagreb.
- Bakotić, D. (2009). *Interdependence of Employee Job Satisfaction, Knowledge, and Organizational Performance*. PhD dissertation, University of Split, Faculty of Economics.
- Brnad, A., Stilin, A., Tomljenović, Lj. (2016). *Research on Employee Motivation and Satisfaction in the Republic of Croatia*. Rijeka: Proceedings of the Polytechnic of Rijeka.
- Buble, M. (2006). *Fundamentals of Management*. Synergy, Zagreb.
- Certo, S., Certo, T. (2008). *Modern Management*. Zagreb School of Economics and Management, Zagreb.
- Deci, E. L., Ryan, R. M. (2000). The "What" and "Why" of Goal Pursuits: Human Needs and the Self-Determination of Behavior. *Psychological Inquiry*, 11(4), 227-268.
- Gallup (2013). *State of the American Workplace: Employee Engagement Insights for U.S. Business Leaders*. Available at: [https://www.itagroup.com/insights/employee-experience/revitalizing-your-employee-recognition-experience?utm\\_source=paid-search&utm\\_medium=google-ad&utm\\_campaign=ga-ex&utm\\_content=recognition-program-improvement-revitalizing-your-employee-recognition-experience-wp&gad\\_source=1&gclid=EAIaIQobChMI2uaQjbbMiQMvtqWDBx0XeBimEAAYAAEgK8R\\_D\\_BwE](https://www.itagroup.com/insights/employee-experience/revitalizing-your-employee-recognition-experience?utm_source=paid-search&utm_medium=google-ad&utm_campaign=ga-ex&utm_content=recognition-program-improvement-revitalizing-your-employee-recognition-experience-wp&gad_source=1&gclid=EAIaIQobChMI2uaQjbbMiQMvtqWDBx0XeBimEAAYAAEgK8R_D_BwE). Accessed 25.05.2024.
- Gutić, D., Gutić Martinčić, S. (2018). *Organizational Behavior*. Intergrafika TTŽ, Zagreb.
- Herzberg, F. (1968). One More Time: How Do You Motivate Employees? *Harvard Business Review*, 46(1), 53-62.
- House, J. S. (1981). *Work Stress and Social Support*. Addison-Wesley, Reading.
- Jambrek, I., Penić, I. (2008). *Human Resource Management in Companies - Human Factor, Employee Motivation as the Most Important Factors of Business Success*. Rijeka: Proceedings of the Faculty of Law in Rijeka.
- Locke, E. A., Latham, G. P. (2002). Building a Practically Useful Theory of Goal Setting and Task Motivation: A 35-Year Odyssey. *American Psychologist*, 57(9), 705-717.
- Maslow, A. H. (1943). *A Theory of Human Motivation*. *Psychological Review*, 50(4), 370-396.
- Mayo, E. (1933). *The Human Problems of an Industrial Civilization*. Macmillan, New York.



## Conference Proceedings

McGregor, D. (1960). *The Human Side of Enterprise*. McGraw-Hill, New York.

McKinsey (2009). *Motivating people: Getting beyond money*. Available at: <https://www.mckinsey.com/capabilities/people-and-organizational-performance/our-insights/motivating-people-getting-beyond-money>. Accessed 25.05.2024.

Robinson, S., Judge, T. (2006). *Organizational Behavior*. Zagreb School of Economics and Management, Zagreb..

Sikavica, P., Baktijarević-Šiber, F., Pološki Vokić, N. (2008). *Fundamentals of Management*. Školska knjiga, Zagreb.

Skinner, B. F. (1953). *Science and Human Behavior*. Macmillan, New York.

Vroom, V. H. (1964). *Work and Motivation*. John Wiley & Sons, New York.



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## WOMEN'S EMPOWERMENT THROUGH AGRICULTURAL ENTREPRENEURSHIP: THE CASE IN MYMENSINGH DISTRICT

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DOI: 10.5937/EEE24029K  
JEL: L26, O13  
Review Scientific Paper

### ABSTRACT

*This study attempts to investigate by using both quantitative and qualitative research tools to examine the extent of women's technology adoption in agriculture and their consequent empowerment attainment in selected villages of Mymensingh Sadar. To achieve the objectives of the present study, necessary data were collected from two selected in Mymensingh district by using a simple random sampling technique, the study selected a total of 60 women respondents. The quantitative analytical tools employed to attain the specific objectives included various descriptive statistical measures, perception index and women empowerment index by adoption technology. The results of the perception index analysis indicated that the majority had moderate to high favorable perception of the greater extent of women's engagement in the adoption of agricultural technology among which may have low to moderate favorable perception of consequent empowerment attainment. The findings show that almost in all cases, the decision was taken jointly by males and females. It is a very satisfactory case that the decision is taken by a female alone, particularly in the cases of purchase of agricultural equipment, maintenance of agricultural equipment, motivation to use agricultural technologies, and selling of old machinery. The value of the average women empowerment score is 1.81, which is below the average empowerment score of 2. The WEI as presented in the study clearly describes that women are less empowered since the WEI scores are less than the average level. The overall women empowerment status was unsatisfactory in the study areas, where there is huge scope to work. Various problems such as insufficient capital, lack of profit, inadequate training facilities, lack of adequate farm machinery etc. issues are faced by the respondents in those areas.*

### KEYWORDS

*agriculture, entrepreneurship, women empowerment*

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### BACKGROUND OF THE STUDY

World Economic Forum placed Bangladesh in the first spot consecutively for the second time. The Womenfolk in Bangladesh now is playing the role of catalyst in development efforts (WEF, 2017).

Globalization has boosted women's engagement in the workforce, particularly in the service sector, across the world and in Bangladesh in particular. Women make up 49.42 percent of Bangladesh's population, and nearly 71.18 percent of them are literate (World Bank, 2019).

Agricultural technology, based on indigenous knowledge, traditional farming practices and local value systems, which has been accumulating over generations and over the years should also be considered. Technologies and techniques used by farmers, including a source of their leadership as well as methods of the most appropriate way of farming, are also included (Roy *et al.*, 2017). Moreover, the availability of information is an important resource for women with the potential to empower them in terms of new attitudes (Seymour *et al.*, 2016).

Bangladesh is a developing country positioned in the South Asian region. Without active participation of women in the mainstream of the economy, gender discrimination cannot be reduced. Women can be involved in business activities of entrepreneurship where they can contribute directly to their families and the economy. Among total Women entrepreneurs, it is rise to 36 % in 2019 from 32% in 2017 (Prothom Alo, 2019).

Agricultural technologies have direct and indirect impacts on women's access to income, including technologies, improving their quality of life through the increase in production and productivity (Radović Marković, 2019). The main challenges women face in accessing and adopting agricultural technologies include socio-economic constraints, limited information, knowledge and skills, beliefs about gender roles, time constraints, etc. (Rola-Rubzen, M.F.,2020) Different preferences for technologies stemming from different tasks and responsibilities also greatly affect the process of the adoption of technology (Huyer, S. 2016).

In Bangladesh, being a traditional Muslim society, women harshly participate in agricultural activities outside the home (Mortuza *et al.* 2004). Women's agricultural activities were traditionally connected to homestead production and post-harvest operations. Bangladesh considers women's participation a vital issue in the path of women's empowerment and one of the main drivers of transforming the country's status from low-income to middle-income.

Hafiza *et al.* (2015) indicated that in Bangladesh, women are generally less able than men to participate in economic opportunities because they face a work burden that men do not. To develop appropriate policies for the relevant target groups. Rural women will benefit not only in the research area but also in those areas in Bangladesh where similar problems exist. This project would also help initiate collaborative research programs with regional and international organizations in the proposed field of national interest.

To carry out the current status of rural women to enhance their empowerment status and role at the household level, this study has analyzed the impact of agricultural entrepreneurship on the empowerment of rural women in the Mymensingh district.

The following specific objectives.

1. To explore the perception of the respondents on women's empowerment attainment in small entrepreneurship in agriculture.

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2. To analyze women's empowerment through agricultural entrepreneurship.
3. To suggest strategic policy recommendations for the empowerment of women.

## RESEARCH METHODS AND TECHNIQUES

### Selection of the study area

To achieve the objectives of the present study, necessary data were collected from two selected villages namely Borar Char and Char Kalibari under Sadar upazila of Mymensingh district. A map of Sadar Upazila under Mynensingh district showing the study area has been presented in Figure 1.

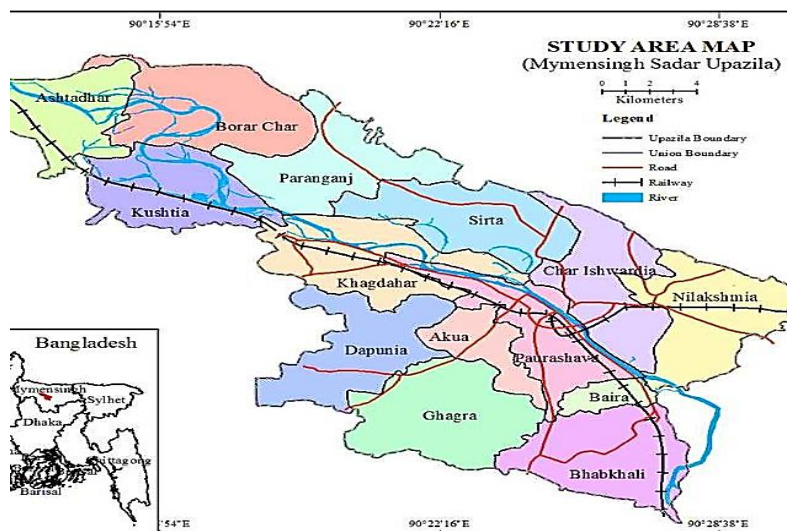


Figure 1. Map of Mymensingh Sadar showing the study area

Considering the objectives, time and availability of funds and manpower, women active in the agricultural sector mentioned above were selected randomly. Considering the above-mentioned aspects, a sample size of 60 women agriculture entrepreneurs who adopted agricultural technology was chosen randomly for the present study.

## DATA COLLECTION AND ANALYSIS

The study conducted a series of activities to collect effective and consistent data using both quantitative and qualitative research approaches. Quantitative data was collected through semi-structured interviews and qualitative data was collected through case studies and FGDs. The respondents were available during the period of data collection and primary data were collected from Junly-September 2023. To have secondary data, various books, periodicals, reports, magazines, newspapers and articles through websites are accessed.



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The obtained data were then compiled on a master sheet and then tabulated and analyzed, keeping the objectives of the study in mind. Data entry was done by the researcher himself. Different computer software packages like Microsoft Excel, SPSS Package 20 etc. were used for analyzing the data.

Descriptive analysis such as numbers percentages, and rank order was used. Pearson's product-moment correlation coefficient ( $r$ ) was used to explore the relationship between the selected variables. The Pearson's Product Moment Correlation Coefficient follows:

The equation is:

$$Y_i = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \beta_6 X_6 + \beta_7 X_7 + \beta_8 X_8 \dots \epsilon_i$$

## PERCEPTION ANALYSIS ON WOMEN EMPOWERMENT IN THE ADOPTION OF AGRICULTURAL TECHNOLOGY

The perception score for each respondent was calculated by perception Index (Roy, 2009) using the following formula:

Perception Index (PI) =  $5 \times SA + 4 \times A + 3 \times U + 2 \times DA + 1 \times SDA$  (in favor)

Analysis of the Women Empowerment Index (WEI) in agricultural entrepreneurship.

The methodology was used by Bose, et al. (2009), to assess the individual empowerment status and position, women with an average score of 2 or more than 2 were labelled empowered.

$$WEI_{\text{currently}} = \frac{\sum WEI_{\text{currently}}}{N}$$

$$WEI_{\text{before being involved}} = \frac{\sum WEI}{N}$$

$$WEI = \frac{(WEI_{\text{currently}} + WEI_{\text{before being involved}})}{2}$$

Women empowerment index =  $(WEI_{\text{currently}} = WEI_{\text{before being involved}}) / 2$

Decision-making criteria: Less empowered, if  $WEI \leq 2$  and Highly empowered, if  $WEI \geq 2$

## RESULTS AND DISCUSSION

### HOUSEHOLD LANDHOLDING OF THE RESPONDENTS

In South Asian societies, the size of landholding by people is one of the key determinants of achieving high economic status in both the rural and urban areas (Hossain, 2000). The common landholding prototype in rural Bangladesh indicates that land is mostly owned by men whereas women hardly get any ownership of land. The best way of accessing land for any woman in Bangladesh is through having the use right to land if permitted by the owner of the land (like husband, son, rich peasant and so on).

The five categories based on land ownership (BDHS, 2015) are:

- No land (only own homestead area);
- Minor (0.5 to 1.00 acres of land);





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- Little (1.01 to 2.00 acres of land);
- Intermediate (2.01 to 3.00 acres of land); and
- Big (3.01 acres and above land).

Results of Figure 2 indicate that 10% households of the respondents didn't own any cultivable land (except homestead area) and thus termed to be landless in the study area. Among the landowners, 16.67% households of the respondents held land in the range of 0.05 to 1.00 acres and thus enjoyed the status of marginal land owners. Then again, 33.33% of households of the respondents held land in the range of 1.01 to 2.00 acres and thus enjoyed the status of small landowners. Yet again, 36.67% of households of the respondents were holding land in the range of 2.01 to 3.00 acres and thus enjoyed the status of medium or intermediary land owners. Finally, only 3.33% households of the respondents were holding land in the range of 3.01 and above acres of land and thus enjoyed the status of large landowners in the study area.

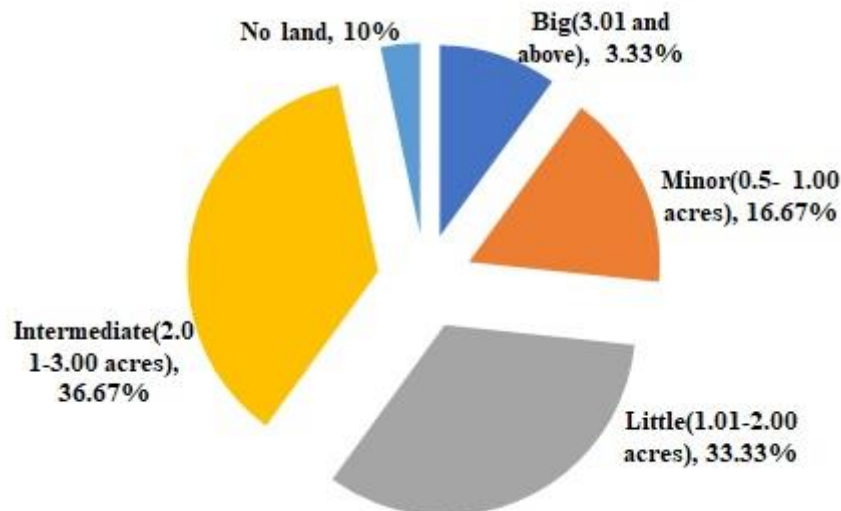


Figure 2. Percentage distributions of respondents based on their household landholding

## THE AVERAGE ANNUAL HOUSEHOLD INCOME OF THE RESPONDENTS

Average annual household income is also an important determinant of the economic status and livelihood diversification of people residing in a society.

The annual family income of the respondents ranged from 50 to 240 ('000' BDT), with an average of 85.38'000' BDT and a standard deviation of 30.750. Based on their annual family income, the respondents were classified into three categories i.e., low, medium and high income. Data presented in Figure 3 show that the highest proportion of the respondents (66.67%) were in the medium-income category, where 26.66% of them were in the low-income category and 6.67% had higher incomes. Similar findings found Salam (2013). Ultimately standard of living of respondents could be improved.



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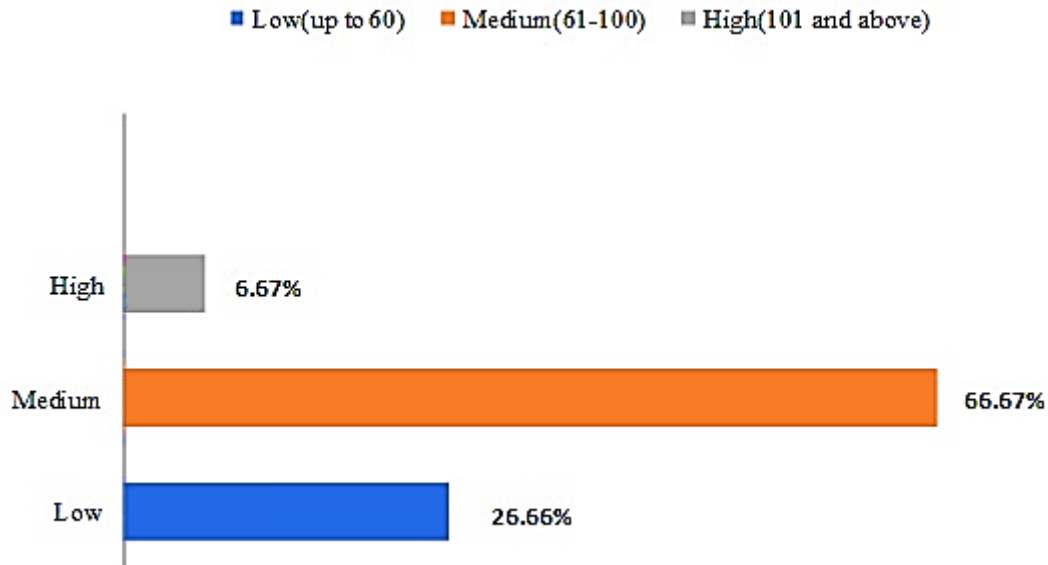


Figure 3. Percentage distributions of respondents based on their average annual household income

## FACTORS INFLUENCING WOMEN ENTREPRENEURS IN AGRICULTURAL ACTIVITIES

The Pearson’s Product Moment Correlation Coefficient The equation is –  $Y_i = \beta_0 + \beta_1X_1 + \beta_2X_2 + \beta_3X_3 + \beta_4X_4 + \beta_5X_5 + \beta_6X_6 + \beta_7X_7 + \dots \epsilon_i$

Table 1. Correlation Coefficient for factors influencing income by using new technology

Variables	Coefficient	P-value
Constant.	6275.45	.522
Education (X1) (Years of schooling)	.300	.040**
Family size (X2) (Number).	.16	.03**
Farm size (X3) (acre)	.140	.382
Experience of modern technology (X4) (Years)	.492	.000***
Training on new technology (X5) (Number of days)	.290	.040**
Technological support from NGO (X6) (yes/no)	.20	.34
Decision making ability to use the new technology(X7) (yes/no)	.204	.042**
Where, $Y_i$ = Income of respondents $\beta_0$ = Intercept; $\beta_1$ to $\beta_7$ = Regression coefficients of the independent variables; and $\epsilon$ = Disturbance term or error term	Observation = 60	

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The findings of this research are in line with those of previous studies regarding education (Mortuza 2013) and income (Radovic 2013-Parveen 2004) in Bangladesh.

The family size of respondents has a positive coefficient which is 0.16 and it is highly significant. The respondents' experience in modern technology has a positive coefficient and it is 0.492. It was highly significant at the 1 per cent level, which is evidence that more experienced respondents had a greater income. The training on a new technology of respondents has a positive coefficient and it is 0.290. It is significant at a 5 per cent level. It means that rural farmers' training facilities have a great impact on their income. Further, decision-making abilities to use new technology also show a significant role in farmer's income in the study area and the coefficient is .204. Technological support from NGOs is not significant because they are free and farmers are not interested in accepting it easily.

## PERCEPTION OF WOMEN'S EMPOWERMENT IN ADOPTION OF AGRICULTURAL TECHNOLOGY

Table 2. Perception index analysis on women's empowerment through agricultural technology adoption

S L · n o ·	Statements	Nature of judgment					Perception index	Rank
		Strongly agree	Agree	Undecided	Disagree	Strongly disagree		
<b>i. Women in agriculture entrepreneurship</b>								
A	Planning of farming by women	11	9	11	16	13	169	11
B	Permission by husband to get involved in agricultural entrepreneurship	26	15	3	10	6	225	6
C	Vital role played in agriculture by women	41	6	1	8	4	252	3
<b>ii. Women's roles and extent of engagement in the adoption of agricultural technology</b>								
D	Selection of crops to be produced in a season	23	13	2	14	8	209	7
E	Selection of production methods	9	4	4	30	13	146	14
F	Selection of machinery used for crop production	28	16	3	9	4	228	5
<b>iii. Women's asset and skill orientation</b>								

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G	Training is essential for women	31	23	1	3	2	262	1
H	Lack of land rights	36	13	2	6	3	253	2
I	Lack of technology operating skills	37	10	3	5	5	249	4
<b>iv. Women's empowerment attainment</b>								
J	Women's access and control over land and technology	8	17	5	19	11	172	10
K	Women's access and control over earnings	17	15	4	14	10	195	8
L	Women's autonomy in production	10	6	4	26	14	152	13
M	Women's capacity to use technology	15	14	2	18	11	184	9
N	Women's sense of using technology	15	3	3	24	15	159	12

*Source: Sample survey, 2022*

The perception index score ranked 1<sup>st</sup> in the 7<sup>th</sup> statement with a total score of 262 as the judgments of the respondents are favourably positive on 'training is essential for women'.

The 2<sup>nd</sup> rank of the perception index score is occupied by the 8<sup>th</sup> statement with a total score of 253 as the judgments of the respondents are favourably positive on 'lack of land rights by women'. As a consequence, there is severe landlessness among the low and middle-class respondents which is an absolute barrier to women's empowerment attainment as noted by Okin (1989) and Young (1990) in the liberal feminist approach by the statement that without equal access and control over land by men and women, attainment of empowerment by women is hard to imagine.

The 4<sup>th</sup> rank of the perception index score is occupied by the 9<sup>th</sup> statement with a total score of 249 as the judgments of the respondents are favorably positive on 'lack of technology operating skill' is high.

Regarding women in the agriculture sector of the study area, the perception index scores indicate that women play a vital role in agriculture as 3<sup>rd</sup> statement has scored 252 and is ranked 3<sup>rd</sup> among all statements. Apart from this a large number of respondents positively agreed on having permission from their husbands to get engaged as economically active participants in agriculture as 2<sup>nd</sup> statement has scored 225 and is ranked 6<sup>th</sup> among all statements. The 1<sup>st</sup> statement under this heading is ranked 11<sup>th</sup> as few respondents responded to plan the farming operation.

Regarding women's roles and extent of involvement in the agriculture sector of the study area, the perception index scores indicate that a large number of respondents positively agreed on selecting the crops to be produced in a particular season which has scored 209 and is ranked 7<sup>th</sup> among all the statements. The 5<sup>th</sup> rank of the perception index score is occupied by the 6<sup>th</sup> statement with a total score of 228 as the judgments of the respondents are favorably positive on 'Selection of machinery used for crop production'. The 5<sup>th</sup> statement under this heading is ranked 14<sup>th</sup> which indicates to the point that respondents have very limited scope in selecting agricultural production methods.



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Regarding women's consequent empowerment attainment, the 8<sup>th</sup> rank of the perception index score is occupied by the 11<sup>th</sup> statement with a total score of 195 as the judgments of the respondents are favorably positive on 'women's access to control over earnings. The other four statements, 10<sup>th</sup>, 12<sup>th</sup>, 13<sup>th</sup> and 14<sup>th</sup> under this heading ranked 10<sup>th</sup>, 13<sup>th</sup>, 9<sup>th</sup> and 12<sup>th</sup> respectively which indicates the point that respondents have very limited scope in having access and control over land and technology, having autonomy in production, and the capacity of using technology.

Table 3. Women Empowerment Index (WEI) by Adoption Agricultural Technology

Empowerment parameters	Currently				5 Years Before			
	Women	Men	Both	WEI	Women	Men	Both	WEI
	3	1	2		3	1	2	
Purchase of agricultural equipment	17	8	35	2.15	13	32	15	1.68
Maintenance of agricultural equipment	17	13	30	2.06	12	36	12	1.60
Capital management for agricultural machinery	14	15	31	1.98	11	34	15	1.61
Motivating to use agricultural technologies	19	14	27	2.08	10	39	11	1.51
Operating agricultural machinery on the farm	15	18	27	1.95	12	37	11	1.58
Selling of old machinery	20	17	23	2.05	9	39	12	1.50
Empowerment	2.04				1.58			

No. of respondent, N=60

$$WEI_{\text{currently}} = \frac{\sum WEI_{\text{currently}}}{N}$$

$$= 2.04$$

$$WEI_{\text{before being involved}} = \frac{\sum WEI}{N}$$

$$= 1.58$$

$$WEI = \frac{(WEI_{\text{currently}} + WEI_{\text{before being involved}})}{2}$$

$$= \frac{(2.04 + 1.58)}{2}$$

$$= 1.81$$

Decision-making criteria: Less empowered, if  $WEI \leq 2$  and highly empowered, if  $WEI \geq 2$

The value of the average women empowerment score is 1.81, which is below the average empowerment score of 2. The WEI as presented in Table 3 clearly describes that women are less empowered since the WEI scores are less than the average level. Practically, women bring motivation, they have a vision which is different, realistic, modern and enthusiastic. When civil society and social structures leave them with the possibility of evolving their careers, women take the initiative. They are quite naturally drawn to initiative, to creation and to management of businesses. So, by promoting women's empowerment through skill and entrepreneurship the government of any developing country can ensure freedom of choice and a better quality of social living for men and women. However, about 52 per cent of the population of Bangladesh are in absolute or moderate poverty and about 76 per cent of them live in rural areas (Mohiuddin; Moniruzzaman; Mahmud, 1998).



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# RECOMMENDATIONS FOR CONSIDERING WOMEN ENTREPRENEURSHIP DEVELOPMENT

- Enhanced women's basic education, with a focus on numeracy, literacy, information and communication technologies, business management, simple record keeping, marketing, and sustainable (agricultural) production methods.
- Strengthen the capacity of rural women entrepreneurs' associations to advocate for and serve the needs of their members, support research on rural women's entrepreneurship (at local, regional or national levels) and disseminate information on good practices in promoting sustainable businesses run by rural women.

## CONCLUSION

Bangladesh's rural women experience unfavorable social discrimination and economic inequalities. Namely, they are deprived of many human rights. In the socio-economic context of Bangladesh, men make all the decisions. On the other hand, women are given the opportunity to make decisions on very few issues. The use and adoption of various agricultural technologies in the context of women empowerment issues and access to these technologies are closely linked. Compared to men, rural women have limited access to advanced agricultural technologies in farming and consequentially use more traditional technologies. Furthermore, it has been confirmed by the study that rural women face physical and economic constraints in terms of access to modern techniques of farming. Attention to women's empowerment through agricultural technology adoption is not new, but it has not always been acted upon accordingly. At the outset, the study revealed that the majority of the respondents had moderate to high favorable perception of the greater extent of women's adoption of agricultural technology but many of them had low to moderate favorable perception of their consequent empowerment attainment in the study area.

## REFERENCES

- Bose, M. L., Ahmad, A., Hossain, M. (2009). The role of gender in economic activities with special reference to women's participation and empowerment in rural Bangladesh. *Gender, Technology and Development*, 13(1), 69-102.
- BDHS (2015). Preliminary Report, National Institute of Population Research and Training, Mitra and Associates, Dhaka.
- Hafiza, S, Kamruzzaman, M., Begum, H. A. (2015). Addressing multiple dimensions of gender inequality: the experience of the BRAC Gender Quality Action Learning (GQAL) programme in Bangladesh. *Gender & Development*, 23(2), 333-346.
- Huyer, S. (2016). Closing the gender gap in agriculture. *Gender, Technology and Development*, 20(2), 105-116.



## Conference Proceedings

- Likert, R 1932: A Technique for the Measurement of Attitudes. Archives of Psychology.
- Mohiuddin, M., Moniruzzaman, M., Muhammad, Monowar, H. (1988). Women Entrepreneurship Development In Rural Areas: A Case Study In Rural Areas: A Case Study On BSCIC Funded Enterprises. Dhaka University Journal of Business Studies, 19 (1), 45-63.
- Mortuza, A. (2013). Higher Education in Public Universities in Bangladesh. Journal of Management and Science, vol. III., no 2. Available at: <http://jms.nonolympictimes.org>(accessed March 10th, 2020).
- Okin, S, M. (1989). Reason and feeling in thinking about justice. Ethics, 99(2), 229-249.
- Parveen, S., Leonhausar, T. (2004). Empowerment of Rural Women In Bangladesh: A Household Level Analysis. Conference on Rural Poverty Reduction through Research Development and Transformation. Deutscher-Tropentag-Berlin, 5-7th October.
- Prothom, A. (2019). Women entrepreneurs still face hurdles. Available at: <https://en.prothomalo.com/business/local/womenentrepreneurs-still-face-hurdles> (Accessed 1 November 2020).
- Radović-Marković, M. (2013). Female entrepreneurship: Theoretical approaches. Journal of Women's Entrepreneurship and Education, 1-2, 1-9. Available from: <https://www.library.ien.bg.ac.rs/index.php/jwee/article/view/104> (accessed on 6 June 2020).
- Radović Marković, M., Radulović, D. (2019). The determinants of income of rural women in Bangladesh. Sustainability, 11(20), 5842.
- Rola-Rubzen, M. F., Paris, T., Hawkins, J., Sapkota, B. (2020). Improving gender participation in agricultural technology adoption in Asia: from rhetoric to practical action. Applied Economic Perspectives and Policy, 42(1), 113-125.
- Roy, P. K., Haque, S., Jannat, A., Ali, M., Khan, M. S. (2017). Contribution of women to household income and decision making in some selected areas of Mymensingh in Bangladesh. Progressive Agriculture, 28(2), 120-129.
- Seymour, G., Doss, C., Marenya, P., Meinzen-Dick, P., Passarelli, S. (2016). Women's empowerment and the adoption of improved maize varieties: Evidence from Ethiopia, Kenya, and Tanzania. Selected paper prepared for presentation at the 2016 Agricultural & Applied Economics Association Annual Meeting, Boston, July 31-August 2.
- Young, I. M. (1990). Throwing Like a Girl: A Phenomenology of Feminine Body Comportment Motility and Spatiality. Human Studies, 3(2), 137-156.



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# FACTORS INFLUENCING TOTAL CREDIT ISSUANCE TO INDIVIDUALS: THE ROLE OF ECONOMIC INDICATORS AND COST OF LIVING

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DOI: 10.5937/EEE24030K  
JEL: E31, E44, G21, D12  
Original Scientific Paper

## ABSTRACT

*This study conducts a detailed regression analysis to explore the determinants of total credits extended to individuals in N. Macedonia over the period from December 2010 to May 2024. The dependent variable, total credits, is analyzed in relation to several independent economic indicators: the minimum union basket, COICOP-based inflation, COICOP cost of living indexes, and weighted interest rates on deposits and loans. The minimum union basket is examined for its influence on credit demand by reflecting the basic living standards required for wage negotiations. COICOP-based inflation provides insights into how price level changes affect the purchasing power and subsequently the demand for credit. Cost of living indexes, classified by COICOP, are analyzed to determine their effect on the real cost of living and credit utilization across various segments of the population. Weighted interest rates on deposits and loans are assessed for their impact on borrowing behavior and overall credit availability. This comprehensive analysis provides valuable insights into the interactions among these variables and their collective impact on credit dynamics, offering essential information for policymakers and financial institutions in developing effective economic and financial strategies. Understanding these relationships is crucial for policymakers and financial institutions to anticipate and mitigate economic fluctuations. Insights gained from this study can inform effective monetary and fiscal policies, enhance financial stability, and improve credit market responsiveness, ultimately supporting sustainable economic growth and individual financial well-being.*

## KEYWORDS

*credits to individuals, minimum union basket, cost of living indexes, weighted interest rates*

## INTRODUCTION

Access to credit is a crucial component of economic activity, influencing both individual financial stability and broader economic dynamics. Understanding the factors that drive total credit issuance to individuals is essential for policymakers, financial institutions, and economists alike, as it helps in designing strategies that support

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sustainable economic growth and financial well-being. Development as a qualitative characteristic means the improvement of the qualitative characteristics of society and the well-being of individuals, and well-being is not just an increase in GDP, but a subjective feeling of people in the community that they live better, a feeling of improving the quality of life (Karadjova & Trajkov, 2022, p. 169).

Credit issuance is influenced by a complex interplay of factors, including inflation rates, interest rates, and cost-of-living indexes, all of which impact borrowers' capacity to service debt and lenders' willingness to extend credit. By examining these influences, we can gain valuable insights into the mechanisms that underpin credit markets and their responsiveness to economic conditions. The credit burden of the population significantly determines the lifestyle, the feeling of happiness, and freedom in decision-making and behavior, as well as the opportunities for enjoyment or investment of the population. The essence and significance of investments is the sacrifice of current consumption for the benefit of the future (Srbinoski, et al., 2023, p. 12). But in conditions of lack of funds to meet the needs, there is no opportunity for saving and investing and credit exposure dominates.

Economic indicators, such as inflation measured through COICOP-based indices, play a significant role in shaping credit dynamics. Inflation affects the real value of money, impacting individuals' purchasing power and their ability to manage credit. Simplest explanation of the phenomenon of inflation would be as a condition in the economy when the money funds exceed the supply of goods and services which causes the general level of prices to rise (Karadjova & Simonceska, 2005). High inflation can erode purchasing power and lead to higher borrowing costs, while low inflation might encourage more borrowing due to increased real income.

Similarly, the cost of living, reflected through COICOP cost-of-living indexes, directly affects individuals' financial stability. An increase in the cost of living can constrain disposable income, affecting borrowers' ability to service existing debt and potentially influencing their demand for new credit. Living below the poverty threshold, which occurs in a number of citizens, reflects an inability to settle their basic needs, or to cover the cost of normal living (electricity, water, etc.) (Karadjova & Dicevska, 2017, p. 528).

Interest rates on deposits and loans are another critical factor influencing credit issuance. The cost of borrowing, as determined by interest rates, influences both the demand for credit by individuals and the supply of credit from financial institutions. Lower interest rates can stimulate borrowing by reducing the cost of credit, while higher rates can dampen demand and tighten lending conditions.

Given the intricate nature of these factors, it is imperative to analyze how they collectively influence credit dynamics. Understanding these determinants is crucial for several reasons. Firstly, it allows financial institutions to tailor their lending practices more effectively, ensuring that credit is extended in a manner that aligns with both borrower needs and economic conditions. Secondly, policymakers can use these insights to design targeted interventions that stabilize the credit market and mitigate economic shocks. For instance, by understanding how inflation and cost-of-living pressures affect credit demand, policymakers can adjust monetary policy to support economic stability and growth.

Furthermore, analyzing these factors helps to identify potential vulnerabilities in the credit market, such as how rising living costs or fluctuating interest rates might impact borrower repayment capacities. This, in turn, can guide financial institutions in developing risk management strategies to safeguard their portfolios and ensure financial stability. It is crucial to recognize the impact tax revenue has on a nation's capacity to meet its political, social, and economic goals (Miloshoska, et al., 2024), as financial stability depends not only on monetary policy but also significantly on fiscal policy and the efficient collection of taxes and customs duties, which in turn influence household credit exposure and overall financial stability.

The study employs both comprehensive and simplified regression models to dissect these relationships, providing a nuanced understanding of the predictors' roles and their statistical significance in the case



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of Macedonian economy over a significant period, from December 2010 to May 2024. By examining the impact of economic indicators and cost-of-living factors on total credit issuance, we aim to provide a comprehensive understanding of the drivers of credit markets. This analysis seeks to uncover patterns and trends that can inform policy decisions and financial strategies, promoting a more stable and accessible credit environment.

Through this research, we contribute to the broader discourse on credit market dynamics, offering insights that are critical for effective financial policy-making and personal financial planning. The significance of this research extends beyond theoretical insights, offering practical implications for policymakers, financial institutions, and consumers. Policymakers can utilize the findings to design more effective monetary and regulatory policies, financial institutions can refine their credit risk models, and consumers can better understand how economic changes may impact their credit options. In exploring these dynamics, this paper contributes to the existing literature by providing empirical evidence on the role of economic indicators and the cost of living in shaping credit markets. Through rigorous analysis, it seeks to advance the understanding of credit dynamics and inform better financial and economic policies.

## LITERATURE REVIEW

Understanding the interplay between total credits to individuals, the minimum union basket, COICOP-based inflation and cost of living indexes, and weighted interest rates provides valuable insights into economic stability and personal finance. Each component plays a crucial role in shaping economic policy and personal financial strategies, highlighting the importance of comprehensive and accurate data in economic analysis and policy-making.

Total credits to individuals, including loans and credit extensions, significantly impact economic activity and personal financial stability. Research highlights that an increase in personal credit can stimulate consumer spending and economic growth, acting as a driver for aggregate demand (Kiyotaki & Moore, 1997). However, excessive credit expansion may lead to financial instability and contribute to economic crises (Minsky, 1992). Studies also indicate that the availability and cost of credit are influenced by broader macroeconomic factors, including interest rates and monetary policy (Bernank & Gertler, 2001).

The minimum union basket represents a measure of the minimum necessary expenditures required for maintaining a basic standard of living. Statistics measure the standard of living most often through so called Laeken indicators of poverty (a set of common European statistical indicators on poverty and social exclusion, established at the European Council of December 2001 in the Brussels suburb of Laeken, Belgium), through household consumption, and also through data on the use of time and balancing between work and family (Karadjova, 2019, p. 29). This concept is crucial in labor negotiations and wage-setting practices (Gordon, 2012). Variations in the minimum basket can affect income distribution and poverty levels, making it an essential tool for understanding the economic well-being of different demographic groups (Katz, 2017). Literature also discusses the implications of changes in the basket's composition for assessing economic inequality and living standards (Deaton & Muellbauer, 1980).

Inflation measurement using the COICOP (Classification of Individual Consumption by Purpose) framework provides detailed insights into price changes across various categories of consumption (Eurostat, 2019). Research shows that COICOP-based inflation measures help in understanding the



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impact of inflation on different segments of the population (HICP, 2020). Studies also discuss how accurate inflation measurement is crucial for effective monetary policy (Blanchard & Fischer, 1989).

Cost of living indexes based on the COICOP classification reflect changes in the cost of a predefined basket of goods and services, providing a detailed picture of price dynamics (OECD, 2015). These indexes are instrumental in adjusting wages and social benefits to align with inflationary trends (Winkelmann & Winkelmann, 1998). The effectiveness of these indexes in capturing true changes in living costs has implications for economic policy and social equity.

Weighted interest rates on deposits and loans serve as critical indicators of financial conditions and economic stability. Literature explores how these rates influence consumer and business borrowing behaviors, affecting overall economic activity (Mishkin, 1995). Changes in interest rates can impact both the supply and demand for credit, influencing economic growth and stability (Taylor, 1993). Furthermore, interest rate adjustments are a key tool in monetary policy aimed at managing inflation and ensuring financial stability.

The interaction between these variables creates a complex economic ecosystem. Total credits to individuals and weighted interest rates are interconnected; higher credit availability often results from lower interest rates, while increased borrowing can drive economic growth but also pose risks if not managed prudently. The minimum union basket and cost of living indexes, derived using COICOP classifications, provide context for assessing the impact of inflation and cost-of-living changes on different income groups. Understanding how inflation affects the real value of credits and wages is crucial for ensuring that the minimum basket remains reflective of actual living costs.

Studies suggest that monitoring these variables together can offer a comprehensive view of economic health and personal financial stability. For example, rising inflation may erode purchasing power, making it harder for individuals to maintain a standard of living as defined by the minimum basket, even if their credit access increases (Eurostat, 2019). Similarly, changes in weighted interest rates can influence borrowing costs and consumer behavior, impacting both credit dynamics and inflationary pressures.

Analyzing the interplay among total credits to individuals, minimum union basket, COICOP-based inflation, cost of living indexes, and weighted interest rates offers a holistic view of economic dynamics. Each variable influences and is influenced by the others, underscoring the need for integrated economic policies and careful monitoring. This comprehensive approach helps in understanding the broader implications of economic trends on personal finance and macroeconomic stability.

## DATA COLLECTION AND ANALYTICAL METHODS

For the purposes of this analysis, monthly data were collected from relevant sources covering the period from December 2010 to May 2024. This provided a dataset consisting of 162 observations, ensuring the statistical significance of the results.

Data on bank credits extended to households were sourced from the National Bank of the Republic of North Macedonia's statistical web portal (NBStat) under the category >> Monetary and Interest Rates Statistics >> Monetary statistics >> Monetary and Credit Aggregates >> Household Bank Loans (National Bank of the Republic of North Macedonia). Since January 2009, the National Bank has conducted a revision of the time series data due to the implementation of a new methodology. This update aligns with the revised guidelines outlined in the 2016 IMF Manual and Guide for Monetary and Financial Statistics. The revision ensures that the data adheres to the latest international standards for



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accuracy and comparability. The study utilizes secondary data sourced from the National Bank. The methodology employed by the National Bank for data collection adheres to the Methodological Explanations outlined in the publication "Monetary Statistics and Statistics of Other Financial Institutions" from November 2007, with the latest revision conducted in July 2018. This methodological framework ensures that the data collection processes are in line with established standards and practices for accuracy and reliability (National Bank of the Republic of Macedonia, (2007) 2018). The regression model utilized data on total bank credits extended to households.

Monthly data on the minimum union consumer basket were obtained from the official website of the Union of Trade Unions of Macedonia (SSM) (Union of Trade Unions of Macedonia (SSM)). This variable (minimum consumer basket value), which has been computed by the Union of Trade Unions of Macedonia (SSM) since February 2011, provides a measure of essential living costs (Karadjova & Spaseska, 2024). On February 24, 2011, the Union of Trade Unions of Macedonia (SSM) presented its Syndical Minimum Basket. According to the SSM, this basket provides a more accurate model for assessing the cost of living. The Syndical Minimum Basket is derived from the Consumer Basket value calculated by the State Statistical Office.

Inflation data according to COICOP were acquired from the Ministry of Finance (Ministry of Finance, 2024), while cost of living indexes by COICOP classification were retrieved from the State Statistical Office (State Statistical Office). The inflation data used in the model were obtained from Table 4. Inflation and stock exchange prices of the Statistical Reviews published by the Ministry of Finance (Ministry of Finance, 2024), specifically within the Macroeconomics section. According to the methodology employed by the State Statistical Office (State Statistical Office, 2011), the Classification of Individual Consumption by Purpose (COICOP) serves as an international standard for categorizing personal consumption expenditures. COICOP is utilized by European Union member states for calculating the Harmonized Index of Consumer Prices (HICP), which is a key indicator of inflation. COICOP classifies expenditure based on the purpose of consumption and is used to categorize expenditures made by households and non-profit institutions serving households. This classification system facilitates consistent and comparable measurement of consumption patterns and price changes across different countries, providing a robust framework for analyzing inflation and its impact on economic variables (Karadjova & Spaseska, 2024). This source provides comprehensive and reliable data on inflation rates, which are crucial for the analysis conducted in the model.

Data on weighted interest rates for deposits and loans, segmented for households (individuals, sole proprietors, and non-profit institutions serving households), were sourced from NBStat, the statistical portal of the National Bank of the Republic of North Macedonia under the category >> Monetary and Interest Rates Statistics >> Interest Rates Statistics >> Weighted Interest Rates, time series (monthly data) (National Bank of the Republic of North Macedonia).

In this study, regression analysis is employed to investigate the relationship between bank credits extended to households and several independent economic indicators. The dependent variable in the regression model is bank credits extended to households, while the independent variables include the minimum union consumer basket, inflation data according to COICOP, cost of living indexes by COICOP classification, and weighted interest rates for deposits and loans. The analysis is based on a monthly time series consisting of 162 observations. Also summary statistics as a part of descriptive statistics is used, which provides an overview of the data distribution for variables such as credit amounts, inflation rates, and cost of living indexes. ANOVA (Analysis of Variance) is implemented using comparative analysis, used to compare means across different groups or categories (e.g., different levels of economic indicators) and assess whether observed differences are statistically significant. The ANOVA results in the paper provide insights into the overall significance of the regression model.



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Model Diagnostics is completed through Standard Error Analysis which assesses the accuracy of coefficient estimates and overall model reliability and through P-values and Confidence Intervals which evaluates the significance of individual predictors and provides confidence intervals for estimates, which helps in understanding the reliability of the predictor variables. Goodness-of-Fit Measures is implemented by using R-Squared and Adjusted R-Squared as a measures the proportion of variance in the dependent variable explained by the predictors, indicating the model's explanatory power and fit. Variable Significance Testing is carried out through t-Statistics, which assesses whether the individual coefficients for predictors are significantly different from zero, contributing to the overall understanding of predictor importance. In summary, the paper utilizes descriptive statistics, correlation analysis, ANOVA, and model diagnostics alongside regression analysis. These methods collectively contribute to a comprehensive understanding of credit dynamics, the impact of economic indicators, and the role of the cost of living.

## MODEL FRAMEWORK AND REGRESSION ANALYSIS

### Regression Model Specification

#### 1. Dependent Variable:

- Bank Credits Extended to Households: This variable represents the total amount of credit provided by banks to households. It is measured on a monthly basis and serves as the outcome variable that the model aims to explain.

#### 2. Independent Variables:

- Minimum Union Consumer Basket: Represents the essential expenditure required to maintain a basic standard of living, which could influence household borrowing behavior.
- Inflation Data According to COICOP: Measures the rate of inflation based on the Classification of Individual Consumption by Purpose (COICOP), reflecting changes in the cost of goods and services over time.
- Cost of Living Indexes by COICOP Classification: Provides an index of the cost of maintaining a certain standard of living, categorized by COICOP, which can affect households' financial decisions and credit demand. There are statistical measures used to track changes in the cost of maintaining a specific standard of living over time. These indexes are essential for understanding how inflation and changes in prices affect household expenditures. Indexes used in an analysis have 2010 as a base (Base Period: 2010 = 100).
- Weighted Interest Rates for Deposits and Loans: Reflects the average interest rates on deposits and loans weighted by their respective amounts, impacting the cost of borrowing and saving.

### Methodology

- **Data Collection**: Monthly data from December 2010 to May 2024 are collected, providing a comprehensive dataset of 162 observations. This time frame ensures a robust temporal analysis of credit dynamics.



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- **Model Estimation:** The regression model is estimated using Ordinary Least Squares (OLS) or another appropriate method depending on the characteristics of the data (e.g., time series properties).
- **The general formula** for a multiple linear regression model can be specified as follows:

$$\text{Bank Credits}_t = \beta_0 + \beta_1 \text{Minimum Basket}_t + \beta_2 \text{Inflation}_t + \beta_3 \text{Cost of Living Index}_t + \beta_4 \text{Interest Rates}_t + \epsilon_t \dots\dots\dots(1)$$

where:

- Bank Credits<sub>t</sub> is the dependent variable at time t,
- Minimum Basket<sub>t</sub>, Inflation<sub>t</sub>, Cost of Living Index<sub>t</sub>, and Interest Rates<sub>t</sub> are the independent variables at time t,
- $\beta_0$  is the intercept,
- $\beta_1, \beta_2, \beta_3,$  and  $\beta_4$  are the coefficients for the independent variables,
- $\epsilon_t$  is the error term.
- **Interpretation of Coefficients:** Each coefficient  $\beta$  represents the effect of the corresponding independent variable on the dependent variable. For instance,  $\beta_1$  measures how changes in the minimum union consumer basket affect the amount of bank credit extended to households.
- **Diagnostic Checks:** The model undergoes diagnostic checks to ensure the validity of the regression results. This includes tests for autocorrelation, heteroscedasticity, and multicollinearity, which are particularly important in time series analysis.

The regression analysis aims to elucidate how various economic indicators influence the volume of bank credits extended to households. By analyzing the relationship between the dependent variable and the independent variables, the study provides insights into how factors such as living costs, inflation, and interest rates impact household borrowing behavior.

## Regression model outputs

Excel's data analysis package is used for research and to calculate regression outputs, which include three components: (1) the Regression Statistics table, (2) ANOVA (Analysis of Variance), and (3) the Regression Coefficient table.

(1) The Regression Statistics is es follows:

Table 1. Regression statistic output

<i>Regression Statistics</i>	
Multiple R	0,97573466
R Square	0,95205813
Adjusted R Square	0,95083668
Standard Error	11014,1457
Observations	162

*Source: own calculations*



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**Multiple R (0.9757):** This is the correlation coefficient between the observed values and the values predicted by the regression model. A value close to 1 indicates a very strong positive linear relationship between the dependent variable and the independent variables.

**R Square (0.9521):**  $R^2$ , or the coefficient of determination, represents the proportion of the variance in the dependent variable that is predictable from the independent variables. In this case, 95.21% of the variability in the dependent variable is explained by the model. This is a very high  $R^2$ , suggesting that the model fits the data very well.

**Adjusted R Square (0.9508):** Adjusted  $R^2$  adjusts the  $R^2$  value for the number of predictors in the model. It accounts for the possibility that adding more predictors can artificially inflate the  $R^2$  value. The adjusted  $R^2$  of 95.08% is very close to the  $R^2$ , indicating that the model is not only explaining a large proportion of variance but also doing so efficiently with the predictors used.

**Standard Error (11014.15):** This is the standard error of the estimate, which measures the average distance that the observed values fall from the regression line. A smaller standard error relative to the range of the dependent variable suggests a better model fit. The magnitude of 11014.15 should be interpreted in the context of the scale of the dependent variable (dependent variable is Total Bank Credits Extended to Households in millions of denars). If it's small relative to the range of the dependent variable, it indicates a good fit. In this case, the range of the dependent variable values is as follows:

- Minimum Value: 69,483.36
- Maximum Value: 232,938.11
- Range:  $232,938.11 - 69,483.36 = 163,454.75$

So, the Standard Error is about  $\frac{11,014.15}{163,454.75} \approx 6.73\%$  of the range of the dependent variable. In that sense, having in mind practical implications the SE being 6.73% of the range indicates that, on average, the predicted values are off by about 6.73% of the range of the dependent variable. While this might seem like a significant error in absolute terms, it's relatively small compared to the range, suggesting that the model's predictions are reasonably close to the actual values. In summary, that means that the regression model seems to be quite good at predicting the dependent variable, though there is still some average error.

**Observations (162):** This is the number of data points used in the regression analysis. A sample size of 162 is relatively large, which generally provides more reliable estimates and enhances the robustness of the regression model.

### Summary on the Regression Statistics table:

- The high Multiple R and  $R^2$  values indicate a strong and substantial relationship between the dependent variable and the independent variables.
- The Adjusted  $R^2$  being close to  $R^2$  suggests that the model's predictive power is reliable and not just a result of having many predictors.
- The Standard Error is a measure of how well the model predicts the dependent variable, and its interpretation depends on the context of the data.
- The sample size of 162 is sufficient for most regression analyses, enhancing the reliability of the results.

Overall, these statistics suggest that the regression model is performing very well and explains a large proportion of the variance in the dependent variable.

(2) The ANOVA (Analysis of Variance) table helps assess the overall fit of the regression model by comparing the variability explained by the model (regression) to the unexplained variability (residual).



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Table 2. ANOVA output

ANOVA					
	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Significance F</i>
Regression	4	3,78E+11	9,46E+10	779,4498	2,1E-102
Residual	157	1,9E+10	1,21E+08		
Total	161	3,97E+11			

*Source: own calculations*

Components of the ANOVA Table 2:

### Degrees of Freedom (df)

- **Regression df:** 4. This corresponds to the number of independent variables (predictors) in the model. Here, there are 4 predictors.
- **Residual df:** 157. This is the number of observations minus the number of predictors minus 1 (i.e.,  $n - k - 1$ ).
- **Total df:** 161. This is the total number of observations minus 1 (i.e.,  $n - 1$ ).

### Sum of Squares (SS)

- **Regression SS:**  $3.78225 \times 10^{11}$ . This represents the total variability explained by the model.
- **Residual SS:**  $1.9045890588 \times 10^{10}$ . This represents the variability not explained by the model (error).
- **Total SS:**  $3.9727 \times 10^{11}$ . This is the total variability in the dependent variable.

### Mean Squares (MS)

- **Regression MS:** 94556146748 (calculated as Regression SS / Regression df). This is the average variability explained by each predictor.
- **Residual MS:** 121311405 (calculated as Residual SS / Residual df). This is the average unexplained variability.

### F-Statistic

- **F:** 779.45. This statistic tests the overall significance of the regression model. It compares the model's explained variability to the unexplained variability. A high F-value indicates that the model explains a significant portion of the variability in the dependent variable.

### Significance F

- **Significance F:**  $2.0674 \times 10^{-102}$ . This p-value is very close to 0, indicating that the model is statistically significant. It means there is a very strong likelihood that at least one of the predictors is significantly related to the dependent variable.

### Summary on the ANOVA table:

ANOVA analysis is important in the context of the null hypothesis ( $H_0$ ). In the context of regression analysis, the null hypothesis ( $H_0$ ) typically states that:  **$H_0$ :** All regression coefficients (except the intercept) are equal to zero. This means that none of the predictors have a significant linear relationship with the dependent variable. The alternative hypothesis ( $H_A$ ) states that at least one of the regression coefficients is not zero, implying that at least one predictor significantly contributes to explaining the variability in the dependent variable. In this case:





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- An F-value of 779.45 indicates that the regression model explains a significantly large proportion of the variance in the dependent variable compared to the error variance. This high value suggests that the model is much better at predicting the dependent variable than a model with no predictors.
- The p-value here is extremely small (approximately  $2.07 \times 10^{-102}$ , much smaller than common significance levels (e.g., 0.05 or 0.01). This indicates that the likelihood of observing such an F-value if the null hypothesis were true is extremely low.
- This means that the model **Rejects the null hypothesis**. Given the very low Significance F value, we reject the null hypothesis ( $H_0$ ) at any conventional significance level. This means that it is highly unlikely that the observed F-value of 779.45 occurred due to random chance if all the predictors had no effect.
- The high F-value and the extremely small p-value indicate that the regression model as a whole is statistically significant. In other words, at least one of the predictors in the model significantly contributes to explaining the variability in the dependent variable.
- This strong statistical significance suggests that the regression model provides a meaningful explanation of the dependent variable, and the predictors included in the model collectively have a significant relationship with the dependent variable.
- In summary, the very high F-value and the extremely low Significance F value together indicate that the regression model is highly significant and that the predictors included in the model significantly explain the variability in the dependent variable.

(3) The Regression Coefficient table shows the values of each regression coefficient and their statistical significance in the model, indicating how each independent variable affects the dependent variable. It also provides the precision of these estimates through the standard errors and their significance through p-values.

Table 3. Regression coefficient table

	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>	<i>Lower 95%</i>	<i>Upper 95%</i>
Intercept	16493,737	20459,51	0,806165	0,421367	-23917,7	56905,13
Minimum Union Consumer Basket	0,23831572	0,490785	0,485581	0,627941	-0,73108	1,207709
Inflation (acc. to COICOP)	534,108574	339,4276	1,573557	0,117603	-136,325	1204,542
Cost of Living Indexes (acc to COICOP)	1897,8692	283,276	6,699719	3,53E-10	1338,346	2457,393
Weighted Interest Rates (for Deposits and Loans)	-16023,946	641,0168	-24,9977	1,31E-56	-17290,1	-14757,8

*Source: own calculations*

The formula for predicting the dependent variable using the coefficients given in Table 3 is:

$$\text{Bank Credits}_t = 16493,737 + 0,23831572 \text{ Minimum Basket}_t + 534,108574 \text{ Inflation}_t + 1897,8692 \text{ Cost of Living Index}_t + (-16023,946) \text{ Interest Rates}_t \dots\dots\dots (2)$$

### Summary on the Regression coefficient table:

#### 1. Statistically Significant Predictors are:

- Cost of Living Indexes (according to COICOP): This variable has a coefficient of 1,897.87, a t-statistic of 6.70, and a p-value of  $3.53 \times 10^{-10}$ . These metrics demonstrate a statistically significant positive effect on the dependent variable, meaning that changes in the cost of living indexes have a strong and reliable impact.



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- Weighted Interest Rates (for Deposits and Loans): This variable has a coefficient of -16,023.95, a t-statistic of -24.998, and a p-value of  $1.31 \times 10^{-56}$ . These values indicate a statistically significant negative effect on the dependent variable, reflecting a robust and consistent inverse relationship.

### 2. Statistically Non-Significant Predictors:

- Intercept: The intercept has a coefficient of 16,493.74 with a high standard error of 20,459.51, a t-statistic of 0.81, and a p-value of 0.421. These results suggest that the intercept is not significantly different from zero, indicating that it does not meaningfully contribute to explaining the dependent variable.
- Minimum Union Consumer Basket: With a coefficient of 0.24, a t-statistic of 0.49, and a p-value of 0.628, this predictor is not statistically significant, suggesting that it does not have a meaningful effect on the dependent variable.
- Inflation (according to COICOP): This variable has a coefficient of 534.11, a t-statistic of 1.57, and a p-value of 0.118. Although the p-value is somewhat close to the typical significance threshold (0.05), it is generally considered non-significant, implying that its effect on the dependent variable is not robustly established.

Overall, the table shows that while some predictors have a statistically significant impact on the dependent variable, others do not exhibit a strong or reliable effect.

### Relevance of the Model:

- **Strengths:**
  - High R-Square: The model explains a large portion of the variance in the dependent variable, which suggests a strong fit.
  - Significant Overall Model: The high F-statistic and extremely low p-value for the ANOVA test indicate that the model as a whole is statistically significant.
- **Weaknesses:**
  - Insignificant Predictors: Some predictors, such as "Minimum Union Consumer Basket" and "Inflation (according to COICOP)", have high p-values, suggesting they are not significant contributors to the model.
  - Intercept: The intercept is not statistically significant, though this is often less critical compared to the significance of predictors.

Overall, the model appears to be relevant and useful in explaining the variance of the dependent variable based on the high R-squared value and significant overall F-test. However, the presence of some insignificant predictors suggests that the model could potentially be improved by removing or replacing these predictors with more relevant ones. The significant predictors "Cost of Living Indexes (according to COICOP)" and "Weighted Interest Rates (for Deposits and Loans)", are strong indicators that the model has important variables that are effectively capturing the variation in the dependent variable.

### Model 2 (by removing the Statistically Non-Significant Predictors):

To test the model's validity and improve its predictive accuracy, a second model was developed by excluding the predictors that were found to be statistically insignificant in the initial model. That is made in order to: Improve Model Simplicity, Enhance Predictive Accuracy, Reduce Multicollinearity, Increase Statistical Power. By excluding the statistically insignificant predictors, the second model aims to provide a clearer, more focused representation of the relationships between the significant predictors and the dependent variable. This approach helps ensure that the final model is both statistically sound



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and practically useful, focusing on the most relevant factors for accurate predictions. Given this context, the results of the second model are as follows:

Table 4. Regression statistic output

<i>Regression Statistics</i>	
Multiple R	0,975304
R Square	0,951217
Adjusted R Square	0,950604
Standard Error	11040,23
Observations	162

*Source: own calculations*

Table 5. ANOVA output

ANOVA					
	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Significance F</i>
Regression	2	3,779E+11	1,89E+11	1550,171	5,2E-105
Residual	159	1,938E+10	1,22E+08		
Total	161	3,973E+11			

*Source: own calculations*

Table 6. Regression coefficient table

	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>	<i>Lower 95%</i>	<i>Upper 95%</i>
Intercept	-4552,89	10799,017	-0,4216	0,673885	-25880,9	16775,13
Cost of Living Indexes (acc to COICOP)	2140,389	73,289437	29,20461	8,7E-66	1995,643	2285,136
Weighted Interest Rates (for Deposits and Loans)	-15620,4	549,81705	-28,4102	3,46E-64	-16706,3	-14534,5

*Source: own calculations*

### Comparison of Model 1 (Comprehensive Model) and Model 2 (Simplified Model):

The two models have their Strengths and Weaknesses.

#### Model 1: Comprehensive Model

##### Strengths:

1. Detailed Analysis: Includes four predictors (Minimum Union Consumer Basket, Inflation, Cost of Living Indexes, and Weighted Interest Rates), which allows for a more nuanced understanding of the factors affecting the dependent variable.
2. High Significance Levels: Key predictors like Cost of Living Indexes and Weighted Interest Rates are highly significant, with very low p-values, indicating robust relationships with the dependent variable.

##### Weaknesses:

1. Non-Significant Predictors: Some predictors, such as the Intercept, Minimum Union Consumer Basket, and Inflation, are not statistically significant, which might indicate that



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they do not contribute meaningfully to the model or that their impact is too small to be reliably detected.

2. Complexity: The inclusion of multiple predictors might introduce multicollinearity or overfitting issues, especially if some predictors do not contribute significantly.

### Model 2: Simplified Model

#### Strengths:

2. Simplicity: Only includes two predictors (Cost of Living Indexes and Weighted Interest Rates), simplifying the model and focusing on the most significant variables.
3. Strong Statistical Significance: Both predictors are highly significant, with very low p-values, suggesting a strong and reliable impact on the dependent variable.

#### Weaknesses:

1. Limited Scope: By excluding predictors like Minimum Union Consumer Basket and Inflation, the model may miss out on potentially relevant factors that could provide a more comprehensive understanding of the dependent variable.
2. Potential Over-Simplification: Simplifying the model might overlook important interactions or contributions from excluded variables, which could affect the overall interpretation.

As summary or conclusion can be mentioned that Model 1 offers a comprehensive analysis with a broader range of predictors. It provides detailed insights but includes some predictors that are not statistically significant, which could complicate the interpretation and may suggest issues with model fit or variable relevance. Model 2 is a simplified model that focuses on the most statistically significant predictors. It demonstrates strong significance with a cleaner and more focused approach. However, it may overlook other potentially important factors, leading to a less nuanced understanding of the dependent variable. Overall, Model 2 may be preferable for its clarity and strong significance of its predictors, while Model 1 provides a more detailed view but requires careful consideration of the significance and contribution of each predictor. The choice between models should consider the trade-off between model simplicity and the comprehensiveness of the analysis.

## CONCLUSION

This study explores credit dynamics by examining the influence of economic indicators and the cost of living on total bank credits extended to households. Two regression models were evaluated to understand these relationships: a Comprehensive Model (Model 1) and a Simplified Model (Model 2).

Model 1, incorporating four predictors – Minimum Union Consumer Basket, Inflation, Cost of Living Indexes, and Weighted Interest Rates – demonstrates a high overall fit with an  $R^2$  of 0.952 and an F-value of 779.45, highlighting a robust explanatory power. Despite this, the model includes non-significant predictors such as the Intercept, Minimum Union Consumer Basket, and Inflation. These non-significant variables suggest that while the model accounts for a substantial amount of variability, some predictors may not contribute meaningfully to explaining credit dynamics. The model's complexity, with multiple predictors, could also introduce issues such as multicollinearity, potentially affecting the reliability of coefficient estimates.



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Model 2, a more streamlined version, focuses on two key predictors – Cost of Living Indexes and Weighted Interest Rates. This model shows a slightly lower  $R^2$  of 0.951 but achieves a higher F-value of 1550.17, indicating a strong and focused fit with the data. Both predictors are highly significant, with p-values effectively close to zero, suggesting that they provide robust insights into credit dynamics. The simplified nature of this model enhances interpretability and reduces potential overfitting, although it may miss additional explanatory power that could be offered by other factors excluded from the analysis.

In summary, while Model 1 offers a comprehensive view with a broader range of predictors, Model 2 provides a clearer and more focused analysis with high statistical significance for its variables. The choice between models depends on the balance between comprehensiveness and clarity. For future research and practical application, Model 2's simplicity and significance offer a strong foundation for understanding key drivers of credit dynamics, though additional variables might be considered to capture a more complete picture of the factors influencing credit outcomes.

The paper provides valuable insights into the factors influencing credit dynamics, which has several practical implications:

- **Policy Formulation:**

- 1) **Targeted Economic Policies:** Understanding the impact of economic indicators and cost of living on credit dynamics helps policymakers design targeted interventions to manage credit markets more effectively. For instance, recognizing how inflation and cost of living influence credit availability can guide monetary policy adjustments to stabilize financial systems.

- 2) **Regulatory Adjustments:** Insights from the study can inform regulatory bodies about necessary changes in credit regulations or lending practices, ensuring that financial policies align with current economic conditions.

- **Financial Planning and Risk Management:**

- 1) **Lender Strategies:** Financial institutions can use the findings to refine their credit risk assessment models. By understanding which economic indicators most significantly affect credit dynamics, lenders can better predict creditworthiness and adjust their lending criteria to mitigate risks.

- 2) **Borrower Guidance:** Borrowers can benefit from understanding how economic factors impact credit availability and terms. This knowledge enables individuals and businesses to make informed decisions about borrowing and managing their credit.

- **Economic Forecasting:** Through **Predictive Analysis** the study's results can enhance economic forecasting models by incorporating the identified predictors of credit dynamics. This helps in anticipating credit market trends and preparing for economic fluctuations.

- **Consumer Protection:** By Using **Informed Decision-Making** and by highlighting the role of cost of living and economic indicators, the research contributes to greater transparency in how credit conditions are influenced. This enables consumers to better understand how external economic factors may impact their credit options and financial stability.

In summary, this paper provides critical insights that are directly applicable to policymakers, financial institutions, borrowers, and economic forecasters. Its findings support more informed decision-making, enhance risk management practices, and contribute to the formulation of more effective economic policies and financial strategies.



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## REFERENCES

- Bernank, B. S., Gertler, M. (2001). Should Central Banks Respond to Movements in Asset Prices?. *American Economic Review*, 91(2), pp. 253-257.
- Blanchard, O. J., Fischer, S. (1989). *Lectures on Macroeconomics*. s.l.:MIT Press.
- Deaton, A., Muellbauer, J., 1980. *Economics and consumer behavior*. s.l.:Cambridge University Press.
- Eurostat (2019). *Harmonised Index of Consumer Prices (HICP) Methodology*. [Online] Available at: <https://ec.europa.eu/eurostat/web/products-manuals-and-guidelines/-/ks-02-19-146> [Accessed May 2024].
- Gordon, R. J. (2012). The History of the Phillips Curve: Consensus and Beyond. In: *The Phillips Curve and Labor Markets*. s.l.:s.n., pp. 1-28.
- HICP (2020). *Harmonised Index of Consumer Prices*. [Online] Available at: <https://ec.europa.eu/eurostat/web/products-manuals-and-guidelines/-/ks-02-20-111> [Accessed May 2024].
- Karadjova, V. (2019). Standard of Living, Quality of the Life and Happiness Score as Indicators of Economic Development. *Proceedings of 6<sup>th</sup> Int. Sci. Conf. "Employment, Education and Entrepreneurship"*, pp. 27-36.
- Karadjova, V., Dicevska, S. (2017). Microinsurance – Between the Social and the Economic Dimension of Risk Management. *International Scientific Journal Horizons, Series A, Social Sciences and Humanities*, 20(X), pp. 521-542.
- Karadjova, V., Simonceska, L. (2005). Dealing with inflation and unemployment as the most significant macroeconomic problems - A precondition for integration (aspects of the Macedonian economy). Nis, *Mednarodni naucni skup "Procesi integracije u Evropi"*.
- Karadjova, V. Spaseska, T. (2024). Assessing the Impact of Negative Balances in Current Accounts and Inflation on the Minimum Consumer Basket: A Regression approach, Ohrid, CNIR, FTU Ohrid.
- Karadjova, V., Trajkov, A. (2022). Basic Economic Indicators and Economic Well-being. *Horizons – International Scientific Journal*, 31(2), pp. 165-181.
- Katz, L. F. (2017). The Minimum Wage and the Fight for Fair Wages. *Journal of Economic Perspectives*, 31(2), pp. 1-22.
- Kiyotaki, N., Moore, J. (1997). Credit Cycles. *Journal of Political Economy*, 105(2), pp. 211-248.
- Miloshoska, D., Trajkov, A., Karadjova, V. (2024). *Measuring Customs Revenue Performance: Insight from Macedonia*. Rome, Association of Economists and Managers of the Balkans – UdEkoM Balkan.
- Minsky, H. P. (1992). *The Financial Instability Hypothesis*. The Jerome Levy Economics Institute Working Paper.
- Mishkin, F. S. (1995). Symposium on the Monetary Transmission Mechanism. *Journal of Economic Perspectives*, 9(4), pp. 3-10.
- Ministry of Finance (2024). <https://finance.gov.mk/>. [Online] Available at: <https://finance.gov.mk/statistical-review-3/?lang=en> [Accessed 15 April 2024].
- N. B. o. t. R. o. M., (2007) 2018. *Methodological explanations, Monetary statistics and statistics of other financial institutions*. [Online] Available at:



## Conference Proceedings

[https://www.nbrm.mk/content/statistika/Monetarna%20statistika/metodologija/Metodologija\\_monetarna\\_07\\_2018\\_mak.pdf](https://www.nbrm.mk/content/statistika/Monetarna%20statistika/metodologija/Metodologija_monetarna_07_2018_mak.pdf). [Accessed 5 May 2024].

N. B. o. t. R. o. N. M., n.d. <https://nbstat.nbrm.mk/>. [Online] Available at: [https://nbstat.nbrm.mk/pxweb/en/MS%20i%20KS/MS%20i%20KS\\_\\_MS\\_\\_Monetarni%20i%20kreditni%20agregati/3\\_KreditiNaBankiDadeniNaDomakinstvaMK.px/table/tableViewLayout1/](https://nbstat.nbrm.mk/pxweb/en/MS%20i%20KS/MS%20i%20KS__MS__Monetarni%20i%20kreditni%20agregati/3_KreditiNaBankiDadeniNaDomakinstvaMK.px/table/tableViewLayout1/) [Accessed June 2024].

N. B. o. t. R. o. N. M., n.d. <https://nbstat.nbrm.mk/>. [Online] Available at: [https://nbstat.nbrm.mk/pxweb/mk/MS%20i%20KS/MS%20i%20KS\\_\\_MS\\_\\_Monetarni%20i%20kreditni%20agregati/3\\_KreditiNaBankiDadeniNaDomakinstvaMK.px/table/tableViewLayout1/](https://nbstat.nbrm.mk/pxweb/mk/MS%20i%20KS/MS%20i%20KS__MS__Monetarni%20i%20kreditni%20agregati/3_KreditiNaBankiDadeniNaDomakinstvaMK.px/table/tableViewLayout1/) [Accessed April 2024].

N. B. o. t. R. o. N. M., n.d. [https://nbstat.nbrm.mk/pxweb/en/MS%20i%20KS/MS%20i%20KS\\_\\_KS\\_\\_Pondirani%20KS,%20vremenska%20serija%20\(mesečni%20podatoci,%20od%202005%20godina\)/1\\_PrimeniDepozitiDadeniKreditiMesecniMK.px/table/tableViewLayout1/](https://nbstat.nbrm.mk/pxweb/en/MS%20i%20KS/MS%20i%20KS__KS__Pondirani%20KS,%20vremenska%20serija%20(mesečni%20podatoci,%20od%202005%20godina)/1_PrimeniDepozitiDadeniKreditiMesecniMK.px/table/tableViewLayout1/). [Online] Available at: [https://nbstat.nbrm.mk/pxweb/en/MS%20i%20KS/MS%20i%20KS\\_\\_KS\\_\\_Pondirani%20KS,%20vremenska%20serija%20\(mesečni%20podatoci,%20od%202005%20godina\)/1\\_PrimeniDepozitiDadeniKreditiMesecniMK.px/table/tableViewLayout1/](https://nbstat.nbrm.mk/pxweb/en/MS%20i%20KS/MS%20i%20KS__KS__Pondirani%20KS,%20vremenska%20serija%20(mesečni%20podatoci,%20od%202005%20godina)/1_PrimeniDepozitiDadeniKreditiMesecniMK.px/table/tableViewLayout1/) [Accessed June 2024].

OECD (2015). Consumer Prices and Inflation. OECD Economic Outlook, Paris.

Srbinoski, B., Karadjova, V., Trajkov, A. (2023). Impact of Exports and Investments on Economic Growth. Proceedings of the Faculty of Economics in East Sarajevo, 12(26), pp. 11-17.

S. S. O., 2011. <https://www.stat.gov.mk/MetodoloskiObjasSoop.aspx?id=39&rbrObl=15>. [Online] Available at: <https://www.stat.gov.mk/MetodoloskiObjasSoop.aspx?id=39&rbrObl=15> [Accessed 28 April 2024].

S. S. O., n.d. [https://makstat.stat.gov.mk/PXWeb/pxweb/en/MakStat/MakStat\\_\\_Ceni\\_\\_IndeksTrosZivot/120\\_CeniTr\\_Mk\\_IndTroZi\\_ml.px/table/tableViewLayout2/?rxid=46ee0f64-2992-4b45-a2d9-cb4e5f7ec5ef](https://makstat.stat.gov.mk/PXWeb/pxweb/en/MakStat/MakStat__Ceni__IndeksTrosZivot/120_CeniTr_Mk_IndTroZi_ml.px/table/tableViewLayout2/?rxid=46ee0f64-2992-4b45-a2d9-cb4e5f7ec5ef). [Online] Available at: [https://makstat.stat.gov.mk/PXWeb/pxweb/en/MakStat/MakStat\\_\\_Ceni\\_\\_IndeksTrosZivot/120\\_CeniTr\\_Mk\\_IndTroZi\\_ml.px/table/tableViewLayout2/?rxid=46ee0f64-2992-4b45-a2d9-cb4e5f7ec5ef](https://makstat.stat.gov.mk/PXWeb/pxweb/en/MakStat/MakStat__Ceni__IndeksTrosZivot/120_CeniTr_Mk_IndTroZi_ml.px/table/tableViewLayout2/?rxid=46ee0f64-2992-4b45-a2d9-cb4e5f7ec5ef) [Accessed June 2024].

Taylor, J. B. (1993). Discretion versus Policy Rules in Practice. Carnegie-Rochester Conference Series on Public Policy, Volume 39, pp. 195-214.

U. o. T. U. o. M. (n.d.) <https://www.ssm.org.mk/en/>. [Online] Available at: <https://www.ssm.org.mk/en/ekonomija/minimalna-sindikalna-koshnica> [Accessed April 2024].

Winkelmann, R., Winkelmann, L. (1998). Why are the unemployed so unhappy? Evidence from panel data. *Economica*, 65(257), pp. 1-15.



## Conference Proceedings

# THE IMPACT OF ENTERPRENEURIAL ORIENTATION ON THE ENHANCEMENT OF LEADERSHIP SKILLS

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DOI: 10.5937/EEE24031K  
JEL: M30, M31  
Review Scientific Paper

### ABSTRACT

*Since ancient times, political leaders have recognized the importance of improving their own skills, leading to the gradual transfer of a culture of education among people in leadership positions, initially in the political sphere and later extending to the economic sector and entrepreneurs. Many scientists worldwide have attempted to arrive at the most effective definitions of entrepreneurial orientation, and through various examples of best practices, they have reached many layers of the management world, aiming to improve their performances and business environments. Healthy entrepreneurship plays a vital role in a country's economy; in fact, it can be seen as a cell or unit of a larger system called the state. If entrepreneurship is based on a healthy economic foundation, the state's economy is equally profitable and efficient. In this paper, the author explores a model of entrepreneurial orientation that can enhance the abilities of leaders, which can later contribute to the improvement of their business organization.*

### KEYWORDS

*entrepreneurial orientation, leadership, entrepreneurship, economy, skills*

## INTRODUCTION

One of the first definitions of the term entrepreneurship was given by Schumpeter back in 1934. He defined entrepreneurship in the context of developing new products or services, developing new production methods, identifying new segments and markets, identifying different sources of supply and developing different forms of organizations (Schumpeter, 1934). Entrepreneurship plays a vital role in the progress of modern society and economy, and the study and encouragement of entrepreneurship at universities is one of the basic factors of the success and sustainability of this process (Vekić et al., 2022).

In order for entrepreneurship to be successful, a system must first be established. The system can be established and controlled by a person with a competent professional profile, i.e. complete leadership skills. Entrepreneurial activities carried out by entrepreneurs play an increasingly important role in strengthening modern economies and lead to the development of business ideas and new companies based on them (Vekić et al., 2022).

By establishing and applying an entrepreneurial orientation as a leading policy of a system, there is undoubtedly a direct impact on the leader, on improving his skills, performance and improving the

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spread of his own influence as a leading figure in the system he manages. Entrepreneurial innovations should be continuous changes with the aim of continuous improvement and improvement of products, technology, services as well as processes within the company, improvement of the organization, etc. It is important that the entrepreneur involves employees in the organization in innovative activities, which strengthens the internal strength of the organization (Grozđanić et al., 2008).

Although entrepreneurship as an activity experienced an expansion in its development during the 20th century, we cannot confirm for sure when exactly the entrepreneurial orientation appeared as a phenomenon, and therefore not when the awareness of the importance of entrepreneurial orientation in the economic development of both the individual and the state came to light. What we can confirm is that individuals have always strived for improvement, in that desire to create a more progressive system, individuals in entrepreneurship realized that the system they lead as entrepreneurs can become better if they, as leaders of that system, begin to strive for improvement.

The current educational policy determines the goal of encouraging the development of entrepreneurial competences and entrepreneurial behavior. The chosen goal is not to train each person to be an entrepreneur and to develop an entrepreneurial personality, but to encourage the development of entrepreneurial competencies and entrepreneurial behavior of each person (Bjekić et al., 2023). However, knowledge of entrepreneurship alone is usually not enough for the development of an entrepreneurial spirit. If only it were enough, by now we would have a huge number of entrepreneurs who acquired knowledge of entrepreneurship at economic faculties (Francesco et al., 2018).

An entrepreneur is a person gifted with business spirit and leadership skills, always alert and ready to take advantage of new business opportunities by appropriately combining factors of production and determined to take the risk (related to uncertainty) of managing the organization based on innovation and permanent development, with the aim of creating new value (Penezic, 1998). Many researches today deal with young people and their entrepreneurial potential, intentions and competencies that can be improved through various education programs and trainings (Levie et al., 2014). Startup entrepreneurs today are much younger than they used to be the case in previous generations (Schott, Cheraghi, 2015). The entrepreneurial organization is based on experience and decentralization, because every improvement builds on previous progress, and everyone in the company has the opportunity to participate in it. Orientation to constant changes, innovations and development is the overall determinant of an entrepreneurial organization (Milickovic et al., 2021). Entrepreneurial orientation will encourage the development of leadership skills only if the person we are targeting has the talent, desire and will to improve and, above all, engage in this craft. Schumacher (1973) argued that giant organizations and the growth of specialization would lead to economic inefficiency at the macroeconomic level and offered as an alternative a system of intermediary technologies based on small production units. In the paper, the author, through inductive, deductive, but also through analysis as a method, will show in detail and explain in more detail how by implementing an entrepreneurial orientation as a business model in order to improve the competencies of our employees, we can influence the improvement of leadership skills.

## **PROCESS OF IMPROVING LEADERSHIP SKILLS AND THEIR IMPACT ON INCREASING PRODUCTIVITY**

The concept of entrepreneurial orientation and its impact on firm performance have attracted considerable attention from researchers in the field of organizational sciences (Stam, Elfring, 2008, Messersmith, Wales, 2011, Wang, Altinay, 2012, Gupta, Batra, 2016). As previously stated in the paper, entrepreneurial orientation can contribute a lot to the improvement of leadership skills, however, as it is



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a broad concept, the procedures related to it are also very complex. Management is a profession whose foundation rests on harmonious organization, and good organization results in work productivity. For many years, economic experts behind us compare management as a basic activity equal to professions in the medical, mechanical, and architectural fields, and some even go with the interpretation and theory that it may be more important than the ones mentioned for the simple reason that well-organized management completes half of the work in advance.

Strategic management is an instrument intended for the top management team that provides a framework for running a company, enables the development of unique resources and skills necessary to achieve goals, and with which companies provide an adequate response to contextual changes in the external environment (Caldwell, Anderson, 2017). Therefore, as a set of skills that entrepreneurial orientation offers to leaders as a tool for improvement, scientists have singled out some of the most cited, namely: initiative and innovation, persistence, intelligence, willingness to take risks, communicativeness, motivation, self-confidence and optimism, competitive aggressiveness, etc.

First of all, we must clearly understand that entrepreneurial orientation is a very living thing, just as the economy and the economic sphere move following world economic trends, so entrepreneurial orientation also adapts to new market trends, so the procedures for its implementation differ in giving importance to some features sometimes more and sometimes less. Table 1. shows precisely how scientists see the dimensions of entrepreneurial orientation and its trends in the literature in the period from 2011 to 2021.

*Table 1. Dimensions of entrepreneurial orientation in recent literature from 2011 to 2021.*

<b>Authors / Dimensions of EO</b>	<b>I</b>	<b>P</b>	<b>RS</b>	<b>CA</b>	<b>A</b>
Messersmith & Wales (2011)	+	+	+		
Vij & Bedi (2012)	+	+	++	+	+
Kraus et al. (2012)	+	+	+		
Lechner & Gudmundsson (2014)	+	+	+	+	+
Hussain et al. (2015)	+	+	+	+	+
Courrent et al., Semrau et al., Chavez et al. (2017)	+	+	+		
Gupta & Sebastian (2017)	+	+	+	+	+
Boabeng & Li (2018)	+		+		
Ibarra-Cisneros & Hernandez-Perlines (2019)	+	+	+		
Goulap (2020)	+	+	+		

Legend. I – innovativeness, P – proactiveness, RS – risk taking, CA – competitive aggressiveness, A – autonomy

*Source: Cvijić Čović, 2021.*

As we can conclude from the aforementioned research, innovation, proactivity and risk-taking are the three traits or skills that scientists in recent history are most fond of (Cvijić Čović, 2021). The improvement of leadership skills implies the implementation of an entrepreneurial orientation first in the business system and then on the employee's own example. In order for an entrepreneur or an employee to be able to improve his own knowledge and skills, the company or organization in which he works must first adopt an entrepreneurial orientation in its internal policy as a business policy, and then employees must be determined according to their functions or other categories that will be by means of seminars, team building of various business tasks to strengthen the qualities that are presented as dimensions of entrepreneurial orientation.



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A good leader is evaluated through a whole series of qualities that he must possess, the most important of which are: adaptability, motivation, communicativeness, energy, ambition, acceptability, concreteness, etc. One of the most useful methods for developing leadership among employees is tests. Through the tests, the management first evaluates the actual state of the leadership spirit of its associates, and then, through the results, points out to the employees where they are all wrong and how they can improve their abilities and skills. The leader is the one who should ensure a healthy and productive work environment through: defining goals, creating a path for achieving those goals, removing possible obstacles and providing support to followers (Milić, 2021).

Leaders help followers on their way to achieving their goals by choosing the best way to behave corresponds to the current situation and the needs of the followers: directive leadership, supportive leadership, participative leadership and achievement-oriented leadership (Northouse, 2019). An achievement-oriented leader sets high standards of excellence, insists on continuous performance improvement, but in addition high expectations, this leader believes that his followers can achieve even these challenging ones goals (Bertocci, 2009). In order for the company's productivity to be positive, it is necessary to fulfill a number of expected criteria that undoubtedly lead to the achievement of this goal. However, many scientists believe that productivity is achieved first of all by increasing capital, resources, successively reducing the volume of consumption, while the improvement of management and working abilities of employees through the improvement of their skills are marginalized, believing that this can contribute to productivity only through the second or third round of components necessary to achieve goals. Improving leadership skills can be a direct and immediate way to achieve the targeted productivity, i.e. the foundation of the company's efficiency, because professional staff builds and organizes a good economic platform, on which rests the entire business plan of that company, which undoubtedly leads to the targeted productivity within the planned time frame.

Let's consider the following example, if we know the desired productivity, which we can express monetarily, let that productivity be marked with the number 10, we have one known element, which is employees, who occupy one fifth, that is, twenty percent of the total value of productivity. We need to come up with a method, which in this case would be entrepreneurial orientation, by which we can achieve productivity with the help of employees. The formula for calculating this procedure, in which Em and productivity Pr are employed, would read:

$$X \cdot Em = Pr$$

$$X \cdot 2 = 10$$

$$X = 10/2 = 5$$

X is equal to entrepreneurial orientation (EO) while productivity would be equivalent to leadership skills (LS), so the derived formula would read:

$$EO \cdot EM = PR \Rightarrow LS$$

If we look at leadership as a process, then we see it as a phenomenon that arises in a certain context. It is the context of the group, actions, behavior, trust and interaction of leaders and followers. From this aspect of leadership observation, the action and behavior of the leader is crucial, which presupposes the possession of certain knowledge and skills (Ivanović, 2020). Leadership implies the existence of influence, in fact leadership without influence does not exist! It should also be noted and emphasized that groups are environments in which leadership arises and develops (Djordjevic, 2019).



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However, when we mention leadership in the field of economy, a significant difference is made between leaders and managers. Managers are focused on ways of working, that is, on how work should be done, while leaders are more focused on work outcomes – on what needs to be done (Williams, 2010). In entrepreneurship, a manager with leadership skills can be a catalyst for productivity. The European Commission's definition of entrepreneurship says that entrepreneurship is the ability of an individual to turn ideas into action, with the help of creativity, innovation, and risk-taking (Bučalina-Matić, Milanović, Vrcelj, 2016). Sehovic believes that an entrepreneur who is not ready to take risks cannot take advantage of the opportunities offered to him. An entrepreneur is a generator of changes, new ideas and initiatives, which makes him different from other people. It is a "producer" of competitive advantages. In addition to all the above, there are also the following features (Sehovic, 2014):

- Ambitious – aims for big things.
- Persistent – never gives up.
- Leader – leads other people.
- Realistic – sees things as they are, no matter what.
- Self-confident – believes in himself and his abilities.
- Modest – never praises himself and speaks little. His actions speak.
- Stable – does not allow problems of a personal nature to affect business life.
- Passionate – he enjoys what he does and is one hundred percent committed to it until the end.

Orientation to development, constant changes and permanent creation of the new, as a response to turbulent and uncertain demands of the environment, intensified the process of entrepreneurship, in general, stimulating entrepreneurial behavior at all levels within large organizations (Baros, 2007). This primarily applies to all large corporations, which have the resources and capacities to implement all world economic trends dictated by large global corporations. Sometimes, for the education and acquisition of new skills among employees, a separate system within the company is necessary, which will devise methods and procedures that will influence employees to motivate themselves when it comes to training. These instruments can most often be various motivational magazines within the company, questionnaires, seminars, workshops, etc. However, since the procedure for educating all employees would require a large amount of money, large corporations generally organize seminars only for a targeted group of employees whose improvement of leadership skills could certainly contribute to greater productivity.

## CONCLUSION

Lech Walensa once said, "I simply know how to smell things, feel situations, and when the crowd is silent, I understand what it is saying through silence. Then I say it out loud, using the right words." From this quote, we can clearly conclude that skills such as eloquence, concreteness, communicativeness, motivation, etc. used by people from different socio-business structures. The economic history of the most developed countries in the world, such as America and Japan, speaks in favor of the fact that entrepreneurship played a key role in their development (Petkovic, 2009). The application of entrepreneurial orientation as a method of good practice to improve the leadership skills and abilities of employees is becoming a growing phenomenon that is applied and implemented by an increasing



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number of companies, both in the world and in Serbia. Entrepreneurial orientation can sometimes be key in bringing greater productivity and efficiency to the company.

By improving the functions and abilities of the workforce, a more harmonious organization is obtained, communication is more concrete, time, resources and means for work are saved, and in the end, with a better formula, productivity is achieved with maximum efficiency achieved. However, when we talk about entrepreneurial orientation, it is a very wide range of dimensions to which everything can be related, but following the movements of world economies, supply and demand markets, we can notice that the accent sometimes refers more to certain dimensions and sometimes less. Entrepreneurial orientation is not exclusively intended for company managers, but also refers to the entire number of employees. When we consider the system of values and traits to which entrepreneurial orientation refers, which are analyzed in detail in the paper, we come to the conclusion that if every employee applied those abilities and skills to himself, the productivity of that company would be inevitable.

However, if only the manager possessed the skills while the employees were lagging behind in terms of motivation and work, the targeted goal would certainly not be reached, or it would be reached with much more time and resources, which would increase productivity but without efficiency. The improvement of leadership skills never refers only to the decision to apply an entrepreneurial orientation, but there is a whole process of methods and means that lead to the desired goal. For example, in larger companies, corporations like Telekom Serbia, there is a separate sector within the human resources directorate that deals with employee education and training. However, this cannot apply to small and medium-sized companies with a smaller number of employees, because they do not need a separate human resources system unit, but human resources are made up of one to two professionals who deal with the administrative care of employees. In such companies, entrepreneurial orientation can be made by the decision of the company's manager and would not require its complex application in work.

The goal of every company is to adapt to changes in the economic market, following the trends presented by the world's largest corporations as an example of good practice. Following the changes and movements of the world economy, market opportunities arise that will be seized only by those companies that will consciously increase their competitiveness on the market. By strengthening the economic system of a country, its economic stability is strengthened, which is the goal of every state policy. In the paper, through the methods of induction, deduction and analysis, it is shown how the implementation of entrepreneurial orientation can lead to the improvement of leadership skills, but also how leadership skills can influence the increase in productivity and efficiency of companies.

## REFERENCES

- Baroš, Ž. (2007). *Preduzetništvo i preduzetnički menadžment*. Panevropski univerzitet Apeiron, Banja Luka.
- Bertocci, D. I. (2009). *Leadership in organizations: There is a difference between leaders and managers*. University Press of America Inc., Lanham.
- Bjekic, D., Zlatic, L., Zlatkovic, B. (2023). Entrepreneurial orientation student of educational professions. *Innovations in teaching*, 36(1), 70-85.
- Bucalina-Matic, A; Milanovic, V., Vrcelj, N. (2016): Entrepreneurship, marketing and entrepreneurial marketing, International Scientific Conference – ERAZ 2016: Knowledge-based sustainable economic development, Proceedings, pp. 486.



## Conference Proceedings

- Caldwell, C. & Anderson, V. (2017). *Competitive Advantage: Strategies, Management and Performance*. Nova Science Publishers, Inc., New York.
- Cvijic Covic, M. (2021). Modeling relations between entrepreneurial orientations and successes of the company. University in Novi Sad. Novi Sad.
- Djordjevic, B. (2019). *Leadership - conceptuality and vision*. Faculty of Banking, Insurance and Finance. Union Belgrade University. Belgrade.
- Francesko, M., Njegomir, V., Zivkovic, M. (2018). Entrepreneurial orientation in higher education. XXIV Meeting of Development Trends: "Digitalization of Higher Education". Kopaonik, Proceedings, pp. 1-4.
- Grozdanic, R., Radojicic, M., Vesic, J. (2007). Entrepreneurial orientation. Technical Faculty in Cacak. Cacak.
- Gupta, V.K., Batra, S. (2016). Entrepreneurial orientation and firm performance in Indian SMEs: universal and contingency perspectives. *International Small Business Journal*, 34(5), 660-682.
- Ivanovic, P. (2020). *Vademecum of leadership theories*. Faculty of Economics Podgorica.
- Levie, J., Autio, E., Acs, Z., Hart, M. (2014). Global entrepreneurship and institutions: an introduction. *Small business economics*, 42(3), 437-444.
- Messersmith, J. G., Wales, W. J. (2011). Entrepreneurial orientation and performance in young firms: the role of human resource management. *International Small Business Journal*, 31(2), 115-136.
- Milic, B. (2021). Leadership in function improvement of creativity i innovative behavior employees. Faculty of Technical Sciences, Novi Sad.
- Milickovic, M., Alshafie, M.Z.B., Jevremovic, M. (2021). The impact of entrepreneurship and leadership development on economic development. *FBIM Transactions*, 9(1), 70-80.
- Northouse, P. G. (2019). *Leadership: Theory and practice*. (8th Ed.). Sage Publications, Thousand Oaks.
- Penezic, N. (1998). *Managing the development of small enterprises*. Zadužbina Andrejević, Belgrade.
- Petkovic, V. (2009). *Entrepreneurship*. Faculty of Business Economics and Entrepreneurship, Belgrade.
- Schott, T., Kew, P., Cheraghi, M. (2015). *Future Potential: A GEM Perspective on Youth Entrepreneurship*. Available at: <https://www.theark.ch/media/document/0/gem-2015-youth-report-1438012592.pdf>. Accessed on the 2nd of May 2024.
- Schumacher, E. F. (1973). *Small is Beautiful - Economics as If People Mattered*. Blond & Briggs, London.
- Schumpeter, J A. (1934). *The Theory of Economic Development*. Harvard University Press, Cambridge.
- Sehovic, A., (2014). Entrepreneur as a business leader. *Economic Challenges*, 3(6), 154-165.
- Stam, W., Elfring, T. (2008). Entrepreneurial orientation and new venture performance: the moderating role of intra- and extraindustry social capital. *Academy of Management Journal*, 51(1), 97-111.
- Vekic, A., Brocki, J., Fajsi, A. (2022). Entrepreneurial orientation of students and conditions for launching startup companies. XXVIII Conference of Development Trends: "University Education for Economy", Kopaonik, Proceedings, pp. 417-420.
- Wang, C.L., Altinay, L. (2012). Social embeddedness, entrepreneurial orientation and firm growth in ethnic minority small business in the UK. *International Small Business Journal*, 30(1), 3-23.
- Williams, C. (2010). *Principles of Management*. Data Status, Belgrade.



## Conference Proceedings

# FACTORS INFLUENCING THE ETHICAL AND LEGAL CHARACTER OF DIGITAL MARKETING

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DOI: 10.5937/EEE24032K  
JEL: K00, K24, M31  
Review Scientific Paper

### ABSTRACT

*This paper explores the evolving legal and ethical landscape of digital marketing, highlighting significant regulatory gaps and the emergence of new entities and norms. It identifies a new type of legal entity—the virtual stakeholder—that intrudes on consumer privacy through tracking systems, operating independently of traditional legal frameworks. The rise of "community guidelines" as autonomous, supranational laws illustrates a shift from state-centered legal systems to policy-driven regulations imposed by global digital platforms. The paper underscores the inadequacy of existing regulations, such as the General Data Protection Regulation and national laws, in addressing modern digital marketing practices and international challenges. The erosion of state sovereignty over digital commerce and the slow adaptation of classical laws to technological advancements are noted, alongside the extensive use of the Internet by consumers and businesses, raising ethical concerns. Conclusions include developing specific legal frameworks, regulating community guidelines, and advancing regulatory technology. This approach aims to align legal standards with the rapid changes in the digital environment, ensuring greater protection and fairness for users and businesses alike.*

### KEYWORDS

*digital marketing, consumer, law, ethics, privacy and data protection*

## INTRODUCTION

Contemporary scientific literature addressing the ethical and legal dimensions of internet-based business thoroughly examines several critical aspects of digital marketing. There is a broad consensus within the academic community that this field remains underexplored, as key concepts associated with collective social responsibility and its legal and ethical implications remain inadequately regulated. This assertion is supported by the current deficiency in legislation aimed at ensuring the seamless conduct of digitized transactions in everyday business practices. Such regulatory gaps prompt concerns within both business and academic circles regarding consumer protection and potential societal harm.

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The objective of this paper is to delineate the legal and ethical dimensions of digital marketing, encompassing the primary stakeholders engaged in the digital domain. The research, conducted in 2024, includes a review of domestic and international regulatory frameworks, secondary data analysis, notable academic perspectives, and evaluations by state authorities and experts, along with stakeholder positions in the marketing sector. The study incorporates data critical for mitigating risks associated with unfair business practices, deviations from established business ethics (*ex fide bona*), and the safeguarding of consumer data.

## RESULTS AND DISCUSSIONS

The findings indicate a significant lack of regulation and inadequacies in business relations within this domain, compounded by partial deficiencies in stakeholder competence and societal awareness. There is a notable absence of understanding regarding digital ethics, particularly concerning privacy and personal data protection, as well as intellectual property rights. Over the past decade, the digital economy has evolved from static web pages to dynamic, cloud-based web applications. Internet users have increasingly engaged with these platforms as content creators, entrepreneurs, or consumers, participating in a "many-to-many dialogue" where communication is bidirectional and pervasive.

The Internet business ecosystem has developed highly dynamic communication platforms, integrating social media with business operations, and frequently interacting with consumers. This has enabled companies to tailor and promote their products in alignment with consumer behaviors and needs, fostering what is often termed "personalized marketing."

Modern enterprises employ sophisticated techniques to gather information about customers that would be otherwise inaccessible offline. These methods include various forms of communication, anonymous tracking, and extensive data dissemination (Sipior et al., 2024). During online transactions, customers may be prompted to provide personal data through website registration, membership applications, surveys, contests, or other interactions that solicit personal information. Consumers often believe this information is collected solely for the immediate transaction, which may not always be the case. This is particularly relevant for search engines, which may, through email or instant messaging, involve third parties in data collection without explicit consent (Ibidem). The monitoring of internet users has been facilitated by technologies such as "clickstream" tracking, including cookies, web bugs, and other methods that identify customer behavior patterns covertly (Id). Attention is also drawn to emerging applications of artificial intelligence, including machine learning systems and automated integrated applications (Knežević, Bešlin Feruh, 2024).

Despite the perception that legislative measures have addressed issues related to digital privacy, advertisers frequently evade repercussions for infringing upon client privacy. Commonly, websites involved in marketing activities display notifications such as "This website uses cookies," offering visitors a binary choice: to accept "only necessary cookies" or to accept all cookies. However, this practice, which ostensibly complies with global legislation—including that of the European Union and the Republic of Serbia – often fails to ensure genuine protection of personal data in practice. For instance, regardless of the choice made, whether accepting all cookies or only necessary ones, tracking of the user is typically continuous. Furthermore, the term "necessary cookies" remains undefined, leading to ambiguity and potential misuse. Additionally, tracking techniques such as click-streaming continuously monitor consumer activity across the internet.

In the European Union, the primary legislative framework governing digital marketing is the Digital Markets Act (Regulation (EU) 2022/1925 of the European Parliament and of the Council, dated 14





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September 2022). This regulation aims to establish foundational legal norms and principles to promote fair and unobstructed digital business practices. The Digital Markets Act introduces criteria for identifying "gatekeepers," which include major digital platforms providing online search engines, app stores, and internet messaging services. These gatekeepers are mandated to uphold fair business practices and ensure competitive market conditions. Additionally, their ability to oversee the entire buying and selling process on their platforms effectively positions them as supervisory entities, potentially assuming roles akin to regulatory authorities within their own ecosystems.

The Digital Markets Act seeks to counteract such supervisory tendencies by prescribing specific general provisions for digital business operations. However, the obligations for stakeholders to comply with this act will only come into effect in March 2024, allowing a period for practical implementation and adaptation.

The Digital Services Act (Regulation (EU) 2022/2065 of the European Parliament and of the Council, dated 19 October 2022) addresses intermediary entities such as online marketplaces, social networks, content-sharing platforms, app stores, and platforms involved in online travel and accommodation bookings. The primary objectives of this regulation are to prevent illegal and harmful activities, mitigate the spread of misinformation, ensure user security and the protection of fundamental rights, and establish transparency across online platforms.

The Digital Services Act specifically prohibits targeted advertising aimed at children and sets forth procedures for reporting harmful online content. It also delineates requirements for network infrastructure to safeguard consumers, including data about internet service providers, registered domains, domain names, hosting services (both cloud-based and traditional web hosting), and platforms that facilitate transactions between buyers and sellers (e.g., websites, app stores, and social media platforms).

In contrast to the Digital Markets Act, the Digital Services Act became effective on 17 February 2024, mandating compliance across all platforms. As of September 2024, the regulation has been applied to over 45 million users within the European Union and is enforced on large online platforms and widely used search engines. However, its practical implementation has thus far reached only 10% of the European population. The European Commission, in collaboration with national authorities, is responsible for enforcing this act. The specifics of how each member state will ensure compliance and the methodologies for monitoring adherence to this supranational regulation remain ambiguous.

In the European Union, a significant force behind the adoption of legal measures by the European Commission is the European Court of Justice, which interacts directly with both digital content creators and consumers through its jurisprudence and rulings. For instance, the Court's decision in Case C-371/20 (Peek, Cloppenburg, 2022) underscored the necessity for digital content creators to clearly disclose when their content constitutes advertising. This ruling influenced the adoption of the Unfair Commercial Practices Directive (Directive 2005/29/EC), which aims to enhance transparency and protect consumers from misleading marketing practices (Bormane, Urbane, 2023).

Despite these efforts, the EU has yet to establish a fully integrated and clearly regulated legal framework for monitoring consumer behavior that would ensure comprehensive enforcement of existing regulations. Currently, approximately 90% of consumers are subject to the regulations of major stakeholders, or "intermediary entities," as defined by the Digital Services Act. These intermediary entities often retain the autonomy to self-regulate, effectively creating parallel legal and ethical norms that may diverge from national and EU standards. This autonomy permits internet stakeholders to adopt ethical practices that can be inconsistent, varying from one country to another or between different entities. Consequently, internet companies may operate with ambiguous ethical standards.

This issue is particularly pertinent in the context of the European Open Internet Access Regulation (Regulation 2015/2120), which has been in effect since 2016 as part of the EU Digital Strategy. This



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regulation safeguards end users' access to online content and services by prohibiting any form of discrimination or restriction, such as blocking or throttling, by internet service providers. While this regulation promotes broad internet access rights, it does not fully address the need for precise legal provisions to protect users comprehensively, including those using marketing services.

The current legal framework for direct marketing within the European Union is governed by general regulations that do not explicitly address internet-based practices. Regulation (EU) 2016/679, commonly known as the General Data Protection Regulation, provides broad data protection guidelines but does not specifically target internet marketing practices. The proposed regulation for ePrivacy (Proposal for an ePrivacy Regulation, January 10, 2017) has been under consideration by the Council of Europe for nearly six years and is still pending discussion by the European Parliament, with no clear timeline for its adoption.

In the interim, the European Commission has drafted a Directive on Privacy and Electronic Communications (2002/58/EC), which also remains unadopted by the European Parliament. The ePrivacy Regulation is intended to serve as a "lex specialis" relative to the GDPR. Following the legal principle of *lex specialis derogat legi generali*, this regulation aims to address specific technical developments and widespread phenomena in digital communication more comprehensively. It seeks to ensure a uniform level of protection for all users engaging with electronic communication services.

The ePrivacy Regulation is designed to apply first to electronic communication service providers such as WhatsApp, Facebook Messenger, and Skype, and then to metadata—data that describes secondary information, including the origin, creation date, or location of primary data. The regulation proposes that private data should only be retained if necessary for billing and payment purposes. Furthermore, it seeks to address contemporary marketing challenges by introducing precise legal standards for tracking technologies, such as cookies. This proposal would grant users the explicit right to accept or decline tracking and provide protections against unsolicited communications, including spam emails, SMS, and automated calls. Additionally, the proposal suggests that oversight of these regulations should fall under the same authorities responsible for enforcing the General Data Protection Regulation.

The current protection of personal data for EU citizens is primarily governed by the General Data Protection Regulation, a comprehensive framework that applies universally across the European Union. The General Data Protection Regulation serves as a broad legislative measure for personal data protection, encompassing all EU citizens regardless of their internet usage. However, this regulation functions as a generic rule and does not address the specificities of internet-based practices and direct marketing.

This general approach proves insufficient in the context of direct marketing and online behavior, particularly given that EU citizens are often targeted by marketing activities originating from outside the EU (e.g., from the United States or the United Kingdom), which may not be subject to EU regulations. A more pressing issue is that the GDPR, which was proposed eight years ago, has become outdated in addressing contemporary marketing practices. The regulation primarily addresses older forms of direct marketing such as email, spam, and cookies, while failing to account for newer, more intrusive tools that have emerged, including neuromarketing techniques, echo chambers, and various applications of artificial intelligence.

These advanced methods pose significant challenges that the current regulatory framework does not adequately address, highlighting the need for updated and more specific regulations to effectively protect EU citizens from evolving marketing strategies and technologies.

In the Republic of Serbia, the overarching legal framework for data protection and digital marketing is primarily governed by the Personal Data Protection Act (Official Gazette of RS, No. 87/2018). In addition to this foundational legislation, several other laws contribute to the regulation of electronic and digital communications:



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- Law on Electronic Commerce (Official Gazette of the RS, Nos. 41/2009, 95/2013, 52/2019),
- Law on Electronic Communications (Official Gazette of the RS, Nos. 44/2010, 60/2013, 62/2014, 95/2018, 35/2023),
- Law on Information Security (Official Gazette of RS, Nos. 6/2016, 94/2017, 77/2019),
- Law on Advertising (Official Gazette of RS, Nos. 6/2016, 52/2019).

Furthermore, the Serbian government has implemented strategic initiatives related to internet business through:

- Strategy for the Development of the Information Society and Information Security (2021-2026),
- Strategy for the Development of the Electronic Communications System (up to 2027).

Marketing practices in the digital environment are also addressed within the Criminal Code (Official Gazette of RS, Nos. 85/2005, 88/2005, 107/2005, 72/2009, 111/2009, 121/2012, 104/2013, 108/2014, 94/2016, 35/2019). This code stipulates penalties for various cybercrimes, including: A prison sentence of up to two years for the creation and introduction of malware into another person's computer, contingent on the extent of damage caused; Fraud committed via the internet, which is treated as a distinct offense, punishable by up to ten years in prison if the financial damage exceeds a specified threshold; Unauthorized access to another person's computer, network, or electronic data processing, which incurs a prison sentence ranging from six months to three years.

These regulations collectively aim to address the complexities of digital marketing and electronic communication, though they may still face challenges in fully aligning with the rapidly evolving nature of digital technologies and marketing practices.

It is evident that while certain legal provisions prohibit specific acts, their applicability to digital marketing and consumer monitoring on the internet remains indirect and problematic. For instance, it is debatable whether cookies or spam can be classified as viruses, or how unauthorized access to computers and internet fraud should be defined within the context of digital marketing. The Criminal Code of the Republic of Serbia, for instance, addresses offenses primarily related to hardware systems, such as computers and computer networks. However, contemporary digital challenges predominantly involve software regulation, as the internet is accessed through a variety of devices, including smartphones, tablets, and other Wi-Fi-enabled gadgets.

These regulatory challenges mirror those faced by many EU countries, where a general legal framework, such as the General Data Protection Regulation in the EU and the Law on the Protection of Personal Rights in Serbia, governs personal data protection. Both frameworks offer broad protection for personal data but do not specifically address the nuances of internet-based marketing or emerging digital tools.

In Serbia, as in other jurisdictions, issues such as cross-border direct marketing and outdated regulations regarding modern technological tools remain inadequately addressed. This regulatory gap underscores a critical issue: in the absence of specific state and legal norms, the behavior of internet users is often governed by multinational corporations, or "intermediary entities," which can create their own regulatory frameworks.

These issues are significant not only for users and consumers within the EU and Serbia but also on a global scale, given the internet's universal reach. The widespread use of the internet by businesses is illustrated in Figure 1.

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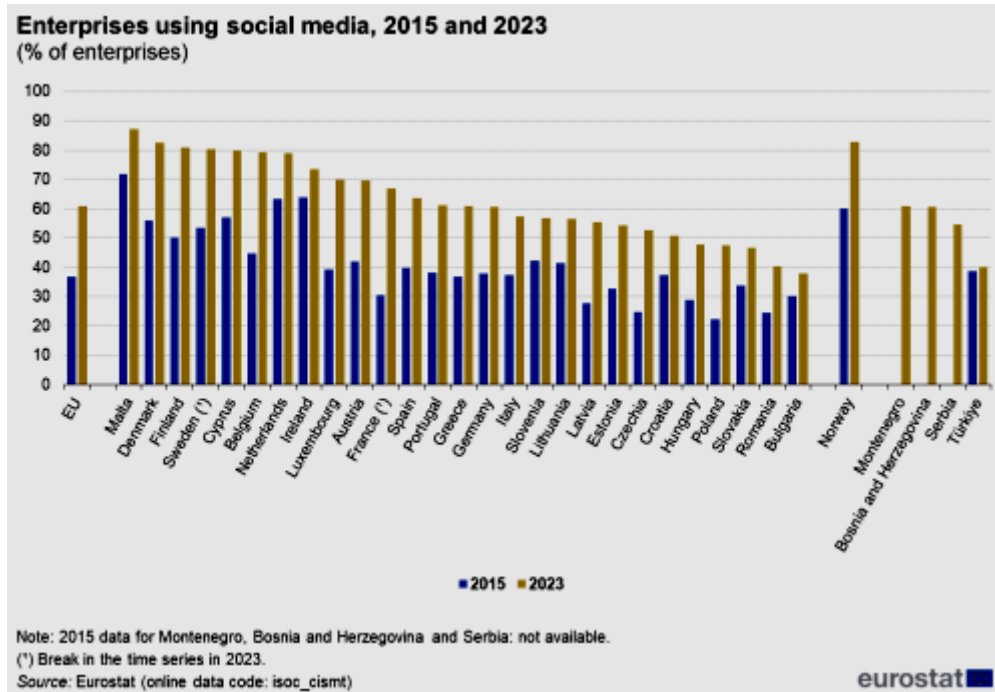


Figure 1. Enterprises uses social media 2015 and 2023

Source: Eurostat (online data code: isoc\_cismt)

In 2023, 60.9 % of EU enterprises used at least one of these types of social media, an increase by 24.1 percentage points compared to 2015. Percentages do vary widely from country to country, ranging from 80 % and more in Malta 87.1 %, Denmark 82.5 %, Finland 81 % and Sweden 80.3 % to less than 45 % in Romania 40.5 % and Bulgaria 38 % (The European Commission, 2023).

In EU 60.9 % enterprises used social media in 2023. More than 8 in 10 large enterprises (86 %) reported using social media, a share significantly higher than the one recorded for small enterprises (58 %). It is noticeable that 29.5 % of enterprises in the EU used only one of the three types of social media and another 23.3 % used two types of social media. 8.1 % of enterprises reported using 3 types of social media. Almost one third of small enterprises, 29.5 % preferred to concentrate on the use of one type of social media compared to slightly less than one-fourth i.e. 23.3 % using two and 6.4 % using three types of social media. On the contrary, the shares of EU large enterprises using two and three types of social media 31.7 % and respectively 29.8 % were higher than the percentage using only one type 24.5 % (The European Commission 2023).

Data indicates that in highly developed nations, approximately 80% of entrepreneurial activities are conducted over the internet. In the context of inadequate or weak regulation, users and consumers increasingly engage in transactions where they are vulnerable to unfair practices by advertisers and principal stakeholders online. Many companies have established their own oversight mechanisms, such as fact-checking systems, which involve filtering information and intersect with fundamental constitutional rights, including freedom of information, freedom of speech, and freedom of belief and religious views.

Given that a significant number of consumers now spend more time engaged in virtual rather than physical shopping, the prevailing thesis is that users, when participating in various online activities (such as freelancing, influencing, drop shipping, affiliate marketing, and shopping), are more likely to be



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governed by the "legislation" of multinational corporations rather than by the laws of individual countries. This is evidenced by the data presented in Figure 1.

This "legislation," often referred to as community guidelines, encompasses a broad array of practices that are rarely addressed by national regulations. These practices include the use of cookies, web tracking, email tracking, and instant message tracking. Additionally, this "regulation" often involves ethically questionable practices, notably neuromarketing, which employs psychological and neurological techniques, sometimes without explicit user consent. Neuromarketing strategies leverage emotional responses, motivation, and perception to influence consumer behavior (Alsharif et al., 2023).

The susceptibility of consumers to varying ethical standards among stakeholders is exemplified by the case of DoubleClick Inc., as described by Charters. DoubleClick, a prominent advertising company specializing in the creation of internet banners (pop-ups), plays a crucial role in the advertising ecosystem by monitoring user behavior and internet trends to tailor advertisements according to user interests. Acting as an intermediary between advertisers and end users, DoubleClick not only facilitated targeted advertising but also refined data profiles of individuals and companies, leveraging proprietary databases.

In response to concerns raised by the Electronic Privacy Information Center (EPIC), which advocates for privacy rights, DoubleClick's practices were scrutinized for their potential negative implications for user privacy. The public backlash following EPIC's critique was swift and intense, compelling DoubleClick to alter its proposed practices (Charters, 2022).

Despite the criticism, DoubleClick's CEO defended the company's actions, asserting that, from an ethical standpoint, the company had not acted inappropriately. He argued that DoubleClick was ahead of its time and had anticipated that users would eventually accept such practices. The study concludes that there may be an ethical rationale for DoubleClick's electronic monitoring practices if users are given a clear choice to accept or reject such tracking. According to Kantian ethics, such an invasion of privacy could be justified if it respects user autonomy and informed consent (Ibidem).

The DoubleClick case underscores the frequent exposure of users and consumers to ethically dubious practices within the digital marketing sphere. This case highlights a broader issue: both legal theorists and ethicists acknowledge that consumers often lack sufficient knowledge to safeguard their personal rights online. Moreover, there is a discernible gap in the legal and ethical understanding among modern technological elites, leading to potential misuse of advanced technological tools.

The study reveals that DoubleClick's founder appeared to have deliberately engaged in practices that infringed upon consumer rights, operating under the presumption of tacit consent. This presumption reflects a broader issue where technological advancements outpace legal frameworks, resulting in regulatory lag. In this context, the law – traditionally understood as a state-based regulatory mechanism – emerges as a "slow form of regulation" that struggles to keep pace with rapid technological development.

The pervasive use of tracking systems on the internet, including cookies on virtually every website and extensive databases managed by search engines, complicates the enforcement of comprehensive regulatory measures. This situation illustrates a shift from a simple binary relationship of seller-consumer or seller-consumer-state to a more complex dynamic involving digital multinational companies and platforms. These entities, whether acting as advertisers or search engines, have increasingly assumed pivotal roles in regulating digital interactions.

The contemporary landscape of digital business reveals a significant shift from the 20th-century liberalism, which was grounded in Locke's theory of the inviolability of private property and the clear demarcation between individual ownership and external claims. At the dawn of the 21st century, these



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principles have been increasingly overshadowed by a pragmatic approach driven by technological advancement. This shift prioritizes technological efficacy over abstract concepts such as individual freedom, justice, and equality.

The prevailing focus on "practicality," a term that remains inadequately defined in the context of emerging technologies, suggests a reconfiguration of traditional legal and ethical standards. The concept of diverse, autonomous sources of law on the internet aligns with modern theories of freedom as non-domination. This theory, rooted in political and legal pluralism, posits the existence of multiple centers of power and a spectrum of ethical principles that are interpreted contextually rather than universally. This evolving paradigm reflects a move towards a more fragmented and dynamic regulatory environment where traditional notions of individual rights and justice are continually renegotiated in response to technological developments (Zanitelli, 2022).

## CONCLUSION

This study has identified several intricate factors influencing the legal and ethical dimensions of digital marketing:

1. **Emergence of Virtual Stakeholders:** A novel legal entity has emerged in the seller-consumer dynamic: the virtual stakeholder. This entity, through tracking systems, unlawfully collects consumer data, infringing on constitutional privacy rights. It acts as an intermediary in all interactions during the buying and selling process. This intermediary not only influences the transaction but also plays a role in standardizing the process according to its own autonomous ethical principles. This creates a new form of law that has yet to be thoroughly integrated into legal theory.
2. **Formation of Community Guidelines:** A new form of legal norm, termed "community guidelines" or usage policies, has developed. These guidelines regulate the interactions between sellers, consumers, and advertisers but do not fit within the formal hierarchy of legal acts within any country. They are part of the policy framework of virtual stakeholders and can be viewed as a type of autonomous, supranational law. This represents a historical singularity in legal regulation, forming a parallel system to traditional legal norms.
3. **State Sovereignty and Regulatory Challenges:** The lack of sovereign regulation governing online transactions and advertising compounds the complexity of the digital marketing environment. The erosion of national authority over this global phenomenon is evident, as the Internet has become a domain largely governed by ambiguous global rules. This shift highlights the inadequacy of traditional legal mechanisms, which struggle to keep pace with the rapid technological advancements and the transnational nature of the Internet. Regulatory bodies face challenges due to insufficient tools, competencies, and technological expertise, making classical legal frameworks appear outdated and slow.
4. **Massive Internet Utilization:** The extensive use of the Internet by both consumers and entrepreneurs, despite concerns about legal and personal security, underscores an ethical precedent that warrants further sociological and psychological investigation. This widespread adoption of the Internet has shifted economic activities to a global platform, often outside the effective reach of state regulation, highlighting the need for more robust and adaptive regulatory approaches.



## Conference Proceedings

## REFERENCES

- Alsharif, A.H., Salleh, N.Z.M., Abdullah, M., Khraiwish, A., Ashaari, A. (2023). Neuromarketing Tools Used in the Marketing Mix: A Systematic Literature and Future Research Agenda. Sage Open, 13(1). <https://www.researchgate.net/publication/369028665NeuromarketingToolsUsedintheMarketingMixASystematicLiteratureandFutureResearchAgenda>
- Bormane, S., Urbane, M. (2023). The factors influencing legal and ethical digital marketing communication. 24th International Scientific Conference "Economic Science for Rural Development", Proceedings, pp. 188-196.
- Charters, D. (2002). Electronic Monitoring and Privacy Issues in Business-Marketing: The Ethics of the DoubleClick Experience. Journal of Business Ethics, 35, 243–254.
- Court's decision in Case C-371/20 (Peek, Cloppenburg, 2022).
- Criminal Code ("Official Gazette of RS", 85/2005, 88/2005, 107/2005, 72/2009, 111/2009, 121/2012, 104/2013, 108/2014, 94/2016, 35/2019).
- Digital Markets Act (Regulation (EU) 2022/1925 of the European Parliament and of the Council of 14 September 2022 on contestable and fair markets in the digital sector and amending Directives (EU) 2019/1937 and (EU) 2020/1828.
- Digital Services Act Regulation (EU) 2022/2065 of the European Parliament and of the Council of 19 October 2022 on a Single Market For Digital Services and amending Directive 2000/31/EC.
- Directive on Privacy and Electronic Communications (2002/58/EC).
- Knežević, B., Bešlin Feruh, M. (2024). Ethical and legal aspects of using artificial intelligence in marketing. In V. Kuleto (Ed.), Book of Extended Abstracts: 2nd LINK IT & EdTech International Scientific Conference – LINK IT&EdTech24. Belgrade, Faculty of Contemporary Arts, Information Technology School.
- Law on Advertising ("Official Gazette of RS", 6/2016, 52/2019).
- Law on Electronic Commerce ("Official Gazette of RS", 41/2009, 95/2013, 52/2019).
- Law on Electronic Communications ("Official Gazette of RS" 44/2010, 60/2013, 62/2014, 95/2018, 35/2023).
- Law on Information Security ("Official Gazette of RS", 6/2016, 94/2017, 77/2019).
- Law on Protection of Personal Data ("Official Gazette of RS, 87/2018).
- Open Internet Access (Regulation EU 2015/2120).
- Proposal for a Regulation of the European Parliament and of the Council (EU January 10, 2017).
- Regulation (EU) 2016/679 of the European Parliament and of the Council of 27 April 2016 on the protection of natural persons with regard to the processing of personal data and on the free movement of such data, and repealing Directive 95/46/EC (General Data Protection Regulation).
- Sipior, J.C., Ward, B.T., Rongione, N.M. (2024). Ethics of Collecting and Using Consumer Internet Data. Information Systems Management, 21(1), 58–66.



## Conference Proceedings

Strategy for the Development of Information Society and Information Security of the Republic of Serbia from 2021 to 2026.

Strategy for the Development of the Electronic Communication system of the Republic of Serbia until 2027.

Zanitelli, M. (2022). Freedom as Non-Domination and Private Law's Autonomy. *Law, Ethics and Philosophy*, 9, 47-63.

Internet sources:

[https://commission.europa.eu/law/law-topic/consumer-protection-law/consumer-contract-law\\_en](https://commission.europa.eu/law/law-topic/consumer-protection-law/consumer-contract-law_en)

[https://commission.europa.eu/strategy-and-policy/priorities-2019-2024/europe-fit-digital-age/digital-services-act\\_en](https://commission.europa.eu/strategy-and-policy/priorities-2019-2024/europe-fit-digital-age/digital-services-act_en)

<https://digital-strategy.ec.europa.eu/en/policies/safer-online>





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# E-COMMERCE ADOPTION AND ITS EFFECTS ON THE OPERATIONAL PERFORMANCE OF MSMEs

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DOI: 10.5937/EEE24033K  
JEL: M31  
Review Scientific Paper

### ABSTRACT

*Micro, small, and medium-sized businesses (MSMEs) in the food and beverage industry are experiencing considerable growth because of their progressive use of digital media. Traditional marketing strategies have limitations in terms of time and location. Despite this, online marketing enabled the engagement of a significant number of individuals, irrespective of their geographical location. The objective of this empirical study is to examine the role of digital media marketing in the competitive advantage and performance of MSMEs. The purpose of this investigation was to evaluate the influence of digital marketing on the performance and competitive advantage of micro, small, and medium-sized enterprises. This research used a quantitative approach for analysing data using SPSS and the structural equation model with the help of the linear structural relations (LISREL) software. It appears from the findings that digital marketing significantly and positively relates to competitive advantage. Moreover, digital marketing has a substantial impact on enhancing the favourable outcomes of micro, small, and medium enterprises.*

### KEYWORDS

*E-Commerce, digital media marketing, MSMEs*

## INTRODUCTION

A substantial rise in the number of Micro, Small, and Medium Enterprises (MSMEs) operating in the food and beverage industry can be partly because these businesses are increasingly adopting digital media forms. With the help of digital transformation, they can expand their business and tap into new markets (Asikin, Fadilah, 2024, Radović-Marković et al., 2021). The food and beverage sector has grown due to the variety of advertising options provided by internet marketers through venues like Grab Food and Go Food, small and medium-sized businesses. Shift from Industry 4.0 to Industry 5.0 is considered a critical period for business growth.

Digital marketing allows these businesses to sell their items efficiently, which boosts their market share and overall competitiveness. The use of digital media for product promotion is emphasized as a strategic method to gain dominance in the market (Chakti, 2019; Komalasari et al., 2021). The fundamental concept of digital marketing revolves around harnessing extensive media, such as television and the

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internet. These mediums provide infographics and other visual representations of the company's marketed products. Utilising this visual strategy enables firms to efficiently convey their product offerings and appeal to a broader audience, hence expanding their market reach and influence (Kumar et al., 2020, Tiago, Verssimo, 2014). Digital marketing has surpassed traditional marketing by reaching a wider variety of consumers at more convenient times and from more locations. Digital marketing has surpassed the conventional form of marketing.

Digital marketing provides more flexibility and wider outreach compared to traditional marketing, which is constrained by time, location, and audience reach (Asikin et al., 2024). This feature allows firms to cooperate with a broader and more diversified audience, hence improving their comprehensive marketing efficiency (Das, 2018, Putri, Marlien, 2022). The challenges faced in conducting promotional and sales activities hinder MSME participants from acquiring information about desired customer products, meeting consumer preferences, fulfilling product requirements of producers or MSME participants, and establishing clear business objectives while expanding their consumer base (Rahardja, 2022).

Using empirical methods, the purpose of this research article is to evaluate the impact of online digital media marketing on the competitive advantage and performance of MSMEs (Melović et al., 2020). The common man has become very familiar and accessible with digital media in the marketing field due to the widespread use of the internet (Tariq et al., 2022). Online purchasing has gained popularity and security due to the instant rating system available in each online marketing platform, which also extends to the sales domain (Leeflang et al., 2014). With the use of digital media marketing and e-commerce automation, helps spread the word about products. Saebah and Asikin (2022) proposed that digital marketing involves leveraging digital technology to establish a platform that not only meets the needs of buyers but also aids companies in achieving their intended goals.

According to the American Marketing Association (AMA, 2009), digital marketing is all the methods, actions, and structures that are made possible by digital technology to create, communicate, and deliver value to customers and other important stakeholders (Tariq et al., 2022). Utilising websites, social networks, emails, databases, mobile and wireless channels, and digital TV, digital marketing is carried out over the Internet (Leeflang et al., 2014). The primary goals are to increase exposure to target consumers, learn more about their demographics, buying habits, and brand loyalty. All of these things are being done to reach marketing targets. The Digital Marketing Primer by Järvinen (2015) defines that advertising that uses media on the internet is called digital marketing.

The American Marketing Association (AMA) defines digital marketing as a collection of activities and processes that involve organisations that use digital technology to convey, generate, and deliver messages to members of the customer base, as well as other interested parties. Utilizing digital marketing as a strategy for gaining a competitive edge can have a significant impact, particularly for small and medium-sized enterprises looking to promote their products in the online marketplace (Asikin et al., 2024). Rachmadi (2020) provides a variety of definitions for e-marketing, with one defining it as an organization's attempt to use online media for information, communication, promotion, and sales of its goods and services (Radović-Marković et al., 2011).

Enhancing a company's value to its customers is a key aspect of gaining a competitive edge. Using this factor, a company can earn more than its industry rivals. Having a competitive advantage is crucial for a company to thrive in a competitive market. A company's competitive advantage arises from the value or benefits it can provide to its customers. A company can gain a competitive edge by adopting one of the three generic strategies (Asikin et al., 2024). Hynes (2021) suggests that cost leadership, distinctiveness, and focus are the three main ways to achieve competitive advantage. The overall strategy for gaining a competitive edge includes these different approaches. A company's cost advantage strategy entails positioning itself as a producer with a competitive edge in terms of pricing within its industry.



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Depending on the makeup of the industry, this cost advantage could have a variety of sources. To be successful, producers who aim to keep costs low must be able to recognise and take advantage of any possible sources of savings. Cost leadership focuses on producing standardised products at low costs to meet the needs of price-sensitive consumers. The differentiation strategy's objective is to distinguish our services and products from those of our competitors. The goods and services must have unique benefits or distinguishing qualities that attract customers' interest.

D. Hunger and T. W. Kotler (2000) argued that differentiating oneself from competitors serves as a proactive strategy for achieving superior outcomes within a specific industry. This is attributed to the fact that a company's distinct selling points have the potential to foster customer loyalty, thereby contributing to an expansion of market share. While the pursuit of competitive strength differs from cost advantage techniques, it is essential to note that this strategy still takes cost estimations into account. Instead, the main focus is not on cost. One of the final generic strategies is to focus on a specific group of customers, product line segment, or geographic market.

A focused strategy is developed to effectively achieve specific objectives, whereas a strategy centred on low costs and differentiation aims to fulfil extensive industry-wide goals. The underlying principle of this approach is that, relative to its broader competitors, the company will be positioned to more successfully and efficiently achieve its distinct strategic objectives by adopting this strategy. The focus is to improve service quality within a predetermined target. Implementing this approach requires the company to focus its efforts on serving a specific market segment (Asikin et al., 2024). Additionally, Gebrie (2021) asserts that a competitive strategy combines assets and capabilities that set an organisation apart from its rivals, such as cash, technological superiority, brand recognition, and other assets. A company's internal limits on the competitive strategies it can use are set by its strengths and problems, along with its core values.

According to Jalilvand (2017), the competitive forces in an industry, regardless of whether it produces products or services, will determine an organisation's competitive capabilities. Five basic competitive forces determine the level of competition in an industry: the threat of new competitors, strong suppliers, influential buyers, substitute products, and the level of competition (Asikin et al., 2024). Linawati (2015) defines performance as a collection of diverse management activities that offer a comprehensive assessment of the level of success, progress, and shortcomings that have been achieved in the execution of their duties and obligations in public accountability. The term "performance" refers to how well an organisation has achieved its goals within a given period. An organisation's performance can be evaluated through various metrics, including sales volume, profit margin, return on investment, turnover rate, and market share.

Furthermore, these efforts serve as the foundation of the populace's economic structure, with the primary goal of mitigating disparities across various groups, income levels, and commercial entities, as well as addressing issues of poverty and unemployment. Wahiddudin (2019) asserts that performance is contingent upon task completion and the outcomes that result from it. The MSMEs sector is a critical component of the economy of a country or region. Growing small and medium businesses is a key way to fight poverty and boost the economy. The country's micro, small, and medium-sized enterprise (MSME) sector is struggling in the face of a dynamic and complicated commercial environment. The rapid expansion of free trade also brings intense competition, which can be felt on a local, national, and international scale. Due to its essential impact, free trade is a crucial component of MSME growth and development. It can substantiate thoroughly their activities. The primary focus should be on producing goods for human capital and financial support under an organised management structure. To achieve enormous success in this field, it is critical to execute an appropriate strategy. Additionally, it's crucial to shed light on diverse market ingredients in challenging circumstances (Asikin et al., 2024).



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# METHODS

The researchers conducted the thorough literature analysis on the relationship between digital marketing and the performance of MSMEs. By outlining the pertinent theories, this review will lay solid theoretical groundwork for the research. Following that, we employed quantitative research methods and relied on questionnaires as our primary data collection tools. It is critical to carefully analyze these questionnaires to determine how MSME sector owners view their digital marketing strategies and overall business performance. The study included MSME owners from a selected region, with samples chosen at random to ensure the findings can be applied more broadly.

We collected the data through both online surveys and in-person interviews, taking into account the preferences of the sample respondents. The researcher selected digital media marketing as an independent variable, competitive advantage, and business performance as dependent variables. It will be analysed using appropriate statistical techniques, such as regression analysis (Ridzki et al., 2023; Asikin et al., 2024). This analysis will reveal how much digital media marketing affects MSMEs' performance and competitive advantage. In addition, in-depth interviews with several MSME owners have also been conducted to gain a better understanding of how digital marketing enhances their competitive advantage and business performance (Asikin et al., 2024).

# RESULTS

## Descriptive Research Variables (Digital Marketing (X))

Chaffey and Chadwick (2016) proposed that Digital marketing is a marketing activity that uses digital media using the internet that utilizes media in the form of the web, social media, email, and digital tv, to increase target consumers and to find out the profile of behaviour, product value, and loyalty of customers or target consumers to achieve marketing goals. The indicators of digital marketing strategy variables are measured by six indicators (Figure 1): using Digital TV (X1.1), social media (X1.2), e-mail (X1.3), mobile (X1.4), Internet (X1.5), and database (X1.6) (Asikin et al., 2024).

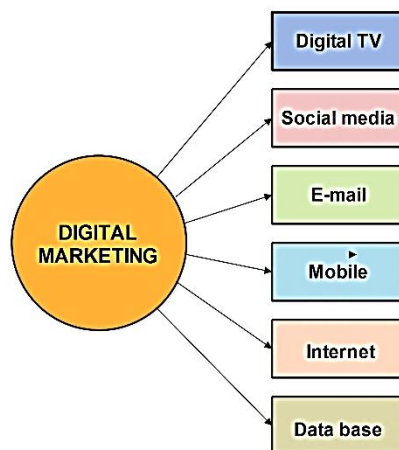


Figure 1. Digital marketing indicators



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### DISCUSSION

In an attempt to address the research problem formulation, this discussion centres on decisions that emerge from hypothesis testing. Hypotheses testing outcomes are summarized as follows:

#### **The Impact of Digital Marketing Techniques on Competitiveness**

Path analysis was used to do research, and the results showed that digital marketing plans are very important for improving competitive advantage. It is apparent that a competitive advantage is achieved through the implementation of a robust digital marketing strategy. Digital marketing strategy has a significant favourable influence on competitive advantage with  $P = 0.000 < 0.05$  with a coefficient value of 0.404, this coefficient shows that the better the marketing strategy, the better the competitive advantage will also be in a positive direction. The coefficient of influence is marked positive, meaning that a good digital marketing strategy increases competitive advantage. This assertion is substantiated by the findings of the preliminary hypothesis testing, which suggest that a robust digital marketing strategy could significantly impact competitive advantage (Asikin et al., 2024).

The results of this study back up Chaffey and Chadwick's (2016:11) idea that digital marketing is a way to reach and understand target consumers through digital media like the internet, email, digital TV, and social media. To successfully achieve business goals, it is crucial to gain a deeper understanding of consumer behavior, the value of a product, and customer loyalty. Herman's (2018) study reveals that the strategic implementation of a company's diversified array of resources is precisely associated with achieving a competitive advantage. Because of this, digital marketing tactics might help MSMEs get ahead of the competition. This study's results serve to substantiate the research conducted by Wiktor (2021), suggesting that organizations that extensively implement digital marketing strategies experience a more significant influence on their brand promotion and positioning. According to studies conducted by Blichfeldt (2021), Foroudi (2017), and De Pelsmacker (2018), digital technology has a significant impact on all aspects of human activities, including marketing.

#### **The Impact of Online media Advertising on the Survival of Small and Medium-Sized Enterprises**

The investigation demonstrates that digital marketing tactics exert a substantial and favourable impact on the performance of micro, small, and medium enterprises. This suggests that the effectiveness of MSMEs is directly correlated with the suitability of their digital marketing approach. The impact of digital media marketing techniques on MSME performance is statistically significant ( $P = 0.016 < 0.05$ ), with a coefficient value of 0.342. This positive coefficient indicates that there is a direct correlation between the quality of the digital marketing strategy and the performance of micro, small, and medium enterprises. In other words, as the digital marketing strategy improves, so does MSMEs' performance.

The positive coefficient of influence indicates that a well-executed digital marketing plan will lead to improved performance of MSMEs in the food sector. The results of the third hypothesis test demonstrate that digital marketing techniques exert a favourable and substantial impact on the performance of micro, small, and medium enterprises. Effective marketing strategies are crucial for MSME industries and their associated products. Chaffey's (2022) claims, which support the study's conclusion, suggest that digital



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media marketing effectively leverages digital technology through various online services and media support. It is imperative to establish digital networks, including blogs, podcasts, social media networks, email, digital TV, and websites, to sustain the contribution of MSME's to human society.

These channels are crucial for enabling marketing activities. Sinambela (2016:480) further defines employee performance as the ability of employees to execute specific skills. By leveraging their employees' capabilities, MSME companies can optimise their performance by employing digital marketing strategies (Etim et al., 2021). Therefore, the findings of this study align with the hypothesis that using digital marketing techniques can enhance the effectiveness of micro, small, and medium enterprises.

The results of this study support the conclusions of additional research conducted by Chang (2016). Different advertising methods have different economic benefits, which can affect managers' judgements of ad efficacy and external stakeholders' assessments of firm performance. Kano (2022) observed in their research that the impact is more significant as companies increasingly rely on digital marketing. The results demonstrate the impact of digital technology on performance, as indicated by Blichfeldt's (2021).

### **The Effect of Competitive Advantage on MSME Performance**

The hypothesis testing results indicate that competitive advantage significantly and positively impacts the performance of MSMEs in the food sector. This implies that the better the competitive advantage, the better the performance of these MSMEs. Specifically, competitive advantage has a significant positive effect on MSME performance, with a p-value of 0.005 (less than 0.05) and a coefficient value of 0.308. According to this positive coefficient, the performance of MSME's is improved as a result of increased competitiveness (Asikin et al.). The fifth hypothesis test results further confirm that the performance of MSME's is substantially and positively influenced by a competitive advantage strategy.

These findings support Teng's (2007) theory that a company's competitive advantage is gained by implementing strategies that exploit its many resources. Increased competitiveness therefore leads to improved performance of MSME's as per the positive coefficient. The fifth hypothesis test result also confirms that through a competitive advantage strategy, performance of MSME's is significantly and positively affected.

These conclusions validate Teng's (2007) theory positing that competitive edge of a firm is attained by adopting strategies that tap into its abundant resources. Furthermore, they uphold Parnell's (2005) assertion that competitive strategy merges objectives which are reinforced by better resources and abilities than those of rivals including financial capabilities, technology supremacy, brand awareness and employee efficiency. This study endorses Leitão's (2019) concept that performance is the value of a number of work activities which help an organization reach its goals. Accordingly, the findings imply that achieving a competitive advantage can enhance the performance of actors in MSMEs within agriculture sector (Teng, 2007; Parnell, 2005; Leitão, 2019).

### **The Effect of Online Marketing Strategy on the Performance of MSME Through Competitive Advantage**

As shown by the route analysis, which demonstrates the outcomes of the hypothesis testing that, In the food industry micro, small, and medium-sized enterprises can gain a competitive advantage over digital marketing techniques. So, an appropriate marketing plan can make these businesses more competitive, which will have an effect on how well they do in the long run. There is statistical evidence from the



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Sobel test ( $p=0.016$ ) that digital marketing techniques have an effect on MSME performance via competitive advantages. Micro small and medium-sized enterprises in the food industry can enhance their performance due to the competitive edge provided by digital marketing. Internet use, with a score of 4.42, stands out as the most significant factor, highlighting its crucial role in the performance of MSME. This is largely due to the key role competitive advantage characteristics play in explaining the positive and substantial impact of digital marketing strategies on MSME performance.

Consistent utilization of the internet, along with other key indicators, is essential for improving the performance of micro, small, and medium-sized enterprises and, consequently, their competitive advantage. With a score of 4.48, internet use is the most prominent factor among the various factors, emphasising its critical role in the performance of MSME. This is mainly because competitive advantage characteristics play such a pivotal role in explaining the positive and substantial effect of digital marketing tactics on the performance of MSME. It is vital to make constant use of the internet, in addition to other important indicators, in order to improve the performance of micro, small, and medium-sized enterprises and, subsequently, the competitive advantage of MSME.

## CONCLUSION

After careful analysis and discussion of the results, it becomes evident that implementing digital marketing strategies yields significant benefits. Digital media can boost the potential, market coverage, and competitiveness of micro, small, and medium businesses. Through the utilisation of digital marketing tools like social media, these companies have the ability to broaden their reach, enhance customer engagement, and effectively establish and sustain a larger customer base. Furthermore, making use of online food ordering platforms like Grab Food and Go Food can greatly assist MSMEs in the food and beverage industry to efficiently connect with potential customers.

As a result, in this digital era, it is essential to allocate resources to digital marketing in order to enhance the competitive advantage and overall efficiency of MSMEs.

## REFERENCES

- Asikin, M. Z., Fadilah, M. O. (2024). Masa Depan Kewirausahaan dan Inovasi: Tantangan dan Dinamika dalam Era Digital. *Jurnal Syntax Admiration*, 5(1), 303-310.
- Asikin, M. Z., Fadilah, M. O., Saputro, W. E., Aditia, O., Ridzki, M. M. (2024). The Influence Of Digital Marketing On Competitive Advantage And Performance of Micro, Small And Medium Enterprises. *International Journal of Social Service and Research*, 4(03), 963-970.
- Blichfeldt, H., Faullant, R. (2021). Performance effects of digital technology adoption and product & service innovation—A process-industry perspective. *Technovation*, 105, 102275.
- Chaffey, D., Smith, P. R. (2022). *Digital marketing excellence: planning, optimizing and integrating online marketing*. Routledge, London.
- Chakti, G. (2019). *The Book Of Digital Marketing: Buku Pemasaran Digital (Vol. 1)*. Celebes Media Perkasa.



## Conference Proceedings

- Chang, W., Ellinger, A. E., Kim, K. K., Franke, G. R. (2016). Supply chain integration and firm financial performance: A meta-analysis of positional advantage mediation and moderating factors. *European Management Journal*, 34(3), 282-295.
- Das, A. (2018). *Application of digital marketing for life success in business*. BPB Publications.
- De Pelsmacker, P., Van Tilburg, S., Holthof, C. (2018). Digital marketing strategies, online reviews and hotel performance. *International Journal of Hospitality Management*, 72, 47-55.
- Etim, G. S., James, E. E., Nnana, A. N., Okeowo, V. O. (2021). E-marketing strategies and performance of small and medium-sized enterprises: A new-normal agenda. *Journal of Business and Management Studies*, 3(2), 162-172.
- Foroudi, P., Gupta, S., Nazarian, A., Duda, M. (2017). Digital technology and marketing management capability: achieving growth in SMEs. *Qualitative Market Research: An International Journal*, 20(2), 230-246.
- Gani, M. O., Faroque, A. R. (2021). Digital marketing. In: *Cross-border E-commerce marketing and management* (pp. 172-202). IGI Global, Hershey.
- Gebrie, D., Manyazewal, T., A Ejigu, D., Makonnen, E. (2021). Metformin-insulin versus metformin-sulfonylurea combination therapies in type 2 diabetes: a comparative study of glycemic control and risk of cardiovascular diseases in Addis Ababa, Ethiopia. *Diabetes, Metabolic Syndrome and Obesity*, 3345-3359.
- Herman, H. (2018). The influence of market orientation and product innovation on the competitive advantage and its implication toward Small and Medium Enterprises (UKM) performance. *International Journal of Science and Engineering Invention*, 4(8), 8-21.
- Hynes, R. J., Mickahail, B., Hauer, J. (2021). Leadership in diverse workforces in the Covid era: case studies demonstrating best practices of effective and creative leadership. *International Journal of Educational Projects*, Genebra, 1, 37-43.
- Jalilvand, M. R., Salimipour, S., Elyasi, M., Mohammadi, M. (2017). Factors influencing word of mouth behaviour in the restaurant industry. *Marketing Intelligence & Planning*, 35(1), 81-110.
- Järvinen, J., Karjaluo, H. (2015). The use of Web analytics for digital marketing performance measurement. *Industrial Marketing Management*, 50, 117-127.
- Kano, K., Choi, L. K., Subhan, R. B., Octavyra, R. D. (2022). Implications of digital marketing strategy the competitive advantages of small businesses in Indonesia. *Startupreneur Business Digital (SABDA Journal)*, 1(1), 44-62.
- Komalasari, D., Pebrianggara, A., Oetarjo, M. (2021). *Buku Ajar Digital Marketing*. Umsida Press, 1-83.
- Kumar, B., Sharma, A., Vatavwala, S., Kumar, P. (2020). Digital mediation in business-to-business marketing: A bibliometric analysis. *Industrial Marketing Management*, 85, 126-140.
- Leeflang, P. S., Verhoef, P. C., Dahlström, P., Freundt, T. (2014). Challenges and solutions for marketing in a digital era. *European Management Journal*, 32(1), 1-12.
- Leitão, J., Pereira, D., Gonçalves, Â. (2019). Quality of work life and organizational performance: Workers' feelings of contributing, or not, to the organization's productivity. *International journal of environmental research and public health*, 16(20), 3803.
- Linawati, E. (2015). *Pengetahuan akuntansi pelaku usaha mikro, kecil dan menengah (UMKM) atas penggunaan Informasi Akuntansi* (Doctoral dissertation, Program Studi Akuntansi FEB-UKSW).





## Conference Proceedings

- Melović, B., Jocović, M., Dabić, M., Vulić, T. B., Dudic, B. (2020). The impact of digital transformation and digital marketing on the brand promotion, positioning and electronic business in Montenegro. *Technology in Society*, 63, 101425.
- Parnell, J. A., Hershey, L. (2005). The strategy-performance relationship revisited: The blessing and curse of the combination strategy. *International Journal of Commerce and Management*, 15(1), 17-33.
- Putri, P. M., Marlien, R. A. (2022). Pengaruh Digital Marketing terhadap Keputusan Pembelian Online. *Jesya (Jurnal Ekonomi Dan Ekonomi Syariah)*, 5(1), 25-36.
- Rachmadi, T., Kom, S. (2020). *The Power Of Digital Marketing (Vol. 1)*. Tiga Ebook.
- Radović Marković, M., Djukanović, B., Marković, D., Dragojević A., (2021). *Entrepreneurship and Work in the Gig Economy – The Case of the Western Balkans*. Routledge, London.
- Radović-Marković, M., Grozdanić, R. (2011). Managing communication in changeable business environment. In: "Organizational behaviour and culture: Globalization and the changing environment of organizations", pp. 49-73. VDM Verlag Dr. Müller, Saarbrücken.
- Rahardja, U. (2022). Social media analysis as a marketing strategy in online marketing business. *Startupreneur Business Digital (SABDA Journal)*, 1(2), 176-182.
- Ridzki, M. M., Hadijah, I., Mukidin, M., Azzahra, A., Nurjanah, A. (2023). K-Means Algorithm Method for Clustering Best-Selling Product Data at XYZ Grocery Stores. *International Journal of Social Service and Research*, 3(12), 3354-3367.
- Saebah, N., Asikin, M. Z. (2022). Efektivitas Pengembangan Digital Bisnis pada Gen-Z dengan Model Bisnis Canvas. *Jurnal Syntax Transformation*, 3(11), 1534-1540.
- Tariq, E., Alshurideh, M., Akour, I., Al-Hawary, S. (2022). The effect of digital marketing capabilities on organizational ambidexterity of the information technology sector. *International Journal of Data and Network Science*, 6(2), 401-408.
- Teng, B. S. (2007). Corporate entrepreneurship activities through strategic alliances: A resource-based approach toward competitive advantage. *Journal of Management studies*, 44(1), 119-142.
- Tiago, M. T. P. M. B., Veríssimo, J. M. C. (2014). Digital marketing and social media: Why bother? *Business horizons*, 57(6), 703-708.
- Wahiddudin, M. (2019). Pembiayaan dan usaha mikro, kecil dan menengah (umkm) terhadap lembaga keuangan mikro syariah (lkms). *Al-Urban*, 3(1), 55-67.
- Wiktor, J. W., Sanak-Kosmowska, K. (2021). The competitive function of online advertising. An empirical evaluation of companies' communication strategies in a digital world. *Procedia Computer Science*, 192, 4158-4168.



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# DETERMINANTS OF RURAL TOURISM DEVELOPMENT: A BIBLIOMETRIC REVIEW

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DOI: 10.5937/EEE24034I  
JEL: H41, R12, Z32  
Review Scientific Paper

### ABSTRACT

*This study aims to identify the current hotspots and research directions in rural tourism development with a focus on its influencing factors, access to resources, the role of public goods, and spatial aspects of rural tourism activities. We collected 933 journal articles from the Scopus database and analyzed them using VOSviewer and Bibliometrix tools. The results indicate an increasing trend for research in rural tourism sustainability, community-based rural tourism, and constraints in rural tourism value chains. This study identified factors that affect rural tourism, and the role of public goods and the infrastructure in tourism development. The perspective research directions are the systematization of determinants from a demand-supply perspective, to specify the role of infrastructure for access to rural tourism destinations, spatial dependencies and their impact on tourism-policy decisions.*

### KEYWORDS

*rural tourism, public goods, infrastructure, spatial effects, bibliometric analysis*

## INTRODUCTION

Theory in rural tourism can be distinguished in two strands: geographical and socio-economic approaches (Getz, 1986). The geographical approach opens a discussion about the evolution of rural areas in time and space (Butler, 1980) with main factors of tourism development (e.g. external factors, tourism resources and physical access, location) (Streimikiene, Bilan, 2015). Spatial effects in the geographical approach can be assigned to the development theories with the dependency paradigm and disparities (Oppermann, 1993) or diffusion (Panyik, 2015, Cucari et al., 2019) in respect to the governance and community-based rural tourism.

Socio-economic approach is based on motivation theories and economic factors in tourism development and the role of consumer's behavior, marketing and managing drivers influencing rural tourism development (demand-supply equilibrium, destination-choice models, psychographic models) (Fletcher et al., 2017, Lohmann, Panosso Netto, 2016). The majority of tourism research is concerned with studies of economic, cultural and social impacts, external and internal challenges, and aspects of sustainable development (Rosalina et al., 2021). In their investigation, Rosalina et al. (2021) noticed gaps in spatial

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effects of rural tourism development, and the role of local communities in developing tourism and the use of tourism resources in value chain.

Integrated approach is blended in a concept of tourism destination which is described from the spatial perspective (location, accessibility, infrastructure) (Žemla, 2016), the availability of tourism resources and delivering processing due to producers and intermediaries, and economic, social, environmental factors (Candela, Figini, 2012, Fletcher et al., 2018) with marketing and governance tools (Lohmann, Panosso, Netto, 2016, Morrison 2019).

Given the multiplicity and diversity of factors influencing rural tourism, there is an emerging need to investigate trends in rural tourism development in last decades with focus on determinants of tourism development, the role of public goods, and spatial effects that can be assumed by policy-makers in rural tourism planning. For this objective we used a bibliographic analysis (Donthu et al., 2021) to identify the key areas of study on rural tourism development. In this chapter we will focus on scientific production, most influential journals in the field, international scientific cooperation and the thematic map evolution.

## LITERATURE REVIEW

Factors that have a direct impact on rural tourism development can be distinguished into those related to tourism resources and socio-economic conditions (Fletcher et al., 2018, Morrison, 2019, Q Yang et al., 2021, Kumar, Valeri, 2022). Q Yang et al. (2021) noticed that the availability of public goods is raised in areas with well-developed infrastructure (Kumar, Valeri, 2022). For more sustainable rural development, it is better if rural areas have more diversified economic activity than if it only relies on agriculture. Such diversified areas are better prepared for economic shocks and market fluctuations (Sánchez-Zamora et al., 2014). Based on the Butler's concept of TALC (Tourism Area Life Cycle Model) (Butler, 2006) on every stage of rural destination development, the key drivers are changing in relation to socio-economic condition, structural changes (increasing non-agricultural activities) with a leading role of local government (Yang J. et al., 2021).

Chen et al. (2023) found that factors such as tourism resources, their access for stakeholders, location of a particular destination have significant positive effects on rural tourism development. Among socio-economic factors, an annual income of rural households and a number of local residents play significant role (Chen et al., 2022). A transport accessibility to rural destination is a key factor for increasing number of tourist flows (Xie et al. 2022). In addition, the great role plays policy factor (Chen et al., 2022). The positive business climate for rural tourism directly impacts on intensification of tourism development, and it is necessary to establish Destination Management Organization (DMO) for involving local business and implementing policies in similar local environments (Shin et al., 2017). Further, it is important to take into account local residents' attitude to develop rural destinations (Muresan et al., 2016, Huo et al., 2023) and a positive image of destination for tourists (Kastenholz et al., 2012, Murray, Kline, 2015).

Another important aspect of rural tourism development is the presence of public goods, which can become tourist attractions. Wang et al. (2013) noticed there were differences in developed and developing countries in the study for the role of public goods in the rural development. Public goods play the main role based on one of models of rural tourism development (resources, products, promotion, market). Natural resources such as climate conditions, water access, and environmental quality as a part of public or common goods have significant impact on tourism development (Abellán, García Martínez 2021, Xie et al., 2022). The assessment of tourism resources alike public goods which are used for rural



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tourism is a prior for planning and implication of rural tourism policy (Sánchez Rivero et al., 2014). The important issue is to deliver public goods, i.e. tourism resources, to tourists ensuring the quality of service where the mature rural destination has advantages when comparing to emerging ones (Kim, 2018).

The study of rural tourism development from a perspective of spatial effects uses, at least, a question of distance decay (Truchet et al., 2016, Tan et al., 2023, Yee, Ismail, 2020), location of destination (Cai et al., 2008) and its positioning to other areas (Xi et al., 2015, Khanal et al., 2020), and its aftermath for land use functions and policy implications (Gao, Cheng, 2020, Li et al., 2024). The problem of distance decay in rural tourism was examined in a context of its effects on trip characteristics including time distance to destination, an accessibility to rural destination due to infrastructure, accommodation hubs, and price attributions based on distance to tourism resources (Cai, Li, 2009) and tourism infrastructure (Tan et al., 2023), and land cover changes (Olaniyi et al., 2020). A particular location next to well-developed resorts demonstrated spillover benefits as increasing of the tourist flow from resorts to the neighboring rural destinations (Huang et al., 2016). Rural regions which have positive impact of drivers as a favorable environment, traffic network and tourism policy are characterized by higher spatial effects because strong relations among them (Xie et al., 2022, Yang Q. et al., 2021). The rural tourism can have spillover effects for socio-economic development of particular area because of structural changes in rural economy, reducing poverty, and creating flavor environment for local business (Mahadevan et al., 2021). Truchet et al. (2016) emphasized the distance to natural attractive areas had significant effects for accommodations: spillover effect for situating close to natural attractions, and backwash effects for hotels more than 25 km in radius reducing occupancy rates.

The literature above shows that the issue of rural tourism development is a complex phenomenon and can be viewed from many different perspectives. Therefore, this indicates the need to systematize the emerging themes. We will do so using bibliometric techniques.

## DATA AND METHODS

Traditional literature reviews are often qualitative and subjective (Guo et al. 2019). Bibliometric analysis allows to analyze the literature in quantitative and objective way. It includes investigation of conceptual, intellectual and social structure (Aria, Cucurello, 2017). For the systematic bibliometric review of rural tourism, our study consisted of following stages (Herra-Franco et al. 2021):

1. Turn search criteria and source identification (topic, criteria for searching, dataset selection);
2. Selection software and data extraction (bibliometrix in R programming environment);
3. Bibliometric analysis of data and interpretation of results.

To collect the data for bibliometric analysis we used Scopus database. We use following keywords including three searching fields: 1) TITLE-ABS-KEY("rural tourism" OR agritourism AND "spatial effect\*" OR spillover OR backwash OR spatiotemporal) OR 2) TITLE-ABS-KEY("rural tourism" OR agritourism AND "public good\*" OR "tourism resource\*" OR attraction\*) OR 3) TITLE-ABS-KEY("rural tourism" OR agritourism AND factor\* OR determinant\*). We first obtained 1279 record. Then we limited our search only to articles written in English and used 1082 records for abstract screening. We needed to excluded 116 studies because of thematic irrelevance and further 20 studies because of incomplete bibliographic information. 946 records were sought for retrieval but 13 could not be retrieved. Therefore, our final database included 933 articles.

In this chapter, the bibliometric analysis will be used to answer three main research questions:



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- RQ1 – what is the dynamic of scientific articles on rural tourism, its influencing factors, public goods and spatial effects and what are the main causes of changes in this dynamic?
- RQ2 – what are the most influential journals in the field under study?
- RQ3 – what is the intensity of international scientific cooperation in the field?
- RQ4 – what is the thematic evolution of the research field under study?

To answer RQ1 and RQ2 we used descriptive statistics of the sample and citation analysis. Answering to RQ3 is possible by analysis of the proportion of articles that were prepared in international cooperation. When it comes to thematic evolution (RQ4), it is analyzed by establishing emerging, niche, basic and motor themes in two-dimensional strategic diagram (Cobo et al. 2011). Each theme in the diagram is characterized by “centrality” and “density”. Motor themes (upper-right quadrant) are well developed (high density) and highly relevant to the field (strong centrality). Basic themes (lower-right quadrant) are relevant (high centrality) topics but not yet well developed. In upper-left we have niche topics which do not have strong ties with other topics in the studied field. This is why their meaning to the field under study is rather marginal. However, they may have strong international impact. One can say that niche themes cover more specialized topic. The lower-left quadrant represents not well-developed topics with marginal meaning to the field. These are emerging (or declining) topics.

## RESULTS

Figure 1 shows the annual production of documents in the topic of influencing factors, public goods and spatial effects in rural tourism. Tendency of scientific production in this topic highlights roughly three stages of research: the embryonic period (1996-2008) in which the total number of studies amounted to 59. After 2008, the financial crisis influenced national economies specialized in international tourism (Davidmac et al., 2021, Li et al., 2010) causing decline of 4% in international tourist arrivals and 6% in international tourism receipts in 2009 (UNWTO 2013).

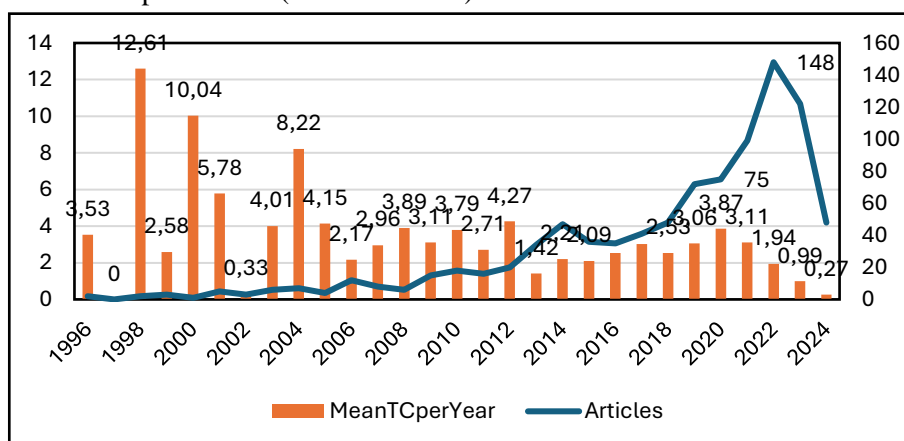


Figure 1. Annual article production and mean total citations per year of articles in the topic of rural tourism, its influencing factors, public goods and spatial effects

Source: Own elaboration based on data from Scopus.

The second stage (2009-2018) counts 295 publication which shows the high increase in volume of research on the topic in comparison with previous period. This rapid increase is a consequence of fast-



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growing tourist flow, especially in a region of Asia and Pacific (UNWTO 2024). However, the rapid tourist flow required new solutions and studies for conservation of public goods and tourism attractions, tourism planning and spatial effects on local and regional governance because of its impact on environment and socioeconomic development of emerging and mature destinations.

The third stage (2019-2024) shows another rapid increase of annual scientific production in the field of rural tourism – 564 documents were published in this stage. This period faced COVID-19 pandemic crisis and its consequences for international tourism and regional economies, as well as continuing factors of Russian invasion in Ukraine and its impact on tourism in Central and Eastern Europe.

The five most influential sources (sorted by H-index) for studies in the analyzed topic are presented in Table 1. These journals are characterized by the highest values of H-index. For example, the value for Tourism Management means that each of 22 articles published in this journal was cited at least 22 times. Sustainability journal also published a lot of publication in the topic (112) and it has even higher H-index than Tourism Management but the total number of citations is much lower. It suggests that relatively many articles from this journal were not cited such frequently. Among other impactful sources, one may mention journals such as Journal of Sustainable Tourism, Land and Tourism Economics.

Table 1. The most influential sources for publications in the topic of rural tourism, its influencing factors, public goods and spatial effects

Source title	Total publications	Total citations	H index	CiteScore, 2022	Publisher
Sustainability	112	1976	24	5.8	MDPI
Tourism Management	22	3742	22	22.9	Elsevier Ltd.
Journal of Sustainable Tourism	17	662	13	18.9	Taylor and Francis
Land	24	207	9	3.7	MDPI
Tourism Economics	11	272	9	7.7	SAGE

*Source: Own elaboration based on data from Scopus.*

Figure 2 shows in which countries the corresponding authors of articles in the topic are affiliated. It also shows the intensity of international cooperation. In most countries (except for Austria), single country publications dominate suggesting that most of papers are written by authors affiliated in institutions from the only one country. This tendency is also true for countries that have a long tradition of international cooperation in science, such as the USA.

Interestingly, the clear leader in terms of the number of publications in the analyzed topic is China. Approximately  $\frac{1}{4}$  of articles in our sample has Chinese corresponding author. On the second and third place, there are Spain and Italy. Both these countries are characterized by a large share of tourism in the economy. The topic of rural tourism is also relatively extensively studied in the USA and in Iran.

In the next step, we can tackle the RQ4 to see what is the thematic evolution of the field. Figures 3 demonstrates four quadrants with clusters of topics in the field which can be categorized in emerging, niche, basic, and motor themes. Among emerging topics, one may find cultural tourism, community participation and heritage tourism which are included in the same cluster. Basic themes include 5 clusters as 'conceptual themes' with specific words (rural tourism, spatial distribution etc.). Niche themes presented 5 cluster with two more expanded ones (rural accommodation, tourism potential; and tourism

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resources, rural destination). Motors themes present 3 clusters with topics relating to poverty alleviation, farm tourism and cluster analysis, and GIS with spatial econometrics.

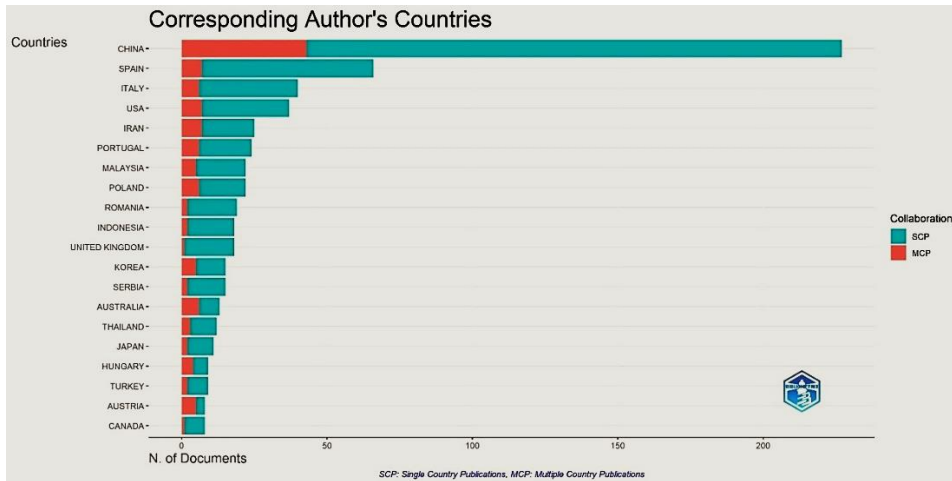


Figure 2. Corresponding author's countries and international cooperation in the topic of rural tourism, its influencing factors, public goods and spatial effects

Source: Own elaboration based on data from Scopus.

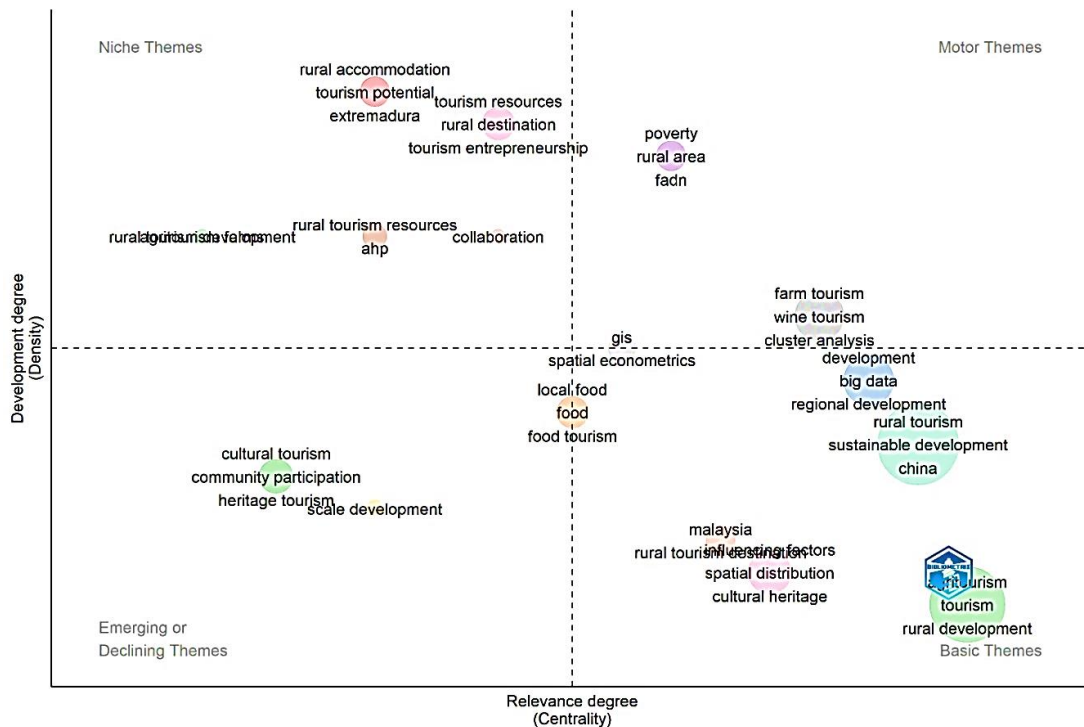


Figure 3. Thematic map in the field of rural tourism, its influencing factors, public goods and spatial effects

Source: Own elaboration based on data from Scopus.



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Basic themes are related to competitive aspects of rural destinations, marketing and management tools, the role of local communities in strategic planning of rural areas and tourism industry. Rural tourism enhances the competitiveness of rural destinations by promoting sustainability, pro-ecological practices, and cultural exchanges that strengthen community-tourist relationships (Sharpley, 2007, Villanueva-Álvarez et al., 2017, Park, Yoon, 2009; Priatmoko, 2021). Strategic planning and collaboration among stakeholders contribute to resilience and sustainable growth by addressing seasonality and emphasizing community involvement (Kastenholz et al., 2012, Martín Martín et al., 2019, Liu, 2006; Law, Lo, 2016). Networking and clustering among stakeholders improve competitive advantage through sustainability, environmental protection, and managing socio-economic pressures (Pejanović et al., 2017, King, Nair 2013, Reid et al., 2004).

Agritourism focuses on entrepreneurial networking, farm tourism, and revitalization's role in local development (Broccardo et al., 2017, Veeck et al., 2006, Yang et al., 2021), while rural accommodation studies highlight natural attractions and their impact on tourism (Sánchez Rivero et al., 2016; Sánchez-Martin, 2023). Factors such as technology, infrastructure, and socio-economic determinants shape rural tourism's role in regional development (Fu et al., 2024, Di Gregorio, 2017, San Martín, Herrero, 2012, Ma et al., 2020). An access to rural destinations is determined by developed basic infrastructure, and it could be counted in rural tourism planning with spatial approach (Zhang et al., 2023, Yin, Zhao, 2024, Zou et al., 2023, Nouza et al., 2013).

Niche themes is blended basic topics as marketing tools, spatial approach for planning of rural development (González-Ramiro et al., 2016), cluster creation for increasing local entrepreneurial activity (Tamrin et al., 2024, Stoddart et al., 2019), and a crucial role of public goods as tourism resources (natural and cultural attractions) for rural tourism development (Kim, 2018, Guo et al., 2022). Engagement of public goods in value chains in rural tourism can impact on growth of rural economies (Contini et al., 2009) in regards with local collaboration among stakeholders (Utami et al., 2023).

Emerging themes exploring by researchers are focused on community-based tourism (Huang et al., 2016, Castellano-Álvarez et al., 2023) and community's participation in rural tourism (Fisher, 2006, Wu et al., 2022), and authentic heritage of rural destinations (Lontai-Szilágyi, et al., 2019), social dimension in business activity and relationships with tourists and local suppliers (Ohe, Kurihara, 2013).

Motor themes analyze multifunctionality impact on social, economic, and environmental changes in rural areas in terms of rural tourism and agritourism (Cardillo et al., 2023, Henke et al., 2022, Singh et al., 2022), possibility to reduce of rural poverty due to diversification of agricultural entities and households (Ćirić et al., 2021, Martini et al., 2022). Rising topic in motor themes is spatial approach in assessing tourism potential of rural areas: the availability of rural destinations in terms of distance and time (Chhetri et al., 2016, Santana-Jiménez et al., 2015), location factor (Peña et al., 2013, Jiang, Wang, 2018), spillover effects on neighboring areas (Qi et al., 2022), and spatial planning with sustainable concept for rural areas (Kulczyk, Woźniak, 2022).

## CONCLUSION

Our study presents structural changes in rural tourism investigation, with a focus on public goods, factors and spatial approach of its development. We emphasis that the majority of publications use economic and marketing theoretical background with, at least, three points: resources, tourist, and stakeholders as producers and managerial staff. It is a grounded concept related to the competitiveness of tourism destination, tourist's perception and decision-making process, with a stress on visitor management and





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revisited marketing tools. Spatial approach is investigating by developing countries last decade. It shows structural changes in agriculture, need to establish cohesion policy in rural development, agriculture, and local governance.

Basic themes presented in the results part explore marketing tools and competitive advantages for rural destinations using new approaches in tourism planning of rural areas. These investigations will be probably continued in terms of challenges of climate changes, tendencies of sustainable practices in agriculture with reducing job positions in this industry, and findings to solve crisis with labor force, stimulating business activity of local communities.

Niche themes emphasize a crucial role of public goods, their access for consumers and suppliers in developing rural tourism. Future study can develop a sustainable approach in using resources for rural tourism, importance of horizontal relationships among stakeholders, and growing role of technologies, new technologies for tourism planning, including deeper study of tourists' behavior.

Further research could investigate the integration of sophisticated digital marketing tools and data-driven strategies to enhance the competitiveness of rural tourism destinations. This should include an evaluation of the accessibility and attractiveness of rural areas, with a focus on how location factors and spillover effects influence rural tourism development. Such an approach should concentrate on the manner in which these instruments can successfully engage local communities and advance sustainability. Furthermore, an investigation into the development and impact of stakeholder networks and clusters in rural tourism could provide insights into optimising collaboration for sustainable growth, while addressing socio-economic problems and environmental protection.

## REFERENCES

- Abellán, F. C., García Martínez, C. (2021). Landscape and tourism as tools for local development in mid-mountain rural areas in the southeast of Spain (Castilla-La Mancha). *Land*, 10(2), 221.
- Aria, M., Cuccurullo, C. (2017). bibliometrix: An R-tool for comprehensive science mapping analysis. *Journal of Informetrics*, 11(4), 959-975.
- Broccardo, L., Culasso, F., Truant, E. (2017). Unlocking value creation using an agritourism business model. *Sustainability*, 9(9), 1618.
- Butler, R. W. (1980). The concept of a tourist area cycle of evolution: Implications for management of resources. *Canadian geographer*, 24(1), 5-12.
- Cai, L. A., Li, M. (2009). Distance-segmented rural tourists. *Journal of Travel & Tourism Marketing*, 26(8), 751-761.
- Cai, L. A., Liu, J., Huang, Z. (2008). Identifying rural tourism markets: A practical tool. *Journal of Hospitality & Leisure Marketing*, 17(3-4), 418-434.
- Candela, G., Figini, P. (2012). *The Economics of Tourism Destinations*. Springer, Heidelberg.
- Cardillo, C., Cimino, O., De Rosa, M., Francescone, M. (2023). The evolution of multifunctional agriculture in Italy. *Sustainability*, 15(14), 11403.
- Castellano-Álvarez, F. J., Ramírez, R. R., Masot, A. N. (2023). Tourism Development in the Framework of Endogenous Rural Development Programmes – Comparison of the case studies of the regions of La Vera and Tajo-Salor (Extremadura, Spain). *Agriculture*, 13(3), 726.



## Conference Proceedings

- Chen, H., Su, K., Peng, L., Bi, G., Zhou, L., Yang, Q. (2022). Mixed land use levels in rural settlements and their influencing factors: A case study of Pingba Village in Chongqing, China. *International Journal of Environmental Research and Public Health*, 19(10), 5845.
- Chen, P., Nutteera, P., Yan, Y., Chai, C. T. (2023). Research on driving factors and mechanism of Minority Village tourism development in Guizhou Province, China. *Heliyon*, 9(10).
- Chin, C. H., Thian, S. S.-Z., Lo, M. C. (2017). Community's experiential knowledge on the development of rural tourism competitive advantage: a study on Kampung Semadang – Borneo Heights, Sarawak. *Tourism Review*, 72(2), 238–260.
- Chhetri, A., Chhetri, P., Arrowsmith, C., Corcoran, J. (2016). Modelling tourism and hospitality employment clusters: a spatial econometric approach. *Tourism Geographies*, 19(3), 398–424.
- Ćirić, M., Tešanović, D., Pivarski, B. K., Ćirić, I., Banjac, M., Radivojević, G., Grubor, B., Tošić, P., Simović, O., Šmugović, S. (2021). Analyses of the attitudes of agricultural holdings on the development of agritourism and the impacts on the economy, society and environment of Serbia. *Sustainability*, 13(24), 13729.
- Cobo, M. J., López-Herrera, A. G., Herrera-Viedma, E., Herrera, F. (2011). An approach for detecting, quantifying, and visualizing the evolution of a research field: A practical application to the Fuzzy Sets Theory field. *Journal of Informetrics*, 5(1), 146–166.
- Contini, C., Scarpellini, P., Polidori, R. (2009). Agri-tourism and rural development: the Low-Valdelsa case, Italy. *Tourism Review*, 64(4), 27–36.
- Cucari, N., Wankowicz, E., De Falco, S. E. (2019). Rural tourism and Albergo Diffuso: A case study for sustainable land-use planning. *Land use policy*, 82, 105–119.
- Di Gregorio, D. (2017). Place-based business models for resilient local economies. *Journal of Enterprising Communities People and Places in the Global Economy*, 11(1), 113–128.
- Donthu, N., Kumar, S., Mukherjee, D., Pandey, N., Lim, W. M. (2021). How to conduct a bibliometric analysis: An overview and guidelines. *Journal of Business Research*, 133, 285–296.
- Ekeocha, D. O., Ogbuabor, J. E., Orji, A., Kalu, U. I. (2021). International tourism and economic growth in Africa: A post-global financial crisis analysis. *Tourism Management Perspectives*, 40, 100896.
- Fisher, D. G. (2006). The Potential for Rural Heritage Tourism in the Clarence Valley of Northern New South Wales. *Australian Geographer*, 37(3), 411–424.
- Fletcher, J. E., Fyall, A., Wanhill, S. (2017). *Tourism: Principles and Practice*. Pearson, London.
- Fu, Y., Cai, Z., Fang, C. (2024). Hotspot identification and causal analysis of Chinese rural tourism at different spatial and temporal scales based on tourism big data. *Sustainability*, 16(3), 1165.
- González-Ramiro, A., Gonçalves, G., Sánchez-Ríos, A., Jeong, J. (2016). Using a VGI and GIS-Based Multicriteria approach for assessing the potential of rural tourism in Extremadura (Spain). *Sustainability*, 8(11), 1144.
- Gao, C., Cheng, L. (2020). Tourism-driven rural spatial restructuring in the metropolitan fringe: An empirical observation. *Land use policy*, 95, 104609.
- Getz, D. (1986). Models in tourism planning: Towards integration of theory and practice. *Tourism management*, 7(1), 21–32.



## Conference Proceedings

- Guo, F., Ye, G., Hudders, L., Lv, W., Li, M., Duffy, V. G. (2019). Product placement in mass media: a review and bibliometric analysis. *Journal of Advertising*, 48(2), 215-231.
- Guo, Y., Zhu, L., Zhao, Y. (2022). Tourism entrepreneurship in rural destinations: measuring the effects of capital configurations using the fsQCA approach. *Tourism Review*, 78(3), 834–848.
- Henke, R., Cimino, O., Vanni, F. (2022). The role of diversification in the revenue composition of Italian farms. *Italian Review of Agricultural Economics (REA)*, 77(1), 25–38.
- Herrera-Franco, G., Montalvan-Burbano, N., Carrion-Mero, P., Jaya-Montalvo, M., Gurumendi-Noriega, M. (2021). Worldwide research on geoparks through bibliometric analysis. *Sustainability*, 13(3), 1175.
- Huang, W. J., Beeco, J. A., Hallo, J. C., Norman, W. C. (2016). Bundling attractions for rural tourism development. *Journal of Sustainable Tourism*, 24(10), 1387-1402.
- Huo, T., Yuan, F., Huo, M., Shao, Y., Li, S., Li, Z. (2023). Residents' participation in rural tourism and interpersonal trust in tourists: The mediating role of residents' perceptions of tourism impacts. *Journal of Hospitality and Tourism Management*, 54, 457-471.
- Jiang, Y., Wang, S. (2018). Spatial distribution characteristics of agritourism consumption. *Sustainability*, 10(4), 992.
- Kastenholz, E., Carneiro, M. J., Marques, C. P., Lima, J. (2012). Understanding and managing the rural tourism experience – The case of a historical village in Portugal. *Tourism Management Perspectives*, 4, 207-214.
- Khanal, A. R., Honey, U., Omobitan, O. (2020). Diversification through 'fun in the farm': Analyzing structural factors affecting agritourism in Tennessee. *International Food and Agribusiness Management Review*, 23(1), 105-120.
- Kim, H. N. (2018). The economic valuation of change in the quality of rural tourism resources: Choice experiment approaches. *Sustainability*, 10(4), 959.
- King, N., Nair, V. (2013). Determining the wildlife value orientation (WVO): a case study of lower Kinabatangan, Sabah. *Worldwide Hospitality and Tourism Themes*, 5(4), 377–387.
- Kumar, S., Valeri, M. (2022). Understanding the relationship among factors influencing rural tourism: a hierarchical approach. *Journal of Organizational Change Management*, 35(2), 385-407.
- Law, F.Y., Lo, M.C. (2016). Rural tourism destination competitiveness of Kubah National Park in Sarawak: Tourists' perspectives. *Asian Academy of Management Journal*, 21(Supp. 1), 127–148.
- Kulczyk, S., Woźniak, E. (2022). Rural Tourism Opportunity Spectrum: Linking People and Landscape for Spatial Planning. *Miscellanea Geographica*, 26(2) 101-110.
- Li, J., Zhang, X., Gu, Q., Zhang, Z., Wang, K., Xu, Z. (2024). Spatiotemporal response of ecosystem services to tourism activities in urban forests. *Frontiers in Forests and Global Change*, 7, 1361101.
- Li, S., Blake, A., Cooper, C. (2010). China's tourism in a global financial crisis: a computable general equilibrium approach. *Current Issues in Tourism*, 13(5), 435-453.
- Liu, A. (2006). Tourism in rural areas: Kedah, Malaysia. *Tourism Management*, 27(5), 878–889.
- Lohmann, G., Netto, A. P. (2016). *Tourism theory: Concepts, Models and Systems*. CABI, Wallingford.
- Lontai-Szilágyi Z., Bertalan-Balázs B., Zsiros B., Vasvári M., Kumar S. S., Nilanchal P., Martonné Erdős K., Szabó S. (2019). A novel approach of mapping landscape aesthetic value and its validation with rural tourism data. *Hungarian Geographical Bulletin*, 68(3), 283-301.



## Conference Proceedings

- Loureiro, S. M. C., González, F. J. M. (2008). The importance of quality, satisfaction, trust, and image in relation to rural tourist loyalty. *Journal of Travel & Tourism Marketing*, 25(2), 117-136.
- Ma, X., Wang, R., Dai, M., Ou, Y. (2020). The influence of culture on the sustainable livelihoods of households in rural tourism destinations. *Journal of Sustainable Tourism*, 1–18.
- Martín Martín, J. M., Salinas Fernández, J. A., Rodríguez Martín, J. A., Ostos Rey, M. del S. (2019). Analysis of Tourism Seasonality as a Factor Limiting the Sustainable Development of Rural Areas. *Journal of Hospitality & Tourism Research*, 109634801987668.
- Mahadevan, R., Suardi, S., Ji, C., Hanyu, Z. (2021). Is urbanization the link in the tourism–poverty nexus? Case study of China. *Current Issues in Tourism*, 24(23), 3357-3371.
- Martini, R., Agustin, E. S. A. S., Setiyono, B. (2022). The paradox of rural tourism and poverty alleviation. *Turyzm/Tourism*, 32(2), 87–105.
- Morrison, A. M. (2019). *Marketing and Managing Tourism Destinations*. Second Edition. Routledge, London & New York.
- Muresan, I. C., Oroian, C. F., Harun, R., Arion, F. H., Porutiu, A., Chiciudean, G. O., Lile, R. (2016). Local residents' attitude toward sustainable rural tourism development. *Sustainability*, 8(1), 100.
- Murray, A., & Kline, C. (2015). Rural tourism and the craft beer experience: Factors influencing brand loyalty in rural North Carolina, USA. *Journal of Sustainable Tourism*, 23(8-9), 1198-1216.
- Nouza, M., Ólafsdóttir, R., Müller, D. K. (2013). A new approach to spatial–temporal development of second homes: Case study from Iceland. *Scandinavian Journal of Hospitality and Tourism*, 13(1), 20-37.
- Ohe, Y., Kurihara, S. (2013). Evaluating the complementary relationship between local brand farm products and rural tourism: Evidence from Japan. *Tourism Management*, 35, 278–283.
- Olaniyi, O. E., Ogunjemite, B. G., Akindele, S. O., Sogbohossou, E. A. (2020). Temporal and distance decay analysis of land use/land cover around ecotourism hotspots: evidence from Pendjari National Park, Benin. *GeoJournal*, 85(1), 53-66.
- Oppermann, M. (1993). Tourism space in developing countries. *Annals of tourism research*, 20(3), 535-556.
- Panyik, E. (2015). Rural tourism governance: Determinants of policy-makers' support for tourism development. *Tourism Planning & Development*, 12(1), 48-72.
- Park, D. B., Yoon, Y. S. (2009). Segmentation by motivation in rural tourism: A Korean case study. *Tourism management*, 30(1), 99-108.
- Pejanović, R., Demirović, D., Glavaš-Trbić, D., Maksimović, G., Tomaš-Simin, M. (2017). Clusters as a factor of competitiveness of rural tourism destinations in the Danube region of the Republic of Serbia. *Tourism Economics*, 23(2), 475-482.
- Peña, A. I. P., Olmo, J. C., Jamilena, D. M. F., & Molina, M. Á. R. (2013). Market Orientation Adoption among Rural Tourism Enterprises: The Effect of the Location and Characteristics of the Firm. *International Journal of Tourism Research*, 17(1), 54–65.
- Priatmoko, S., Kabil, M., Purwoko, Y., & Dávid, L. D. (2021). Rethinking Sustainable Community-Based Tourism: A Villager's Point of View and Case Study in Pampang Village, Indonesia. *Sustainability*, 13(6), 3245.
- Reid, D. G., Mair, H., George, W. (2004). Community Tourism Planning. *Annals of Tourism Research*, 31(3), 623–639.



## Conference Proceedings

- Qi, J., Lu, Y., Han, F., Ma, X., Yang, Z. (2022). Spatial distribution characteristics of the rural tourism villages in the Qinghai-Tibetan plateau and its influencing factors. *International Journal of Environmental Research and Public Health*, 19(15), 9330.
- Reijonen, H., Komppula, R. (2007). Perception of success and its effect on small firm performance. *Journal of Small Business and Enterprise Development*, 14(4), 689-701.
- Rosalina, P. D., Dupre, K., Wang, Y. (2021). Rural tourism: A systematic literature review on definitions and challenges. *Journal of Hospitality and Tourism Management*, 47, 134-149.
- San Martín, H., Herrero, Á. (2012). Influence of the user's psychological factors on the online purchase intention in rural tourism: Integrating innovativeness to the UTAUT framework. *Tourism management*, 33(2), 341-350.
- Sánchez Rivero, M., Sánchez Martín, J. M., Rengifo Gallego, J. I. (2016). Methodological approach for assessing the potential of a rural tourism destination: An application in the province of Cáceres (Spain). *Current Issues in Tourism*, 19(11), 1084-1102.
- Sánchez-Martín, J. M., Hernández-Carretero, A. M., Rengifo-Gallego, J. I., García-Berzosa, M. J., Martín-Delgado, L. M. (2023). Modeling the Potential for Rural Tourism Development via GWR and MGWR in the Context of the Analysis of the Rural Lodging Supply in Extremadura, Spain. *Systems*, 11(5), 236.
- Santana-Jiménez, Y., Sun, Y.-Y., Hernández, J. M., Suárez-Vega, R. (2015). The Influence of Remoteness and Isolation in the Rural Accommodation Rental Price among Eastern and Western Destinations. *Journal of Travel Research*, 54(3), 380-395.
- Sharpley, R. (2007). Flagship Attractions and Sustainable Rural Tourism Development: The Case of the Alnwick Garden, England. *Journal of Sustainable Tourism*, 15(2), 125-143.
- Shin, H. J., Kim, H. N., Son, J. Y. (2017). Measuring the economic impact of rural tourism membership on local economy: A Korean case study. *Sustainability*, 9(4), 639.
- Singh, A. S., Parahoo, S. K., Ayyagari, M., Juwaheer, T. D. (2022). Conclusion: how could rural tourism provide better support for well-being and socioeconomic development? *Worldwide Hospitality and Tourism Themes*, 15(1), 84-93.
- Stoddart, M. C. J., Catano, G., Ramos, H., Vodden, K., Lowery, B., Butters, L. (2019). Collaboration gaps and regional tourism networks in rural coastal communities. *Journal of Sustainable Tourism*, 28(4), 625-645.
- Streimikiene, D., Bilan, Y. (2015). Review of rural tourism development theories. *Transformations in Business & Economics*, 14(2), 21-34.
- Tamrin, M. H., Muhafidin, D., Nurasa, H., Muhtar, E. A. (2024). Stakeholders analysis of tourism governance in Dalegan beach ecotourism, East Java, Indonesia. *Journal of Infrastructure Policy and Development*, 8(3).
- Tan, P. Y., Ismail, H. N., Syed Jaafar, S. M. R. (2023). A comparative review: Distance decay in urban and rural tourism. *Anatolia*, 34(4), 476-493.
- Truchet, S., Piguët, V., Aubert, F., Callois, J. M. (2016). Spatial influence of attractions on tourism development. *Tourism Geographies*, 18(5), 539-560.
- Utami, D. D., Dhewanto, W., & Lestari, Y. D. (2023). Rural tourism entrepreneurship success factors for sustainable tourism village: Evidence from Indonesia. *Cogent Business & Management*, 10(1).



## Conference Proceedings

- Veeck, G., Che, D., Veeck, A. (2006). America's changing farmscape: A study of agricultural tourism in Michigan. *The professional geographer*, 58(3), 235-248.
- Villanueva-Álvaro, J., Mondéjar-Jiménez, J., Sáez-Martínez, F. (2017). Rural tourism: Development, management and sustainability in rural establishments. *Sustainability*, 9(5), 818.
- Wang, L. E., Cheng, S. K., Zhong, L. S., Mu, S. L., Dhruva, B. G., Ren, G. Z. (2013). Rural tourism development in China: Principles, models and the future. *Journal of Mountain Science*, 10, 116-129.
- Wu, M., Wu, X., Li, Q., Tong, Y. (2022). Community citizenship behavior in rural tourism destinations: Scale development and validation. *Tourism Management*, 89, 104457.
- Xi, J. C., Kong, Q. Q., Wang, X. G. (2015). Spatial polarization of villages in tourist destinations: A case study from Yesanpo, China. *Journal of Mountain Science*, 12, 1038-1050.
- Xie, D., & He, Y. (2022). Marketing strategy of rural tourism based on big data and artificial intelligence. *Mobile information systems*, 2022(1), 9154351.
- Yang, J., Yang, R., Chen, M. H., Su, C. H. J., Zhi, Y., Xi, J. (2021). Effects of rural revitalization on rural tourism. *Journal of Hospitality and Tourism Management*, 47, 35-45.
- Yang, Q., Zhang, F., An, Y., Sun, C., Wu, J., Zhang, Y., Wei, Z. (2021). Research on the Spatial Distribution Pattern and Influencing Factors of China's Antipoverty (Pro-Poor Tourism) on GIS. *Discrete Dynamics in Nature and Society*, 2021(1), 6682498.
- Yee, T. P., Ismail, H. N. (2020). A review of distance decay research trends in tourism from 2000-2020. *Environment-Behaviour Proceedings Journal*, 5(14), 137-145.
- Yin, J., Zhao, L. (2024). The Value Expression and Driving Factors of Rural Spatial Ecological Products: A Case Study of B&Bs in Jiangsu and Zhejiang Provinces, China. *Land*, 13(3), 270.
- Żemła, M. (2016). Tourism destination: The networking approach. *Moravian geographical reports*, 24(4), 2-14.
- Zhang, R., Ji, C., Zhao, W., Chen, Z. (2024). Analysis of the factors influencing the knowledge transfer to villagers working in rural tourism: a multiple-case study in China. *Journal of the Knowledge Economy*, 15(1), 3551-3599.
- Zhang, Y., Li, W., Li, Z., Yang, M., Zhai, F., Li, Z., Yao, H., Li, H. (2022). Spatial distribution characteristics and influencing factors of key rural tourism villages in China. *Sustainability*, 14(21), 14064.
- Zou, Q., Sun, J., Luo, J., Cui, J., Kong, X. (2023). Spatial Patterns of Key Villages and Towns of Rural Tourism in China and Their Influencing Factors. *Sustainability*, 15(18), 13330.



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# IMPACT OF DIGITALIZATION ON THE INSURANCE INDUSTRY IN SERBIA

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DOI: 10.5937/EEE24035L  
JEL: G52, I20, O33  
Review Scientific Paper

## ABSTRACT

*Digitization has brought significant changes to the insurance industry, reshaping the way insurance companies do business, improving customer experience and increasing the efficiency of operations. Digitization is a key factor of transformation in the insurance industry worldwide, including Serbia. This paper investigates the impact of digitization on the insurance industry in Serbia, analyzing technological innovations, advantages, challenges and perspectives of future development. Digital platforms, mobile applications, big data analytics and artificial intelligence have brought significant changes, enabling insurance companies to improve customer experience, reduce operational costs and personalize offers. However, digitization also brings challenges such as data security, regulatory requirements and resistance to change. Prospects for future development include further integration of advanced technologies, development of new business models and increased use of big data analytics. This paper concludes that insurance companies in Serbia that successfully overcome these challenges and take advantage of digitalization opportunities will be in the best position for long-term success in an increasingly digital business environment.*

## KEYWORDS

*digitization, insurance industry, technological innovations, artificial intelligence, data security*

## INTRODUCTION

The insurance industry is undergoing a significant transformation fueled by the rapid development of digital technologies. Digitization has become a key driver of change, enabling insurance companies to improve their services, increase business efficiency and improve customer experience. This phenomenon has not bypassed Serbia either, where insurance companies are increasingly adopting digital technologies in order to adapt to new market conditions and client expectations.

Digital technologies such as big data analytics, artificial intelligence (AI), the Internet of Things (IoT) and blockchain are shaping the way insurance companies do business. Using big data analytics enables in-depth analysis of customer and risk data, leading to personalized offers and better business decisions. Artificial intelligence and machine learning enable process automation, reducing the time required to

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process requests and increasing efficiency. IoT devices provide insurance companies with real-time data, enabling more accurate risk assessments and premium adjustments. Blockchain technology ensures transparency and security in the processing of transactions, reducing the risk of fraud (The Role of Mobile Apps in the Digital Transformation of Insurance in Serbia, 2024).

The adoption of these technologies brings numerous advantages for insurance companies in Serbia, including reducing operating costs, improving user experience and increasing competitiveness in the market. However, digitization also brings certain challenges, such as the need for data protection, adaptation to regulatory frameworks and change management within the organization (Navigating Regulatory Change in Insurance, 2024).

This paper investigates the impact of digitization on the insurance industry in Serbia, with a special emphasis on technological innovations, their advantages and challenges, and future development perspectives. The aim of the paper is to provide a comprehensive overview of the current state of digitization in the insurance sector in Serbia and to identify the key factors that will shape the future of this industry.

## SWOT ANALYSIS OF THE IMPACT OF DIGITALIZATION ON THE INSURANCE INDUSTRY IN SERBIA

A SWOT analysis of the impact of digitization on the insurance industry in Serbia provides insight into the key strengths, weaknesses, opportunities and threats that are relevant to the sector in the context of ubiquitous digital transformation.

### STRENGTHS:

- **Improved efficiency of operations** – digitization enables the automation of many processes in the insurance industry, from processing insurance claims to managing policies and claims. This significantly increases the efficiency of operations, reduces costs and shortens the time required to process data and issue policies.
- **Improving the user experience** – online platforms and mobile applications allow customers easier access to insurance services, allowing them to quickly and easily receive offers, contract policies or report damage without the need to visit a branch office or contact agents directly. This improves the user experience and can increase customer satisfaction.
- **More accurate analysis and risk profiling** – digital technologies allow insurance companies to use large amounts of data to better understand and assess risk. This leads to more precise determination of premiums and better segmentation of the market.
- **Increasing reach and market penetration** – digital channels allow insurance companies to capture a wider market and attract new customers, including young generations who prefer digital services.

### WEAKNESSES:

- **High initial costs** – the implementation of digital technologies can require significant initial investments in IT infrastructure and software. This can be a financial challenge, especially for smaller insurance companies.





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- **Resistance to change within the organization** – digital transformation can cause resistance among employees who are used to traditional work methods. Management must invest in training and changing the corporate culture to overcome this challenge.
- **The need for constant technology refreshes** – the rapid development of technology requires insurance companies to regularly update their systems and applications, which can further increase costs and technical requirements.
- **Data security** – as the volume and sensitivity of digitally collected data increases, the risk of cyber attacks and data theft increases. Insurance companies must invest in advanced security systems to protect customer data.

### OPPORTUNITIES:

- **Development of new products** – digitization enables insurance companies to develop innovative products such as on-demand insurance or personalized policies based on user behavior.
- **Market expansion** – digital channels enable insurance companies to reach rural and less accessible parts of Serbia, where traditional sales methods were not effective.
- **Partnerships with technology firms** – cooperation with startups and technology firms can promote innovation and provide insurance companies with access to advanced technology solutions.
- **Globalization of services** – digital platforms allow insurance companies to offer their services not only on the local, but also on the international market, opening up new opportunities for growth.

### THREATS:

- **Regulatory challenges** – digitization requires compliance with rigorous data protection and privacy regulations, which can pose compliance challenges.
- **Technological obsolescence** – the rapid pace of technological changes can lead to the rapid obsolescence of existing digital solutions, which requires continuous investments in new technologies.
- **Competition from non-insurance sectors** – technology companies, such as fintech and tech firms, entering the insurance sector can present significant competition to traditional insurance companies, especially in the areas of innovation and customer experience.
- **Cyber risks** – as more operations in the insurance industry move to digital platforms, cyber risks are becoming more prominent and pose a serious threat to insurance companies. In the context of digitization, cyber risks encompass a range of potential problems, including cyber attacks, data theft, data loss, cyber blackmail, and other forms of cyber crime.

Digitization is significantly transforming the insurance industry around the world, including Serbia. This transformation brings a series of changes that affect all aspects of business, from customer interaction, through data processing, to risk management and regulatory compliance. The impact of digitization on the insurance industry can be seen through several key aspects: improving user experience, more efficient data processing, innovation in products and services, increased availability of services, security and regulatory compliance, workforce transformation (Cybersecurity Challenges for Digital Insurance, 2024).



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For a full insight into the details, it is useful to consider specific aspects such as high initial costs, resistance to change within the organization, the need for constant technology refresh, data security, as well as the opportunities that digitization provides, including new product development, market expansion, partnerships with technology companies, the globalization of services, and threats such as regulatory challenges, technological obsolescence, competition from non-insurance sectors, and cyber risks.

## TECHNOLOGICAL INNOVATIONS IN INSURANCE IN SERBIA

The insurance industry in Serbia is going through a significant transformation thanks to the increasing adoption of advanced digital technologies. These innovations allow insurance companies to improve their services, increase business efficiency and better respond to the needs of their clients. Insurance companies in Serbia are increasingly using various technological innovations to improve their services and business processes (Big Data Analytics in the Insurance Sector, 2024):

- online sales of insurance,
- mobile applications,
- big data and analytics,
- artificial intelligence (AI) and chatbots.

**Online insurance sales** – one of the most significant innovations in the insurance sector in Serbia is the development of online platforms for insurance sales. These platforms allow users to quickly and easily buy insurance policies online, without the need to visit physical branches. This not only increases the availability of insurance, but also reduces the cost of doing business for insurance companies. Examples: Uniqa Srbija and Dunav Osiguranje are among the first to introduce online sales of insurance policies, allowing users to buy different types of insurance through their websites (Employee Training for Digital Transformation, 2024).

**Mobile Apps** – are becoming increasingly popular in the insurance sector, allowing users to manage their insurance policies, report claims and access information about products and services via their mobile devices. These applications improve user experience and increase customer engagement. Examples: Generali Srbija and Wiener Städtische have developed mobile applications that allow users to easily manage their insurance, report claims and receive support.

**Big data analytics** – the use of big data analytics allows insurance companies to analyze large amounts of data about customers and risks, which helps in personalizing offers and making better business decisions. Data analytics help identify customer behavior patterns, assess risk and optimize premiums. Examples: insurance companies such as DDOR Novi Sad use big data analytics to better understand the needs of their clients and adapt their products and services (Educating Customers on Digital Insurance Services, 2024).

**Artificial intelligence and chatbots** – are used to automate customer support, claim processing and claims assessment, thereby reducing processing time and increasing efficiency. Chatbots can provide quick answers to user questions, while AI can analyze insurance claims and assess risks. Examples: Triglav Osiguranje uses AI and chatbots to provide customer support and process insurance requests,



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thereby reducing waiting times and increasing customer satisfaction (Impact of AI on the Insurance Industry, 2024)

**Blockchain technology** – brings transparency and security in the processing of transactions, reducing the risk of fraud and enabling the creation of smart contracts. This technology can significantly improve data integrity and security in insurance processes. Examples: although the adoption of blockchain technology is still at an early stage in Serbia, insurance companies are exploring the possibilities of applying this technology to improve the security and efficiency of their operations (Blockchain Technology in Insurance, 2024).

## ADVANTAGES OF DIGITAL INSURANCE IN SERBIA

Digitization brings numerous advantages for the insurance industry in Serbia, including improving the user experience, reducing operational costs, increased efficiency and the possibility of personalizing offers. These advantages allow insurance companies to respond better to the needs of their clients and to deal more effectively with competition in the market. The advantages of digitalization for insurance companies and their clients are (Digitalization of Insurance: Trends and Challenges in Serbia, 2024):

- improved user experience,
- reduction of operating costs,
- personalization of offers,
- increased efficiency,
- better risk assessment.

**Improved customer experience** – digitalization enables insurance companies to offer faster and simpler services to their customers. Using online platforms and mobile applications, clients can purchase insurance policies, report claims and monitor the status of their claims at any time and from any place. Examples: online platforms - companies such as Uniqa Srbija and Dunav Osiguranje offer online platforms that enable quick and easy purchase of insurance policies; mobile applications - Generali Srbija and Wiener Städtische have mobile applications that allow users to manage their insurance, report claims and receive support (Investing in Digital Infrastructure for Insurance, 2024)

**Reduction of operating costs** – automation of processes using digital technologies reduces the need for manual work, which directly reduces operating costs. Digital technologies also reduce the need for paper documents, which further reduces costs and contributes to environmental sustainability. Examples: claim processing automation - the use of artificial intelligence and automated processes to process insurance claims and claims reduces processing time and reduces costs; digitization of documentation - the use of digital platforms for storing and managing documentation reduces the need for physical space and paper (Technical Infrastructure for Digital Insurance, 2024).

**Personalization of offers** – the use of big data analytics allows insurance companies to collect and analyze customer data, which helps them better understand their needs and offer customized products. Personalized offers increase customer satisfaction and loyalty. Examples: big data analytics – DDOR Novi Sad uses big data analytics to better understand the needs of its clients and offer them personalized products and services; personalized products - companies can adjust premiums and sums insured based on customer data and their specific needs.



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**Increased efficiency** – digital technologies enable faster and more efficient processing of claims for insurance and compensation. Automated processes and artificial intelligence reduce the time required to perform these tasks, resulting in faster response times and greater customer satisfaction. Examples: AI and automation – Triglav Osiguranje uses artificial intelligence to process claims for insurance and compensation, which significantly reduces processing time; chatbots - the use of chatbots to provide customer support enables quick answers to customer questions and reduces the burden on human resources (Managing Change in Digital Transformation, 2024).

**Better risk assessment** – technologies such as big data analytics and IoT (Internet of Things) devices enable more accurate risk assessment. This allows insurance companies to better manage risks and optimize premiums, which can lead to lower costs for customers. Examples: IoT devices, such as smart sensors in vehicles and homes, provide real-time data to help assess risk and adjust premiums; risk analytics - the use of advanced analytical tools for risk assessment allows insurance companies to better manage their portfolios and reduce losses (IoT and Its Impact on the Insurance Industry, 2024).

These advantages allow insurance companies to better respond to the needs of their clients, increase their competitiveness and achieve long-term success in the market.

## CHALLENGES OF DIGITAL INSURANCE IN SERBIA

The challenges of digital insurance in Serbia include several key aspects that require attention in order to improve this sector. Here are some of the most significant challenges:

1. **Technological integration** – integrating advanced technologies such as artificial intelligence, blockchain, and the Internet of Things (IoT) with existing systems is a common challenge. Older systems are often not compatible with new technological solutions, which makes it difficult to automate and digitize processes. This requires significant investment in infrastructure modernization and employee training.
2. **Regulatory challenges** – digital insurance in Serbia must comply with national and international laws that regulate this area, especially in the context of data protection and privacy. Adapting legislation that enables more efficient use of digital technologies while preserving the security of user data is crucial (Regulatory Challenges in Digital Insurance, 2024).
3. **Cyber security** – protecting data from unauthorized access, misuse or attack is the primary challenge for digital insurance. The development of robust security protocols and systems that can withstand cyber attacks is necessary to preserve user trust (The Importance of Data Protection in Digital Insurance, 2024).
4. **Changing consumer behavior** - consumer adaptation to digital services is not always quick or easy. Educating users about the benefits and security of digital insurance is key. Also, it is necessary to develop user interfaces that are intuitive and easy to use in order to facilitate the transition to digital platforms (Employee and Client Education in Digital Transformation, 2024).
5. **Market competition** - competition in the digital insurance market is increasing, both from domestic and international companies. Insurance companies must innovate and continuously improve their services to remain competitive. This includes personalization of offers, improvement of user experience, and more efficient processing of requests.



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Overcoming these challenges requires a coordinated effort from industry, regulatory bodies and educational institutions. Investments in technology, employee training, and the development of legal and regulatory infrastructure are key to the successful implementation and expansion of digital insurance in Serbia.

### **PERSPECTIVES OF THE FUTURE DEVELOPMENT OF DIGITAL INSURANCE IN SERBIA**

Perspectives for the future development of digital insurance in Serbia focus on several key areas. The inclusion of advanced technologies such as artificial intelligence and the Internet of Things (IoT) promises to improve efficiency and accuracy in risk assessment and policy management. It is also expected to strengthen interaction with clients through digital platforms that allow easier access to services and information. However, all this is accompanied by the need for stricter regulation and data protection measures, in order to ensure the privacy and security of users. Additionally, there is a need for education to increase digital literacy among insurance users (Digital Adoption in Insurance: Overcoming Resistance, 2024).

The future of the insurance industry in Serbia will be marked by the further integration of digital technologies, which will bring additional innovations and changes. Some of the key trends include:

- Expanded use of AI and automation – further application of AI to improve processes, such as automatic damage assessment and risk management, is foreseen.
- Development of new business models – digitization will enable the creation of new products, such as on-demand insurance and microinsurance, adapted to the specific needs of consumers.
- Increased use of big data analytics – using big data to more accurately predict risk and optimize insurance processes will become the industry standard.

### **CONCLUSION**

The conclusion about the impact of globalization on the insurance industry can be seen through different aspects that include both positive and challenging dimensions of this phenomenon. Globalization has transformed the insurance sector, allowing companies to expand their operations, access new markets, technologies and innovations, but it has also brought new risks and competition.

The positive impacts of globalization on the insurance industry are:

- Access to new markets – globalization allows insurance companies to expand their operations to international markets, which leads to increased income and diversification of risk portfolios. Entering new countries allows companies to capitalize on markets that are less saturated and potentially more profitable.
- Availability of sophisticated technologies – globalization encourages the exchange of technologies and best practices between countries and regions, enabling insurance companies to implement advanced technology systems, improve efficiency and optimize their operations.



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- Innovation in products and services – exposure to the global market encourages innovation and the development of new insurance products that are adapted to different cultural and economic contexts. This enriches the offer of insurance companies and allows them to better meet the needs of diverse clients.
- Investing in human capital – globalization encourages the exchange of knowledge and skills among the workforce, enabling insurance companies to improve the skills of their employees through training, seminars and working in an international environment.

The challenges of globalization for the insurance industry are:

- Increased competition – the entry of international insurance companies into domestic markets increases competition, which can put pressure on the margins and pricing strategy of local insurance companies. This requires domestic players to improve their operations and offerings to remain competitive.
- Regulatory challenges – different regulatory frameworks in various countries can make doing business internationally difficult. Insurance companies must navigate complex laws and regulations to ensure compliance in all markets in which they operate.
- Managing risks on a global scale – globalization brings new types of risks, including geopolitical, economic and cyber risks, that insurance companies must manage effectively. The need for a comprehensive understanding and management of global risks has never been greater.
- Cultural differences – understanding and adapting to cultural differences in customer behavior, marketing strategies and business practices is critical to success in international markets, which can be challenging for insurance companies expanding their operations.

Globalization is a double-edged sword for the insurance industry. While it brings numerous opportunities for growth, expansion and innovation, it also requires insurance companies to face new challenges and adapt their strategies to remain competitive in an increasingly dynamic global market. The key to success lies in the ability of insurance companies to effectively manage risks, innovate, and take advantage of global opportunities, while constantly complying with regulatory requirements and maintaining competitiveness.

## REFERENCES

Big Data Analytics in the Insurance Sector. (2024). Retrieved from: <https://www.sciencedirect.com/science/>

Blockchain Technology in Insurance. (2024). Retrieved from <https://consensys.io/blockchain-use-cases/finance/insurance>

Cybersecurity Challenges for Digital Insurance. (2024). Retrieved from <https://www.testingxperts.com/blog/cyber-security-in-digital-insurance-industry>

Digitalization of Insurance: Trends and Challenges in Serbia. (2024). Retrieved from [https://www.researchgate.net/publication/362513890\\_Factors\\_Affecting\\_Digital\\_Transformation\\_of\\_Insurance\\_in\\_the\\_Republic\\_of\\_Serbia](https://www.researchgate.net/publication/362513890_Factors_Affecting_Digital_Transformation_of_Insurance_in_the_Republic_of_Serbia)



## Conference Proceedings

Digital Adoption in Insurance: Overcoming Resistance. (2024). Retrieved from <https://www.easysend.io/blog/embracing-change-strategies-for-overcoming-resistance-to-digital-adoption-in-insurance-companies>

Educating Customers on Digital Insurance Services. (2024). Retrieved from <https://access.boltinsurance.com/blog/why-customer-education-should-be-part-of-your-insurance-marketing-strategy>

Employee and Client Education in Digital Transformation. (2024). Retrieved from [https://www.researchgate.net/publication/379446129\\_Digital\\_Transformation\\_and\\_its\\_Impact\\_on\\_Employee\\_Training\\_and\\_Development\\_Needs\\_The\\_Impact\\_of\\_Digital\\_Transformation\\_on\\_Employee\\_Training\\_and\\_Development\\_Needs](https://www.researchgate.net/publication/379446129_Digital_Transformation_and_its_Impact_on_Employee_Training_and_Development_Needs_The_Impact_of_Digital_Transformation_on_Employee_Training_and_Development_Needs)

Employee Training for Digital Transformation. (2024). Retrieved from <https://edly.io/blog/why-employee-training-is-essential-for-digital-transformation/>

Impact of AI on the Insurance Industry. (2024). Retrieved from <https://kpmg.com/us/en/articles/2024/impact-artificial-intelligence-insurance-industry.html>

Investing in Digital Infrastructure for Insurance. (2024). Retrieved from <https://www.strategyand.pwc.com/de/en/industries/financial-services/accelerating-the-digital-transformation/accelerating-the-digital-transformation.pdf>

IoT and Its Impact on the Insurance Industry. (2024). Retrieved from <https://clutch.co/rs/developers/internet-of-things>

Managing Change in Digital Transformation. (2024). Retrieved from <https://www.impactmybiz.com/blog/blog-5-change-management-strategies-for-digital-transformation/>

Navigating Regulatory Change in Insurance. (2024). McKinsey. Retrieved from <https://www.wns.com/perspectives/blogs/blogdetail/1179/navigating-regulatory-challenges-in-the-insurance-industry>

Regulatory Challenges in Digital Insurance. (2024). Retrieved from <https://dokleptic.law/2024/04/16/digital-asset-regulations-perspectives-from-serbia-and-the-eu/>

Technical Infrastructure for Digital Insurance. (2024). Retrieved from <https://www.damcogroup.com/blogs/infrastructure-modernization-the-key-to-successful-digital-transformation-in-insurance>

The Role of Mobile Apps in the Digital Transformation of Insurance in Serbia. (2024). Retrieved from [https://www.researchgate.net/publication/362513890\\_Factors\\_Affecting\\_Digital\\_Transformation\\_of\\_Insurance\\_in\\_the\\_Republic\\_of\\_Serbia](https://www.researchgate.net/publication/362513890_Factors_Affecting_Digital_Transformation_of_Insurance_in_the_Republic_of_Serbia)

The Importance of Data Protection in Digital Insurance. (2024). Retrieved from <https://incountry.com/blog/data-protection-principles-in-the-insurance-industry/>



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# ANTECEDENTS OF LEADERSHIP CONDUCT IN WOMEN ENTREPRENEURSHIP: DOES THANK GOD IT'S MONDAY (TGIM) ATTITUDE A GAME CHANGER?

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DOI: 10.5937/EEE24036M  
JEL: J16  
Review Scientific Paper

### ABSTRACT

*The present study is a paper designed to present an argument on the TGIM attitude” and its antecedents in the eyes of creating a successful entrepreneurial mindset and organization. It is obvious from the analysis of different literary works that the conduct of Leadership, especially in entrepreneurship, has an impact on the behaviour of women entrepreneurs. The study intends to create a noteworthy inquiry into the relationship between leadership and the TGIM attitude of women intrapreneurs. The Indian IT entrepreneurial organizations employ around 3.1 million people, and this sector witnessing ‘Monday Morning Blues’ can be infectious. For the survival, growth and excellence of these entrepreneurial organizations, these firms have to focus on building TGIM attitudes in women intrapreneurs. The study is based on the C LEAD Model (developed by Cisco) of Women Leader’s Behavior. Though TGIM is a new concept, this interpretation of TGIM was created after interviews with various women intrapreneurs in the IT sector. Interpretative Phenomenological Analysis has been used to understand the concept of TGIM. The model is proposed to study the inter-relationship between a Women Leader’s Behavior and their role in building a TGIM attitude.*

### KEYWORDS

*women leader’s behavior, C LEAD model, TGIM, women entrepreneurship*

## INTRODUCTION

Women intrapreneurs are a treasured talent for any organization. They need to be nurtured and commanded so that they are fully involved with their work. It is ‘People’ who make all the

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transformation, and nothing is more significant than appealing to people at the workplace and making them feel content to come to work on 'Monday Morning'. In the contemporary corporate landscape, workplace culture has emerged as a pivotal factor influencing employee satisfaction, productivity, and organizational success. One innovative concept that has gained traction is the "Thank God It's Monday" (TGIM) culture. This paradigm shift from the conventional dread associated with the beginning of the workweek to a sense of enthusiasm and anticipation is redefining how employees perceive and engage with their work. The TGIM culture is not merely a catchphrase but a comprehensive approach aimed at fostering a positive, dynamic, and supportive work environment. It emphasizes the importance of employees looking forward to Mondays, thereby enhancing overall morale and productivity. Central to this culture are practices and policies that promote employee well-being, engagement, and development.

Studies have suggested that 'Relation with immediate superior/manager' plays an important role in making the employee feel positive about the work and workplace (Nordhall et al., 2024). The study aims to make a meaningful inquiry into the impact of Women Leader's Behavior in building TGIM attitudes among women entrepreneurs. The study is based on C LEAD model of Leader Behavior. The outcome of the study is identified as TGIM or TGIF. The study is pragmatic in nature. It is exploratory as new insights of TGIM in IT sector will be explored. It is descriptive as the study is also aimed at portraying the characteristics and perceptions of the Women entrepreneurs in IT sector towards their Women Leader's Behavior and TGIM attitude. Hypothesis is framed to test the causal relationships between Women Leader's Behavior and TGIM attitude in women.

The research has various limitations such as sectoral scope - the scope of the study is limited to IT industry. The existing scale will be used to assess the impact of Women Leader's Behavior and TGIM. Structure questionnaire technique has been adopted to understand the perceptions of women entrepreneurs on Monday Mornings. The proposed Model is based on C LEAD model developed by Cisco. The study will create value for IT companies as the sector is in the clutches of 'Monday Morning Blues', which have a direct impact on retention, job hopping, attrition and other emotional and behavioural issues of employees at workplace.

## IT SECTOR IN INDIA

The IT industry in India is considered as a sunrise sector. It has today become a growth engine for the economy, contributing substantially to the GDP, urban employment and exports. Firms across all other sectors, largely depend on the IT service providers to make their business processes efficient and streamlined. Information Technology is an aid in achieving the bottom line of the organization. Nasscom expects the IT services sector in India to touch US\$ 225 billion by 2020. Indian IT sector is a hub for Foreign Direct Investments (FDI). The sector's core competencies and strengths have placed it on the international canvas, attracting investments from major countries.

Between April 2000 and June 2013, the computer software and hardware sector attracted cumulative foreign direct investment (FDI) of Rs 53,757.60 crore (US\$ 7.97 billion), according to data released by the Department of Industrial Policy and Promotion (DIPP). Online retailing, cloud computing and e-commerce are the major driving forces behind the rapidly increasing growth in the IT industry. The sector also has a huge potential for job opportunities. Indian IT sector employs around 3.1 million people. A sector with such huge employment is facing the challenge of developing and retaining talent. In this paper, the researcher proposes to prove how Women Leader's Behavior will result in TGIM and its implication on the attitude of women entrepreneurs. The global IT industry has been experiencing rapid changes due to factors ranging from the macro-economic (global recession), technology (SMAC-



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the digital enterprises), social (financial inclusion, healthcare, education) and changing customer expectations. These winds of change have also influenced India's IT industry. Still, the IT industry is the largest private sector employer in India.

### SIGNIFICANCE OF THE STUDY

People are the industry's biggest differentiator and have invested substantial time and money in developing a future-ready workforce. Following is the investment attracted in the Indian IT sector

- USD 1.6 billion: investment made by the industry in training,
- USD 4,000 per new recruit,
- 5% man hours per annum.

Overall, although IT Industry scores are healthy across the four parameters, there is scope for further improvement to reach Best Employers level and the employee who has TGIM attitude will definitely consider his employer as 'Best Employer'. Effective Leadership scores for the IT industry are lower in comparison to Best Employers in the aspects of people connect, strategy and business communication. This implies that IT industry women entrepreneurs need to focus on improving both their people connect and the women entrepreneurs' faith in their ability to truly lead a business. Over the past four decades, the IT industry has come a long way. From cost arbitrage, collaboration and value addition, the focus has now changed for organizations to deliver business outcomes for their clients. India continues to be the one stop destination – in 2015, it retains its leadership position with a share of 55 percent cent in the global sourcing arena. The East is gradually becoming the new West and more importantly technology is the new fuel disrupting and enabling businesses. Leading firms are leaving behind the traditional models of market access; instead they are creating new markets and controlling consumer experience like never before. All this is possible only with their Women entrepreneurs.

### LITERATURE REVIEW

Women Leader's Behavior is considered as one of the antecedents of organizational success. Dale Carnegie teamed with MSW Research to study the functional and emotional elements that affect employee behaviour. A sample of 1,500 women entrepreneurs was surveyed, which revealed that although there are many factors that impact employee behavior, there are three key drivers: Relationship with immediate supervisor, belief in own leadership, pride in working for own company. Women entrepreneurs opined that the relationship with their immediate supervisor is the key to determining their behavior. The behavior and actions of the immediate supervisor can create an atmosphere where women entrepreneurs feel happy coming to work.

Various theories exist on the fluctuation of good and negative moods during the week (Stone et al., 2012). Studies, however small and typically using student samples, have shown evidence for the existence of 'Blue Monday', 'Thank God it's Friday', and the effects of weekdays versus weekends. The study revealed significant evidence of improved mood on weekends and Fridays, whereas there was limited evidence supporting the existence of a Blue Monday effect. Additionally, no significant variations were seen between Saturdays and Sundays (Stone et al., 2012). While some claim that digital



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technology frees workers from spatial limitations, the physicality of real space remains significant in modern business (Grazian, 2020). Coworking spaces utilise aesthetics, ideology, and style to establish their brand identity and create an environment that portrays new-economy work as purposeful, collaborative, innovative, and enjoyable. In recent years, the coworking sector has seen a trend of audience segmentation, with rivals focusing on niche groups not well served by mainstream offers. Additionally, some businesses are trying to convert unused commercial buildings into coworking enterprises to generate revenue (Grazian, 2020).

According to Avolio and Gardner (2005), Women's leadership requires a focus on restoring confidence, hope and optimism at work, which also enables individuals to display resilience and to bounce back after disastrous events and actively helps individuals in their search for meaning and connection. Women's Leadership also emphasizes the importance of developing transparent, trust and genuine relationships.

Quinn (2005) articulates the likely requirements of effective leadership as being:

1. Increased honesty about what meaningful results women entrepreneurs want to create
2. The display of behaviors which are congruent with their inner core values increasing integrity, authenticity and confidence
3. Acting in a way which puts the needs of the organization as a whole above their own, resulting in greater trust and an enriched sense of community
4. More adaptive and creative in response to wider external influences.

Leadership is viewed as fundamental to the success of any organization. in a given situation, an effective women entrepreneur's hip style is a combination of the task, the organization's culture, the leader's subordinate's relationships, and the attributes of the leader. It is evident that, the Behavior of the Leader can make a difference as he performs the following four major functions:

1. Decision Making: - Decision making is considered as one of the managerial functions a Leader performs. This includes creating a vision, establishing group goals, developing and deciding among competing strategies, operational planning and resource allocation.
2. Goal Attainment: - Subordination of individual interests to organizational interests is possible through the activities of the Leader, which should result in attaining both individual as well as organizational goals. To achieve these goals, the Leader has to direct the behaviour of group members toward group goals. To perform this function, the Leader plays various roles resulting in:
  - a. Coaching/Development- Develop the skills and competencies of the group members.
  - b. Influence- Motivating extra-role behaviour of group members; directing behaviour of group members; eliciting behaviours consistent with group's mission and strategy; eliciting behaviour outside the preference zone of the group members.
3. Integration- Integrating results in institutionalizing the values by insuring adequate coordination of the efforts of group members
4. Group Maintenance- The leader also plays various interpersonal roles. Improving the morale and cohesiveness of the group is a challenge in this dynamic environment. To achieve this group maintenance, leader has to excel at both Socio and emotional functions of management.



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# THANK GOD IT'S MONDAY (TGIM)

TGIM is a new concept. There is very less evidence of academic literature on this concept. Literature is available on 'Monday Morning Blues', a related TGIM theme. The lack of an operational definition of TGIM has made the researcher use Interpretative Phenomenological Analysis to identify the behaviour of women entrepreneurs on Monday morning. Thanks God, its Friday has been popular among workers. One of our main findings in terms of a weekday effect was a profound increase in homicides towards the end of the week (Franckenberg et al., 2022). Using both structured and unstructured interview techniques, the behaviour pattern of women entrepreneurs has been analyzed. With the help of research guide and subject expert the behavior of employee on Monday morning has been categorized into five segments. An open-ended question is asked to express the behaviour of women entrepreneurs on Monday mornings. These responses were converted into Likert's five-point scale for the purpose of analysis.

## C LEAD MODEL

Cisco has identified the women leader's behavior as essential to achieving goals. The C-LEAD model defines what Cisco expects from their women entrepreneurs and what they should expect from each other. The model involves five interdependent themes that constitute the skill set of an effective Cisco leader:

- Collaborate: Working across boundaries, building teams, managing conflict, earning trust, and recognizing good performance;
- Learn: Developing personal skills and coaching others;
- Execute: Solving problems, making decisions, delegating, giving feedback, and demonstrating passion for the work;
- Accelerate: Communicating goals and building capabilities;
- Disrupt: Envisioning opportunities, innovating, taking risks, and leading change.

The researcher has adopted C LEAD model to study the impact of Women Leader's Behavior on TGIM. The five attributes: Collaborate, Learn, Execute, Accelerate and Disrupt are interrelated with the objectives of the study. Therefore, using CLEAD model to study the Women Leader's Behavior is justifiable.

## GAPS IN LITERATURE

There is dearth for academic literature on TGIM. There are various studies on Job satisfaction, and Organizational commitment. Based on the available literature the following gaps are identified:

1. There is no strong evidence which shows the relationship between Women Leader's Behavior and TGIM. Existing literature is limited to only some dimensions of leadership styles.
2. TGIM is a new concept and there is scant literature available on the proposed theme. However, literature is available on 'Monday Morning Blues', which is related to TGIM.



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3. Little research is available in IT sector on the proposed theme of TGIM. The researcher wants to find out whether TGIM attitude can be helpful in overcoming these glitches.

## OBJECTIVES OF THE STUDY

1. To enunciate the various behavior of Women entrepreneurs of IT Sector on Monday Mornings.
2. To investigate whether Women Leader's Behavior is an antecedent to TGIM attitude.
3. To study the Role of Women Leader's Behavior in building TGIM attitude among the Team members.
4. 3000k for web of.

## SCOPE OF THE STUDY

The scope of the study is Women entrepreneurs of the Information Technology sector. The study results in studying the behavior of women entrepreneurs of IT sector on Monday Mornings. The relationship between Women Leader's Behavior and Thank God It's Monday attitude is studied which will help to strengthen the interpersonal relations among Leader and subordinate.

## HYPOTHESIS

- H1. There is a positive relationship between Women Leader's Behavior and TGIM attitude.
- a. Leader's 'Collaborative' Behavior will have a positive effect on TGIM attitude.
  - b. Leader's 'Learning' Behavior will have a positive effect on TGIM attitude.
  - c. Leader's 'Executive Style' will have a positive effect on TGIM attitude.
  - d. Leader's 'Accelerating ability' will have a positive effect on TGIM attitude.
  - e. Leader's 'Disrupt Behavior' will have a positive effect on TGIM attitude.

Table 1. Proposed scales for the Research

Description	Scales proposed	Justification
Leader Behavior (Managerial Behavior)	Executive C LEAD model	It is tested earlier and it measures the leader behavior from various dimensions (Collaborate, Learn, Execute, Accelerate, Disrupt)
Demographic variables	Designation, Age, Gender Highest Educational Qualification	Describe sample and see if any trend exist among different groups.
Extraneous variables	Total tenure with the current employer	Previous research on engagement assessed these variables. – Saks, 2006, Schaufeli, Bakker, 2004

## PROPOSED MODEL FOR THE STUDY

The framework attempts to capture the relationship between the constructs of Women Leader's Behavior and TGIM.

## RESEARCH METHODOLOGY

**Population:** Women entrepreneurs in the Information Technology sector.

**Sample design:**

Sample frame: Women entrepreneurs of IT sector from Pune & Mumbai

Sampling Technique: Convenient sampling and Snowball technique

Sample size: 142 women intrapreneurs of IT sector

**Data collection:**

Primary data: Structured Questionnaire (Likert's five-point scale) and one open ended question.

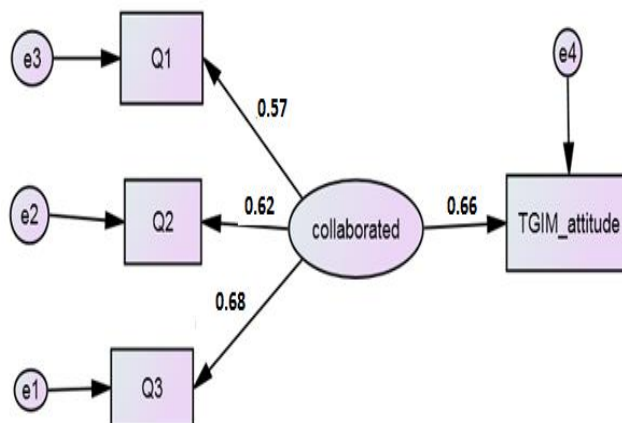
Secondary data: Academic & Practitioner reviews and research reports

**Data analysis:** Interpretative Phenomenological Analysis and Structural Equation Model

To meet the objectives, hypotheses are tested using statistical tools. Data collected had been first coded and then using AMOS 20 version, empirical evidence is gathered to decide whether to accept or reject the hypotheses.

## RESULTS

H1(a): Leader's 'Collaborative' Behavior will have a positive effect on TGIM attitude (Figure 4):





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Table 2. Standardized Regression Weights

			Estimate
TGIM_attitude	<---	collaborated	.663

Table 3. Regression Weights

			Estimate	S.E.	C.R.	P
TGIM_attitude	<---	collaborated	1.064	.486	2.188	.029

H1 (b): Leader's 'Learning' Behavior will have a positive effect on TGIM attitude (Figure 5):

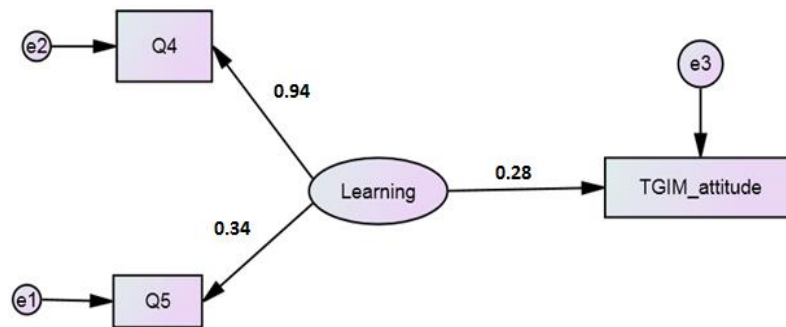


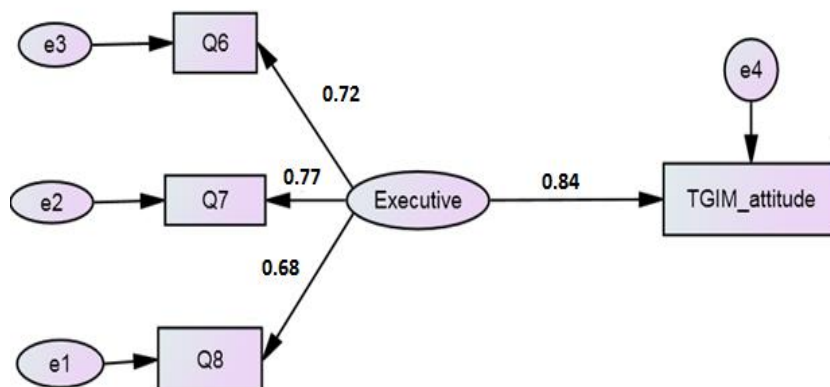
Table 4. Standardized Regression Weights: (Group number 1 - Default model)

			Estimate
TGIM_attitude	<---	Learning	.276

Table 5. Regression Weights: (Group number 1 - Default model)

			Estimate	S.E.	C.R.	P
TGIM_attitude	<---	Learning	.821	.469	1.752	.080

H 1(c): Leader's 'Executive Style' will have a positive effect on TGIM attitude (Figure 6):





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Table 6. Standardized Regression Weights

			Estimate
TGIM_attitude	<---	Executive	.843

Table 7. Regression Weights

			Estimate	S.E.	C.R.	P
TGIM_attitude	<---	Executive	4.638	3.488	1.330	.184

H1(d): Leader’s ‘Accelerating ability’ will have a positive effect on TGIM attitude (Figure 7):

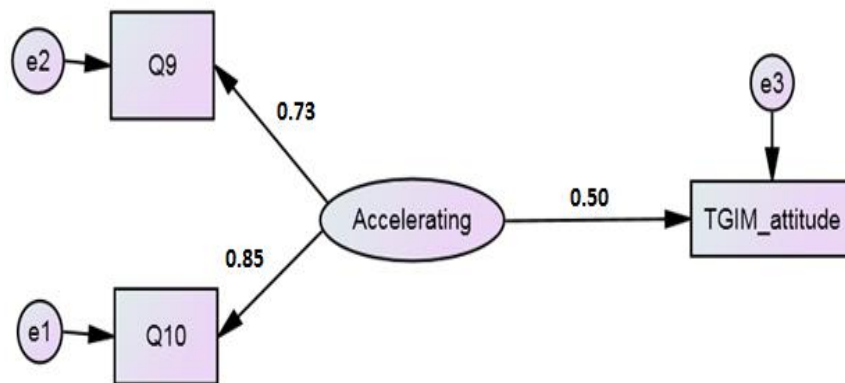


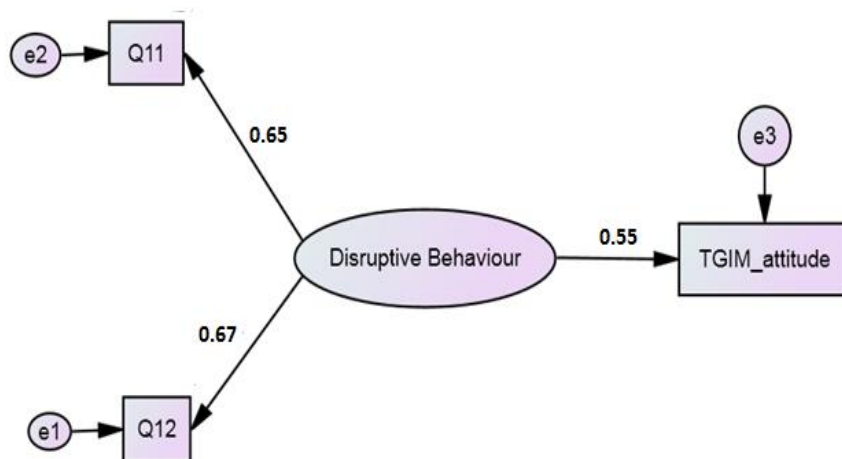
Table 8. Standardized Regression Weights

			Estimate
TGIM_attitude	<---	Accelerating	.495

Table 9. Regression Weights

			Estimate	S.E.	C.R.	P
TGIM_attitude	<---	Accelerating	.556	.261	2.133	.033

H1(e): Leader’s ‘Disrupt Behavior’ will have a positive effect on TGIM attitude (Figure 8):







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Table 10. Standardized Regression Weights

			Estimate
TGIM_attitude	<---	Disruptive	.552

Table 11. Regression Weights

			Estimate	S.E.	C.R.	P
TGIM_attitude	<---	Disruptive	.862	.419	2.055	.040

## DISCUSSION AND CONCLUSION

H1: There is a positive relationship between Women Leader's Behavior and TGIM attitude (Table 12):

Hypotheses	Description	P value	DECISION Accept/Reject
H1. a	a. Leader's 'Collaborative' Behavior will have a positive effect on TGIM attitude.	.029	Accept
H1. b	b. Leader's 'Learning' Behavior will have a positive effect on TGIM attitude.	.080	Reject
H1. c	c. Leader's 'Executing Style' will have a positive effect on TGIM attitude.	.184	Reject
H1. d	d. Leader's 'Accelerating ability' will have a positive effect on TGIM attitude.	.033	Accept
H1. e	e. Leader's 'Disrupt Behavior' will have a positive effect on TGIM attitude.	.040	Accept

The results of the present study provide empirical support that Women Leader's Behavior will result in TGIM. The first hypothesis postulates a positive relationship between Leader's Collaborative Behavior and TGIM. The results of the data analysis supported the stated hypothesis. Hence this hypothesis is accepted. Efforts should be on improving and creating an environment where Collaborative Behavior of the Leader is promoted. The second hypothesis states that there is a positive relationship between Leader's Learning Behavior and TGIM. But the results do not support the hypothesis. Therefore, it is concluded that the Leader's Learning ability in developing self as well as others do not affect the TGIM attitude on part of the women entrepreneurs. Henceforth this hypothesis is rejected.

The researcher comes with an assumption that there is a positive relationship between Leader's Executing style and TGIM in the third hypothesis. Leader's passion in demonstrating, empowering teams and his focus on achieving results are taken as antecedents in building TGIM attitude. The results confirmed that the Leader's Executing style will not affect TGIM on part of the women entrepreneurs. Hence this hypothesis is rejected. The fourth hypothesis postulates that here is a positive relationship between Leader's Accelerating ability and TGIM. Leader's ability in shaping the strategy and capacity building is assessed. The results confirmed that ability to shape the strategy and capacity building will positively impact TGIM attitude.

In the fifth hypothesis, the researcher made an attempt to find the relationship between the Disruptive behavior of the Leader in building TGIM attitude. Leader's focus on promoting innovation and leading



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change are taken as the two parameters to assess his Disruptive Behavior. The results confirmed that Leader's Disruptive Behavior will positively impact TGIM attitude.

The results concluded that Leader's Collaborative, Accelerating and Disruptive Behavior will help in building TGIM attitude at the workplace. In this highly volatile environment it is the women entrepreneurs' who can bring a difference at the work place. Human resources are the only factor which appreciates in value in the course of time. Women entrepreneurs who exhibit TGIM are emotionally attached to work and possess conceptual skills along with technical and managerial skills.

## IMPLICATION OF THE STUDY

The implications of the study are multifaceted and hold significant promise for the literature on Thank God its Monday and women entrepreneurs. Firstly, the findings can assist policymakers in designing effective strategies and practices that foster a positive "Thank God It's Monday" (TGIM) culture. This culture promotes enthusiasm and positivity at the start of the workweek, which can lead to increased productivity and job satisfaction. Additionally, HR practitioners and consultants can gain valuable insights into the role of women leaders' behaviour in building a TGIM culture. By understanding these dynamics, they can develop targeted training and leadership programs that empower women and enhance their contributions to the workplace. This can lead to better interpersonal relations among employees, as a TGIM culture encourages collaboration, mutual respect, and effective communication.

The study also addresses the issue of job hopping, a significant concern in the IT sector. By fostering a TGIM culture, organizations can increase employee engagement and loyalty, thereby reducing turnover rates. This culture can make employees feel more connected and motivated, reducing their desire to seek opportunities elsewhere. Moreover, the study highlights the importance of designing Women's Entrepreneurship Development Programs with a focus on encouraging collaborative, accelerating, and disruptive behaviours among women entrepreneurs. These programs can help women develop the skills and mindset needed to drive innovation and growth in the sector. Workplace issues such as absenteeism, turnover, and other behaviour-related problems can also be mitigated by promoting a TGIM culture. When employees look forward to coming to work, they are less likely to miss work or leave the organization. This leads to a more stable and productive workforce. Finally, understanding the importance of a TGIM culture can help organizations leverage the high potential of talented women entrepreneurs. By creating an environment that values and supports their contributions, organizations can tap into a rich pool of talent, driving innovation and competitive advantage in the IT sector. Overall, the study underscores the need for a supportive and engaging workplace culture to enhance productivity, reduce turnover, and promote the success of women in leadership and entrepreneurial roles.

## LIMITATIONS AND SCOPE FOR FURTHER RESEARCH

The researcher has made an attempt to investigate the impact of Women Leader's Behavior in building TGIM attitude with respect to women entrepreneurs of select IT firms. The sample is drawn from Hyderabad, which is major hub for IT sector. Generalization of the results may not be applicable to whole of Indian IT sector. The sample size is 142, which consists of nominal population in the IT sector. It is recommended that further longitudinal studies need to be conducted and the sample size may be raised. The study is done exclusively in service sector and the researcher opines that there is a huge



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potential for such studies in the manufacturing sector. New domains of research need to be explored which are interrelated with Women Leader's Behavior and Thank God It's Monday.

## REFERENCES

- Bhatnagar, J. (2007). Talent management strategy of employee engagement of Indian ITES women entrepreneurs: Key to retention. *Employee Relations*, 29(6), 640-663.
- Bhatnagar, J., Sharma, A. (2009). Organizational commitment and performance in an Indian context. (Eds.) (2009). *The changing face of people management in India*. Routledge, London.
- Cecily Cooper. Elucidating the bonds of workplace humor: A relational process model
- Employee Commitment Remains Unchanged.... Watson Wyatt Worldwide. 2002. <http://www.watsonwyatt.com/research/resrender.asp?id=W-557&page=6>.
- Franckenberg, S., Sieberth, T., Fliss, B., Ebert, L., Thali, M. J., Dobay, A. (2022). Thank God it's Friday? – Correlation of the beginning and end of the week in general and Christmas holidays in particular with manner of death. *Rechtsmedizin*, 32(3), 179-183.
- Grazian, D. (2020). Thank God it's Monday: Manhattan coworking spaces in the new economy. *Theory and Society*, 49, pp. 991–1019.
- Harter, J. K., Schmidt, F. L., Keyes, C.L.M. (2003). Well-Being in the Workplace and its Relationships to Business Outcomes. In C. L. M. Keyes, J. Haidt (Eds.), *Flourishing: Positive psychology and the life well-lived* (pp. 205–224).
- Kahn, W.A. (1990). Psychological conditions of personal engagement and disengagement at work. *Academy of Management Journal*, 33(4), 692-724.
- Kahn, W.A. (1992). To be fully there: Psychological presence at work. *Human Relations*, 45(4), 321-349.
- Kotter, J. P. (1973). The psychological contract: Managing the joining-up process. *California Management Review*, 15, pp. 91-99.
- Nordhall, O., Kaur, R., Törnblom, L., Knez, I. (2024). Female managers' organizational leadership during telework: experiences of job demands, control and support. *Frontiers in Psychology*, 15, 1335749.
- Schaufeli, W.B., Bakker, A.B. (2004) Job demands, job resources, and their relationship with burnout and engagement: a multi-sample stud. *Journal of Organizational Behavior*, Vol 25, pp. 293-315.
- Schaufeli, W. B., Salanova, M., Gonzalez-Roma, V., Bakker, A.B. (2002). The measurement of engagement and burnout: A confirmative analytic approach. *Journal of Happiness Studies*, 3, pp. 71–92.
- Shaw, K. (2005). An engagement strategy process for communicators. *Strategic Communication Management*, 9(83), 26-29.
- Wilson, F. (2004). *Organisational Behaviour and Work: A Critical Introduction*. 2nd ed. Oxford, Oxford University Press.



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# CURRENT STATE AND PERSPECTIVES OF DIGITAL MARKETING IN THE ERA OF ARTIFICIAL INTELLIGENCE

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DOI: 10.5937/EEE24037C  
JEL: M31  
Review Scientific Paper

## ABSTRACT

*This paper explores the role and impact of artificial intelligence (AI) in the field of digital marketing, analyzing current applications, benefits, challenges and future trends. In an era of rapid digital transformation, the integration of AI technologies into marketing strategies represents a paradigm shift that fundamentally changes the way organizations approach targeting, engaging and understanding their target groups. The research covers a wide range of applications of AI in digital marketing, including content personalization, predictive analytics, campaign optimization, process automation and customer experience improvement. Special attention is paid to the analysis of the advantages that AI brings, such as increased efficiency, better understanding of consumers and reduction of operating costs. The paper also addresses the ethical challenges and privacy issues arising from the increasing use of AI in marketing activities, emphasizing the need for a balanced approach that maximizes the benefits of the technology while respecting the rights and expectations of consumers. Finally, the paper provides a look into the future, exploring foreseen trends and potential new applications of AI in digital marketing, including the development of autonomous marketing systems, advanced hyperpersonalization, and integration with other emerging technologies.*

## KEYWORDS

*personalization, predictive analytics, ethics in marketing, future trends*

## INTRODUCTION

There is no single universally accepted definition of AI, but some of its definitions are presented below. AI is: the use of algorithms (this is not a particularly useful approach because algorithms predate AI and are widely used beyond this field), the imitation of all human intellectual capabilities through computers (Cox, Mazumdar, 2024). Artificial Intelligence (AI) refers to the theory and advancement of computer systems capable of performing tasks that typically require human intelligence, including visual recognition, voice recognition, complex decision-making, and language interpretation (Sheikh et al., 2023). The discipline referred to as Artificial Intelligence (AI) revolves around creating computer

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systems capable of performing tasks that typically require human intelligence, such as visual perception, speech recognition, decision-making, and language translation (Ertel, 2016).

In the era of digital transformation, AI (artificial intelligence) is emerging as a revolutionary technology that redefines numerous aspects of modern business operations, including the field of digital marketing. This synergy of advanced technology and marketing strategies opens new horizons in understanding consumer behavior, optimizing marketing campaigns and personalizing the customer experience. AI, as a branch of computer science that deals with the creation of intelligent machines capable of performing tasks that typically require human intelligence, is finding an increasingly wide application in digital marketing. This interdisciplinary approach allows marketers to take advantages of advanced algorithms, machine learning and natural language processing to improve their strategies and achieve better results. Digital marketing, on the other hand, represents a comprehensive approach to promoting products, services and brands through digital media and platforms. In the context of the modern market, which is characterized by high competition and constantly evolving consumer habits, the integration of artificial intelligence into digital marketing strategies becomes not only an advantage, but also a necessity for maintaining a competitive position.

The implementation of AI in digital marketing manifests itself through various aspects, including the analysis of Big Data, predictive analytics, automation of marketing processes, personalization of content and interaction with users through chatbots and virtual assistants. These technologies allow marketers to more precisely target their target audience, optimize budgets and resources, and provide a personalized and relevant experience to users. Plans and campaigns for business marketing often incorporate both traditional and digital marketing tactics (Barone, 2022). However, in addition to the undoubted potential, the application of artificial intelligence in digital marketing also opens up numerous ethical questions and challenges. In exploring the ethical aspects, (DG, 2020) places particular emphasis on fairness, privacy, and transparency in AI applications. Issues of data privacy, transparency of algorithms, and potential bias of AI systems require careful consideration and regulation in order to ensure the ethical application of these technologies.

This paper aims to explore and analyze various aspects of the application of artificial intelligence in digital marketing, including current practices, advantages and challenges, as well as potential future trends. Through a critical analysis of relevant literature, case studies and empirical data, we aim to provide a comprehensive overview of this dynamic and rapidly evolving field, and to identify the key factors that will shape the future of marketing in the digital age.

## **APPLICATION OF ARTIFICIAL INTELLIGENCE IN DIGITAL MARKETING**

The integration of artificial intelligence (AI) into digital marketing represents a paradigm shift in the way organizations approach their marketing strategies and tactics. This synergy of advanced technology and marketing principles is manifested through a series of innovative applications that significantly improve the efficiency and effectiveness of marketing efforts.

One of the most significant applications of AI in digital marketing is the possibility of highly personalized access to users. Advanced machine learning algorithms enable the analysis of huge amounts of data on user behavior, their preferences and interaction history, resulting in the creation of extremely accurate user profiles (Sterne, 2017). Based on these profiles, AI systems can customize content, ads and recommendations for each individual user in real time. This type of hyper-



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personalization significantly increases the relevance of marketing messages, leading to higher levels of user engagement, improved conversion and ultimately a higher return on investment (ROI) for marketing activities.

AI systems, especially those using advanced machine learning techniques and deep neural networks, show remarkable ability in predicting future consumer behavior. By analyzing historical data about purchases, searches and social media interactions, these systems can identify patterns that human analysts might miss. AI-based predictive analytics enables marketers to anticipate trends, predict demand for products and services, and identify potential risks of losing clients. This predictive ability is especially valuable in the context of developing customer retention strategies and cross-selling initiatives.

AI technologies are revolutionizing the way marketing campaigns are planned, executed and optimized. Machine learning algorithms can analyze the performance of previous campaigns, identify factors that contribute to success or failure, and automatically adjust the parameters of current campaigns to achieve optimal results. This dynamic optimization covers various aspects of the campaign, including target audience selection, ad placement time, budgeting and creative elements. For example, AI systems can automatically reallocate budget to channels and ad formats that show the best performance, or adjust ad content based on real-time user engagement data.

The implementation of chatbots and AI-based virtual assistants represents a significant advance in the domain of customer support and brand interaction. These systems, which use advanced Natural Language Processing (NLP) and machine learning techniques, are capable of having meaningful conversations with users, providing information about products and services, and solving simpler queries and problems. In addition, advanced virtual assistants can collect valuable data about user preferences and needs during interactions, which further enriches the knowledge base for personalization and targeting.

Artificial intelligence plays a key role in extracting meaningful insights from the vast amounts of structured and unstructured data generated by digital channels. AI algorithms can rapidly process and analyze data from a variety of sources, including social networks, web analytics, CRM systems and IoT devices, identifying hidden patterns and correlations that can inform marketing strategies. This ability to analyze big data allows marketers to make data-driven decisions with greater accuracy and speed than ever before. For example, AI systems can analyze social media sentiment in real time, providing valuable insights into brand perception and the effectiveness of marketing campaigns.

## **ADVANTAGES OF USING ARTIFICIAL INTELLIGENCE IN DIGITAL MARKETING**

The implementation of artificial intelligence (AI) in the domain of digital marketing brings a number of significant advantages that transform the way organizations approach their marketing strategies and tactics.

One of the primary benefits of using AI in digital marketing is a significant increase in the effectiveness of marketing activities. AI systems are capable of processing and analyzing huge amounts of data in real time, which enables faster and more accurate decision-making. Automation of routine tasks is a key aspect of this increase in efficiency. AI algorithms can take over a series of repetitive activities, such as audience segmentation, keyword optimization for search engines, or A/B testing of different versions of ads. This frees marketing teams from time-consuming manual processes, allowing them to focus on the



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strategic and creative aspects of marketing. In addition, AI systems can continuously monitor the performance of marketing campaigns and automatically make real-time adjustments. This dynamic optimization capability ensures that marketing activities are constantly evolving and improving, maximizing their effectiveness over time.

With AI-powered data analysis and machine learning algorithms, businesses can segment their audience more effectively, identify individual preferences and behaviors, and deliver personalized content and recommendations to enhance the customer experience (Khatri, 2021, p. 524). AI technologies provide marketers with a deeper and more nuanced understanding of their target audience. Advanced machine learning algorithms can analyze complex user behavior patterns, their preferences and brand interactions across various touchpoints. This analysis results in the creation of detailed and dynamic user profiles that go far beyond traditional demographic segmentation. AI systems can identify subtle patterns and correlations in user behavior that human analysts might miss, enabling more precise targeting and personalization.

Moreover, AI enables predictive modeling of consumer behavior. By analyzing historical data and current trends, these systems can predict future user actions and preferences, allowing marketers to anticipate the needs of their audience and proactively adjust their strategies. By leveraging AI-driven predictive modeling, businesses can forecast consumer behavior, identify emerging trends, and anticipate market demands with greater accuracy (Chaitanya et al., 2023, p. 987). This enables marketers to make data-driven decisions, optimize their marketing strategies, and allocate resources more efficiently to capitalize on emerging opportunities in the digital landscape (Nair & Gupta, 2020, p. 320).

The implementation of AI in digital marketing significantly contributes to the improvement of the user experience, which is a key factor in building brand loyalty and increasing the conversion rate. AI-based personalization enables the creation of highly relevant and contextually adapted content for each individual user.

AI-based recommendation systems can analyze a user's search, purchase, and interaction history to suggest products or content that best match their interests and needs. This not only improves the user experience, but also increases the chances of cross-selling and up-selling.

Chatbots and virtual assistants represent another aspect of improving the user experience. These AI systems can provide instant, personalized 24/7 customer support, by answering queries, solving problems and guiding users through the purchasing process. The ability of these systems to learn from each interaction means that the quality of support continuously improves over time.

Using AI in digital marketing can lead to a significant reduction in operating costs. Automation of routine tasks reduces the need for human resources to perform these activities, allowing organizations to deploy their staff more efficiently.

AI systems can optimize marketing budget allocation, identifying the most effective channels and tactics for each campaign. This ensures that funds are spent in the most efficient way possible, maximizing return on investment (ROI).

Additionally, AI-based predictive analytics can help reduce customer acquisition costs. By identifying potential customers with the highest likelihood of conversion, organizations can focus their resources on the most promising market segments, reducing costs per acquisition.

AI technologies significantly improve analysis and reporting capabilities in digital marketing. Advanced algorithms can process and interpret vast amounts of data from various sources, providing comprehensive and actionable insights.



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These systems can automatically generate detailed reports on campaign performance, identifying key success factors and areas for improvement. AI can detect hidden patterns and correlations in data that might be missed by traditional analytical methods, giving marketers a deeper understanding of the effectiveness of their strategies.

Furthermore, AI enables predictive analytics, helping organizations to anticipate future trends and adjust their strategies accordingly. This proactive planning can be critical to maintaining a competitive advantage in a rapidly changing digital landscape.

Another significant advantage of using AI in digital marketing is the scalability and flexibility it provides. AI systems can effectively manage marketing activities at various levels of scale, from small, localized campaigns to global, multi-channel initiatives.

This scalability is especially valuable for organizations experiencing rapid growth or operating in dynamic markets. AI can quickly adapt marketing strategies to changes in market conditions, the competitive environment, or customer behavior, ensuring that marketing efforts remain relevant and effective.

In short, the integration of AI into digital marketing strategies offers the potential to improve customer understanding, increase efficiency, and enhance decision-making capabilities, ultimately leading to better overall marketing performance and business success (Aladayleh, 2020).

However, it is important to note that the realization of these advantages requires a strategic approach to the implementation of AI technologies. Organizations must ensure they have the necessary infrastructure, expertise and cultural readiness to effectively use AI in their marketing efforts.

As technology continues to evolve, the benefits of using AI in digital marketing are expected to become more pronounced, opening up new opportunities for innovations and competitive differentiation. Organizations that successfully integrate AI into their marketing strategies will be better positioned to adapt to future challenges and take advantage of new opportunities in the digital landscape.

## THE FUTURE OF AI IN DIGITAL MARKETING

The evolution of artificial intelligence (AI) in the context of digital marketing represents a dynamic and rapidly developing field that promises revolutionary changes in the way organizations approach their marketing strategies. This chapter will focus on anticipated trends, predictions and potential new applications of AI technologies in digital marketing, providing insight into the future of this synergy.

### Trends and predictions

Advances in AI technologies are expected to enable even more sophisticated personalization of marketing content and experiences. Future systems are likely to be able to integrate data from an even wider range of sources, including IoT devices, biometrics and real-world contextual information, creating extremely detailed and dynamic user profiles (Marinchak et al., 2018). This will result in marketing messages and experiences that are almost perfectly tailored to the user's individual preferences, context and current state of mind.

Advances in machine learning algorithms and real-time data processing are likely to lead to the development of systems that can predict users' needs and desires before they themselves become aware





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of them. These systems will be able to anticipate changes in customer behavior based on subtle signals and contextual information, allowing marketers to proactively adjust their strategies and offers.

The future could bring the development of fully autonomous AI-based marketing systems. These systems would be capable of autonomously planning, executing and optimizing marketing campaigns with minimal human supervision. They could continuously learn from the results of their actions, adjust strategies in real time and even create original marketing content.

The synergy between AI and augmented reality technologies is expected to open up new opportunities for immersive marketing experiences. AI could enable the creation of personalized AR experiences that dynamically adapt to user preferences and behavior, creating new, interactive ways to engage customers.

With growing concerns about data privacy and the ethical use of AI, the development of "ethical AI systems" in marketing is expected. These systems would be designed with embedded ethical principles, ensuring transparency, fairness and privacy protection in all marketing activities.

### **Potential new applications of AI technologies**

Advances in natural language processing and sentiment analysis could lead to the development of AI systems capable of recognizing and responding to a user's emotional state. This would enable the creation of marketing messages that are not only personalized in terms of content, but also emotionally resonant with the current state of the user.

Integrating AI with neurotechnologies could enable the development of neuromarketing systems that directly analyze users' brain activity. These systems could provide deeper insights into customers' subconscious preferences and reactions, enabling the creation of marketing strategies that resonate at deeper, neurological levels.

Advances in generative AI models could lead to the creation of fully virtual influencers created and managed by AI systems. These digital influencers could be dynamically tailored to different demographics and markets, providing brands with flexible and controllable audience engagement channels.

AI systems could evolve to the point where they can predict and model complex market trends with high accuracy. This would allow organizations to anticipate changes in market conditions and customer behavior, for months or even years in advance, enabling long-term strategic planning with unprecedented precision.

Future AI systems could enable the development of "cognitive advertising" - ads that dynamically adapt not only to the customers' preferences, but also to their cognitive style, way of processing information and current level of attention. This could lead to the creation of ads that are optimized for maximum cognitive resonance with each individual user.

## **CONCLUSION**

The integration of artificial intelligence into digital marketing represents a paradigm shift that fundamentally changes the way organizations communicate with their target audiences and manage their marketing activities. Through this paper, we have explored various aspects of this synergy, from current applications and benefits to anticipated future trends and challenges.



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Key points that emerged from this analysis include:

- AI enables a high degree of personalization of marketing content and experiences, resulting in increased user engagement and better campaign performance.
- AI-based predictive analytics provides organizations with the ability to anticipate customer needs and behavior, enabling proactive adjustment of strategies.
- Automation of routine marketing tasks through AI systems significantly increases efficiency and reduces operating costs.
- AI technologies improve user experience through personalized recommendations, chatbots and virtual assistants.
- Ethical issues, especially in the domain of data privacy and transparency of algorithms, represent a significant challenge that requires careful consideration and regulation.
- Future trends indicate the potential for even deeper integration of AI into marketing processes, including the development of autonomous marketing systems and advanced predictive models.

The importance of adapting marketing strategies to new technologies cannot be overemphasized. In the era of digital transformation, organizations that successfully integrate AI into their marketing efforts are positioning themselves for a significant competitive advantage. This adaptation requires not only technological implementation, but also a fundamental change in organizational culture and approach to marketing.

Marketers must develop new skills and competencies to work effectively with AI systems, interpreting complex analytical insights and translating them into effective strategies. At the same time, organizations must ensure that their use of AI technologies is ethical, transparent and compliant with regulatory requirements and customer expectations.

Finally, it is important to note that, despite significant advances in AI technologies, human creativity, empathy and strategic thinking remain key elements of successful marketing. AI should be viewed as a powerful tool that augments and enhances human capabilities, not as a replacement for them.

As the digital marketing landscape continues to evolve, organizations that successfully balance technological innovations with human expertise and ethical considerations will be best positioned to harness the full potential of AI in their marketing efforts, creating deeper and more meaningful connections with their target audiences.

The application of artificial intelligence in digital marketing represents a fundamental change in the way organizations approach their marketing activities. From content personalization and customer behavior prediction to campaign optimization and big data analytics, AI technologies provide marketers with powerful tools to achieve better results and create deeper connections with target audiences.

However, it is important to note that the successful implementation of AI in digital marketing requires not only a technological infrastructure, but also a strategic approach, ethical consideration and continuous improvement. As technology continues to evolve, the role of AI in digital marketing is expected to become increasingly important, opening up new opportunities for innovation and growth in this dynamic field.



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### REFERENCES

- Aladayleh, K. J. (2020). A framework for integration of artificial intelligence into digital marketing in Jordanian commercial banks. *Journal of Innovations in Digital Marketing*, 1(1), 32–39.
- Barone, A. (2022). Digital marketing overview: types, challenges, and required skills. <https://www.investopedia.com/terms/d/digital-marketing.asp>.
- Chaitanya, K., Saha, G. C., Saha, H., Acharya, S., Singla, M. (2023). The Impact of Artificial Intelligence and Machine Learning in Digital Marketing Strategies. *European Economic Letters*, 13(3), 982–992.
- Cox, A. M., Mazumdar, S. (2024). Defining artificial intelligence for librarians. *J. Librariansh. Inf. Sci.* 56, 330–340.
- DG, E. (2020). The ethics of artificial intelligence: Issues and initiatives. European Parliamentary Research Service. Scientific Foresight Unit (STOA) PE 634.452
- Ertel, W. (2018). *Introduction to artificial intelligence*. Springer, Heidelberg.
- Khatri, D. M. (2021). How Digital Marketing along with Artificial Intelligence is Transforming Consumer Behaviour? *International Journal for Research in Applied Science and Engineering Technology*, 9(VII), 523–527.
- Marinchak, C.L.M., Forrest, E., Hoanca B. (2018). The impact of artificial intelligence and virtual personal assistants on marketing. *Encyclopedia of Information Science and Technology* (fourth ed.), IGI Global, pp. 5748-5756.
- Nair, K. S., Gupta, R. (2020). Application of AI Technology in Modern Digital Marketing Environment. *World Journal of Entrepreneurship, Management and Sustainable Development*, 17(3), 318-328.
- Sheikh, H., Prins, C., & Schrijvers, E. (2023). Artificial Intelligence: Definition and Background. In *Mission AI: The New System Technology* (pp. 15-41). Springer International Publishing, Cham.
- Sterne, J., (2017). *Artificial Intelligence for Marketing: Practical Applications*. 1st edition. Willey, New Jersey.



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# THE IMPACT OF AI AND CHAT GPT ON EDUCATION AND THE ROLE OF THE TEACHER

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DOI: 10.5937/EEE24038M  
JEL: I21, I24, O31, O35, O36  
Review Scientific Paper

## ABSTRACT

*This paper is the result of the project "The World of Work Before and After Chat GPT – 'Chat GPT - The Perfect Worker Without Consciousness?'"*, which involved activities with teachers and students from primary and secondary schools in Kruševac. As technology increasingly becomes an inseparable part of our present, we will encounter artificial intelligence (AI) more frequently in both formal and informal education. The use of AI can support student learning and growth, enhance their motivation and engagement, facilitate access to learning resources, and make the educational process more efficient. However, during the project activities with teachers, the authors encountered various biases related to the application of AI. These included fears that AI would replace them, insufficient knowledge and understanding of the advantages and challenges of AI integration, as well as unfamiliarity with or low confidence in using various AI tools that can facilitate teaching, increase student engagement, and motivate learning. Consequently, these tools can contribute to the development of digital competencies necessary for life and work in the 21st century. The goal of this paper is to provide answers and clarify the role of teachers in the new digital environment, as well as to help overcome the aforementioned fears among the teaching staff.

## KEYWORDS

*AI, Chat GPT, teacher's role, teaching, education*

## INTRODUCTION

**Artificial Intelligence (AI)** is steadily becoming a key driver of transformation across various sectors. In education, AI's role spans from personalized learning to the automation of administrative tasks. Among the innovations brought by AI, the Chat GPT model, based on advanced natural language technologies, stands out, opening new perspectives in the interaction between students, teachers, and educational resources—a subject that will be explored in greater detail in this paper.

The term "artificial intelligence" was first defined by Stanford University professor John McCarthy in 1955 as the science and engineering of making intelligent machines (Manning, 2020). As technology

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has advanced, so too has the definition of AI. A more contemporary definition describes AI as "technology that uses machines to simulate human perception, cognition, reasoning, decision-making, and other cognitive processes" (Stanić, Stanić, 2024).

In the context of education, the current application of AI involves Artificial Narrow Intelligence (ANI), which enables the execution of specific, simple tasks. In addition to ANI, there is also Artificial General Intelligence (AGI), a form of AI currently under development that aims to fully replicate human intelligence and solve complex problems in unfamiliar situations. Lastly, Artificial Super Intelligence (ASI) represents a hypothetical and most advanced level of AI, possessing superhuman intelligence, the realization of which is uncertain and remains a matter of debate.

**Chat GPT** is based on deep learning technology, specifically on Recurrent Neural Networks (RNN), which are trained on a large dataset of textual information. Here is a detailed explanation of how Chat GPT functions:

- **Recurrent Neural Networks (RNN):** These are a type of neural network specifically designed to process sequential data, such as sequences of words in a sentence. RNNs have "memory" that allows information from previous steps to be used in processing the current step.
- **Training on a Large Dataset:** Chat GPT is trained on a massive dataset of textual information, including books, articles, websites, forums, blogs, and other text sources available on the internet. This extensive dataset enables the model to learn a wide range of language patterns, vocabulary, and writing styles.
- **Generative Model:** Chat GPT is a generative model, meaning it can generate text based on input data or context. When a user asks a question or inputs a query, Chat GPT uses learned language patterns and context to generate an appropriate response.
- **User Interaction:** Chat GPT is designed to interact with users in real-time. Users can ask questions, give commands, or input textual data, and Chat GPT responds based on the learned patterns and context.
- **Content Control:** Users can control the generated content. For example, they can set specific parameters for the style, tone, or length of the response. Additionally, filters or rules can be applied to restrict the content that Chat GPT generates.
- **Continuous Improvement:** Chat GPT is continuously improved and updated to enhance its ability to generate quality responses. Through an iterative process of training and feedback, the model is constantly refined to meet the diverse needs and demands of its users.

As with any technology, Chat GPT also presents certain potential risks and dangers (National AI Platform):

- **Inaccuracy or Errors in Responses:** Chat GPT can generate responses that are inaccurate, incomplete, or misinterpret user queries. This can lead to the spread of misinformation or the provision of incorrect information.
- **Bias in Generated Responses:** The model can learn and reproduce existing biases from training data, such as prejudices based on race, gender, religion, sexual orientation, and other characteristics. This may result in the generation of responses that are inappropriate, discriminatory, or harmful.



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- **Misuse and Manipulation:** Chat GPT can be misused to spread misinformation, propaganda, fraud, or other forms of manipulation. The generated responses may be used to target or exploit users or to pursue malicious intentions.
- **Lack of Awareness and Autonomy:** Chat GPT is a machine learning-based model that operates autonomously, meaning it lacks awareness, moral understanding, or the ability to assess the implications of its responses. This can lead to situations where the generated responses are not morally or ethically responsible.
- **Privacy and Data Protection:** The model can process and store large amounts of user data, which poses a risk to privacy and data protection.
- **Dependency on Technology:** **The use of Chat GPT can lead to user dependency on technology, reducing the ability to think independently, solve problems, and communicate effectively in the real world.**

To mitigate these risks, it is crucial for users to be aware of the limitations of Chat GPT as a technology and to apply it responsibly. This involves carefully monitoring the generated responses, thinking critically, and using additional information sources to verify the accuracy of the content provided.

By leveraging AI, especially through tools like ChatGPT, educational resources can become more accessible to a wider range of students. For instance, students can use it to clarify doubts, practice language skills, or explore topics not covered in the standard curriculum.

The application of AI in education, such as ChatGPT, also offers the potential to automate administrative processes, giving teachers more time to focus on quality interaction with students and developing creative and innovative educational approaches.

The integration of AI into the education system must be guided by principles of responsible innovation, ensuring that the human element remains at the center of the educational process.

## THE FRAMEWORK FOR IMPLEMENTING AI AND CHAT GPT IN EDUCATION

Regarding the legal framework for the application of artificial intelligence in the Republic of Serbia, there is the *Strategy for the Development of Artificial Intelligence in the Republic of Serbia for the period 2020–2025* ("Official Gazette of RS", No. 96/2019) and the *Conclusion on the Adoption of Ethical Guidelines for the Development, Implementation, and Use of Trustworthy and Responsible Artificial Intelligence* ("Official Gazette of RS", No. 23/2023)

In the field of education, the following documents are used to establish a framework of competencies for teachers:

- The European Framework for the Digital Competence of Educators (Punie and Redecker, DigCompEdu, 2017);
- SELFIE for Teachers (developed as a self-reflection tool to support teachers in further developing their digital competence) (DigCompEdu, 2021);
- DigComp 2.2 (The Digital Competence Framework for Citizens) with new examples of knowledge, skills, and attitudes (Vuorikari, Kluzer, and Punie, DigComp 2.2, 2022);
- Digital Competence Framework – Teacher for the Digital Age (2017, 2019, 2024);



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- UNESCO ICT Competency Framework for Teachers (ICT-CFT, 2018).

In the aforementioned documents that constitute this framework for teachers' digital competencies, several key areas are mentioned, including digital competencies in teaching and learning, empowering students, media literacy, communication and collaboration, safety, and more. A significant shift has occurred with the emergence of "*New Competencies for the Ethical Use of AI*" and the *European Commission's ethical guidelines on the use of artificial intelligence (AI) and data in teaching and learning for educators* (European Commission: Directorate-General for Education, Youth, Sport and Culture, 2022). These guidelines highlight ethical AI usage, AI usage models, positive and negative applications of AI, misuse, and control of AI

Australian education ministers were the first to publish a consultative document seeking input on the draft *National AI Framework in Education* (Australian Department of Education, 2023). This document, in addition to addressing teaching and learning, for the first time emphasizes human well-being and transparency in AI use. It also stresses the importance of ensuring that both teachers and students learn to use AI, fairness in AI usage, maintaining human control over AI, and the continued role of human decision-making. Additionally, it underscores the significance of safety and security in AI usage, a critical and prominent issue (Australian Department of Education, 2023)

*The OECD Employment Outlook 2023* (OECD, 2023), while indirectly related to education, identifies two types of skills that are increasingly prevalent in the context of AI usage. The first group includes skills for developing and managing AI systems, while the second group encompasses skills for adapting to, using, and interacting with AI. From this, it can be inferred that knowledge of artificial intelligence, critical thinking, problem-solving, creativity, communication, and other related competencies are required

A document that directly addresses teachers' competencies in the age of AI is the "*AI Competency Framework for Teachers*" (UNESCO, 2024), which outlines the structure of AI competencies for educators. This framework emphasizes the importance of a human-centered mindset, encouraging students to understand their relationship with AI, teaching responsible AI use, providing basic knowledge and skills for working with AI, and promoting the enhancement of problem-solving skills, creativity, and critical thinking.

## THE ROLE OF TEACHERS IN AN AI-DRIVEN ENVIRONMENT

The role of teachers is inevitably changing due to the advent of artificial intelligence and Chat GPT. The focus is shifting increasingly from the mere transfer of information to the development of skills such as critical thinking, problem-solving, and collaboration. Teachers are becoming facilitators of learning, adapting to technological changes and encouraging students to actively engage and apply their knowledge. While Chat GPT can serve as a resource to support learning, the human element remains crucial in tailoring the teaching process to the individual needs of students. The paper is based on the assumption that Chat GPT can ease teachers' workloads, reduce administrative tasks, and allow teachers to use their time more creatively and productively, as evidenced by the experience from the project "The World of Work Before and After Chat GPT – 'Chat GPT - A Perfect Worker Without Consciousness?' (2023). The questions addressed in this paper are: What is the role of teachers in the age of AI and Chat GPT? How is AI and Chat GPT used in teaching? What are examples of how Chat GPT is applied in teaching to ease teachers' work?



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There are various perspectives and understandings when it comes to integrating AI – such as Chat GPT – into teaching, learning, and professional practice. Some view Chat GPT as a valuable tool for enhancing productivity, efficiency, and even creativity. Others are concerned about the potential negative impacts and ethical considerations of using such advanced technology. Therefore, it is essential to consider all perspectives and approach the integration of AI in a responsible and thoughtful manner.

Margaret Mead, a renowned authority in education and anthropology, highlighted in 1970 that "the greatest problem our society will face in the future is the problem of the digital divide. This divide will widen between those who have access to digital technologies and those who do not. Those with access to digital technologies will have a significant advantage in education, employment, and social life." (Mead, 1970.). This can be considered a compelling reason to first educate on the use of, and then to adequately apply, AI and Chat GPT in educational institutions and teaching, ensuring that students become proficient with these technologies

Table 1. Objectives of Basic Point 1: Digitally Qualified Population and Highly Qualified Digital Professionals

Targets of cardinal points 1: A digital population and highly skilled digital professionals

EU's objective for 2030: "A tech savvy continent where all are digitally empowered"		
Dimension	2030 EU Target vs baseline	Source
ICT specialists	20 million employed ICT specialists, with convergence between women and men (2019 baseline: 7,8 million)	DESI, ESTAT

Source: Commission to the European Parliament 2030 Digital Compass: the European way for the Digital Decade, Brussels

As outlined in the **European Skills Agenda and Digital Education Action Plan**, digital skills will play a central role in strengthening collective resilience as a society. "Basic digital skills for all citizens and the ability to acquire new specialized digital skills for employees are prerequisites for active participation in the digital decade" (European Commission, 2021, The European Pillar of Social Rights Action Plan). "The Action Plan for the Implementation of the European Pillar of Social Rights for 2030 sets a target of 80% of adults having at least basic digital skills, and access to education for basic digital skills should be a right for all EU citizens, with lifelong learning becoming a reality" (European Commission, 2021, The European Pillar of Social Rights Action Plan).

"Advanced digital skills go far beyond knowledge of programming or basic computer science. Through digital training and education, specialized digital skills must be acquired that will enable citizens to secure quality jobs and build fulfilling careers. In 2019, there were 7.8 million ICT professionals (Table 1), with an annual growth rate of 4.2%. If this trend continues, the EU will face a significant shortfall of the projected 20 million experts needed in key areas such as cybersecurity or data analysis. The situation is further exacerbated by the lack of specialized educational and training programs in areas such as artificial intelligence, quantum security, and cybersecurity, as well as the weak integration of digital topics and multimedia teaching resources in other disciplines. Addressing this issue requires substantial investment in the training of future generations of workers and the upskilling and reskilling of the workforce" (European Commission, 2021, 2030 Digital Compass: The European Way for the Digital Decade).





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### *Will a teacher ever be replaced by artificial intelligence at the classroom podium? And if so, when?*

The role of teachers before the advent of AI primarily involved transmitting information, possessing critical thinking skills, analytical abilities, empathy, and soft skills.

In the era of AI, the role of teachers is shifting and no longer solely involves the transmission of information. In addition to the previously mentioned skills, **digital literacy** is now crucial. Teachers' roles have evolved to include guiding, monitoring, and supporting students. They are responsible for organizing, supporting, selecting, motivating, encouraging, managing classroom activities, planning, communicating, and adapting. In the classroom, collaboration between teachers and AI is possible.

An example of how ChatGPT can be applied in education might involve the teacher providing personal interaction and support to students, understanding individual needs, and tailoring instruction accordingly. The teacher encourages the development of critical thinking, emotional intelligence, and social skills, and remains adaptable to unforeseen situations and classroom dynamics. ChatGPT offers quick and broad access to information, serves as an additional resource for supporting learning, and is useful for writing exercises, creativity, and individualized learning.

Different approaches and methods for using ChatGPT (Vukmirović, 2023) can be adapted to meet various needs and goals. Some of the appropriate approaches include:

- **Conversational Assistant:** Can communicate with users in real-time, provide answers to their questions, offer information, perform tasks, etc. It can be used for user support, scheduling management, technical support, or as a virtual customer service agent.
- **Creative Writing:** Can be used to generate creative content, such as stories, poems, jokes, or other types of text. It can serve as a brainstorming tool or as an aid in writing projects, blogs, or other texts.
- **Education and Learning:** Can function as a virtual tutor or teacher. It can provide explanations, answer questions, give examples, or review material interactively. It is useful for language learning, mathematics, and other subjects.
- **Testing and Evaluation:** Can be employed for testing users' knowledge and skills. It can ask questions, evaluate responses, and provide feedback. It can be used to assess students' or learners' knowledge.
- **Creative Partner:** For users who want to experiment with ideas, create new concepts, or develop projects. It can provide inspiration, generate ideas, or offer alternatives based on input parameters and provided information.
- **Personal Assistant:** ChatGPT can act as a personal assistant for task management, reminders, planning, and organization. It can be used for scheduling, setting reminders, searching for information, and performing other tasks that facilitate daily life.
- **Character Simulation:** Can be used to simulate characters in video games, virtual reality, or other interactive environments. It can create characters with realistic dialogues and reactions to user actions.
- The integration of AI and ChatGPT models into the educational system should be guided by principles of responsible innovation, with the human factor remaining a central element of the educational process. Here are five reasons why AI cannot replace teachers:



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- **Human Interaction and Empathy:** Teachers provide emotional support and understanding that current AI technologies cannot offer. Human interaction contributes to a better understanding of students' needs.
- **Teacher Adaptability:** Teachers are capable of adjusting their teaching methods to different learning styles and individual student needs. While AI can offer personalized approaches, the human factor contributes flexibility in adapting to various situations.

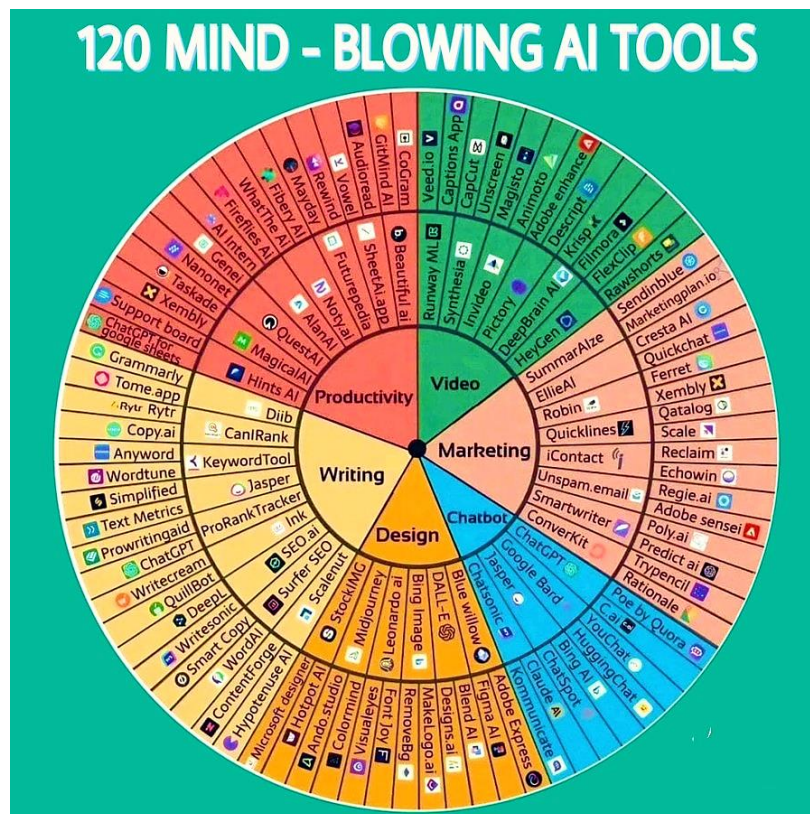


Figure 1. Overview of AI Tools for Various Fields  
 Source: <https://x.com/alldexone/status/1694364439271891136>

- **Motivation and Inspiration:** Teachers have the ability to motivate students, provide inspiration, and stimulate creativity in ways that current AI technologies cannot achieve. The human element plays a crucial role in fostering enthusiasm for learning.
- **Moral and Ethical Dilemmas:** Teachers make moral decisions and impart values, while AI systems are limited in understanding deep ethical issues and context in teaching. Humans are better equipped to make sensitive decision.
- **Human Creativity:** Teachers encourage students' creativity through interactive and stimulating activities. While AI can support creative thinking processes, human creativity remains a unique ability that is difficult to replace.

It is expected that most teachers, after the transformation of teaching and the application of AI, will redirect some of their freed capacities towards more productive and creative teaching activities. This dynamic is already visible in companies that have adopted AI in their business processes. Therefore, it



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is crucial to emphasize: **Teachers will not be replaced by AI, but rather by teachers who know how to use digital technology and AI in education.**

### EXAMPLES OF CHAT GPT APPLICATIONS IN TEACHING THAT FACILITATE TEACHER'S WORK

AI and ChatGPT in education, based on experiences from the project "The Future Education with AI," can be used for various tasks such as: providing information, obtaining examples of applied knowledge, offering definitions, creating debates - student vs. ChatGPT, assisting in lesson planning, generating any type of text, formulating questions, summarizing text, paraphrasing text, creating various types of assignments, quizzes, etc. While ChatGPT can be a valuable resource and support in education, it does not replace traditional learning processes, mentorship, and interaction with teachers and professional staff.

In lesson planning and preparation, its efficiency in performing administrative tasks stands out. It is an effective tool for researching and gathering information needed for planning and preparing lessons. It allows for the generation of ideas for activities, provides suggestions for exercises, assignments, etc. Since teachers tailor lessons to students' abilities and needs, ChatGPT can be useful in creating individualized materials and tasks. It can also assist in generating test questions, especially when tasks of varying difficulty levels are required to align with Bloom's taxonomy in primary and secondary education. It can be particularly effective in such tasks when clear guidelines and requirements are provided.

ChatGPT can also aid in creating various reports. For example, by copying a text (minute book) and asking ChatGPT to generate a report with specific elements and items. Additionally, it can assist in writing emails, particularly automatic ones, such as notifications, appointment invitations, etc.

ChatGPT can help teachers differentiate lessons by suggesting various ways to adapt content, learning environments, teaching processes, and learning products according to students' interests, profiles, learning styles, and types of intelligence. It can also be used to create various interactive content, especially video materials. For producing synthetic teaching materials, the platform Synthesia is suggested for generating text-to-video (TTV) with photorealistic generated actors (ChatGPT video generator).

Language learning and practice are significantly facilitated by AI and ChatGPT (Krsmanović & Tica, 2023) through conversations in the target language, correcting language errors, vocabulary and phrases, pronunciation practice, simulating real-life situations, and tracking progress.

Students can be given debate topics with ChatGPT, which helps them develop critical thinking and learn how to form and defend their opinions with proper arguments. Debating also aids in developing public speaking and oratory skills, with ChatGPT taking opposing positions and providing arguments that students must refute or defend their stance.

In the area of assessment, which poses a challenge for teachers due to objectivity, handwriting, and various test combinations, ChatGPT can be beneficial. Generating tests based on the curriculum is one of the significant time-saving aspects for teachers (Farazouli et al., 2023). Automated grading for such tests is possible. ChatGPT can also evaluate scanned tests, even if handwritten. It can analyze student work and identify errors, which eases the process of grading and providing feedback.

ChatGPT can also assist in monitoring student progress – evaluation, and even self-assessment. It can propose potential products of student work for evaluation (composition, essay, drawing, project, etc.).



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When teaching in the AI world, teachers need to pay attention to: empathy and socialization, internet safety, data privacy and protection, digital violence and proper internet communication, ethical use of technology and data, digital literacy, media literacy, AI literacy (Bošković et al., 2024), which represents a set of competencies enabling individuals to critically assess AI technologies, communicate and collaborate with AI, and use AI as a tool.

It is important to emphasize that ChatGPT provides quality responses based on properly formulated prompts (Tili et al., 2023). ChatGPT is not a replacement for a teacher's knowledge, expertise, and experience. The model has significant potential for performing time-consuming tasks, allowing teachers more time for creative work. The teacher's role when working with ChatGPT should include checking, selecting, correcting, confirming, and finalizing responses. ChatGPT is a tool intended to assist teachers, not replace them. If a teacher cannot verify the accuracy or quality of the results, it is irresponsible to use it for decision-making or present it as their own.

## CONCLUSION

AI and ChatGPT have the potential to enhance education and teaching by providing personalized experiences, automating administrative tasks, and broadening access to educational resources. Despite the challenges associated with integrating these technologies, their careful and ethically considered development can significantly benefit the field of education.

Although ChatGPT is a useful tool, it remains a language model and, as such, cannot replace human experience, creativity, and emotional intelligence. The combination of its analytical power with the knowledge and skills of educators can be both useful and effective in the teaching profession. The ability of teachers to use ChatGPT effectively depends on their knowledge and ability to integrate the information obtained into their teaching processes. Only in this way can the advantages of this tool be maximally utilized. Therefore, continuous and lifelong learning is essential, and it must be emphasized that **AI will not replace teachers but rather those teachers who know how to use digital technology and AI in teaching!**

## REFERENCES

Australian Department of Education. (2023). Australian Framework for Generative Artificial Intelligence (AI) in Schools. <https://www.education.gov.au/schooling/resources/australian-framework-generative-artificial-intelligence-ai-schools>

Bošković, D., Spajić, J., Milić, B., Lalić, D. (2024). Etički aspekti upotrebe CHAT GPT tehnologije u visokom obrazovanju. XXX Skup Trendovi razvoja: "Nastavnici i saradnici kao centar promena u visokom obrazovanju", Vrnjačka Banja, Zbornik radova, pp.90-93

Erasmus+ Project (2024). The Future Education with AI. KA1 KA122-ADU - Short-term Projects for Mobility of Learners and Staff in Adult Education. Implemented by the Center for Innovative Learning "Better ME – Better WE" Kruševac. Funded by RS01 – Foundation Tempus – Erasmus+ Programme. Authors: M. M. Blagojević, D. Simonović, S. Aleksić.

European Commission. (2021). 2030 Digital Compass: the European way for the Digital Decade,



## Conference Proceedings

Communication From The Commission To The European Parliament, The Council, The European Economic And Social Committee And The Committee Of The Regions. <https://eur-lex.europa.eu/legal-content/EN/TXT/HTML/?uri=CELEX:52021DC0118>

European Commission. (2021). The European Pillar of Social Rights Action Plan, Communication From The Commission To The European Parliament, The Council, The European Economic And Social Committee And The Committee Of The Regions, COM (2021) 102. <https://eur-lex.europa.eu/legal-content/EN/TXT/HTML/?uri=CELEX:52021DC0102>

European Commission: Directorate-General for Education, Youth, Sport and Culture (2022). Ethical guidelines on the use of artificial intelligence (AI) and data in teaching and learning for educators. Publications Office of the European Union. <https://data.europa.eu/doi/10.2766/153756>

Farazouli, A., Cerratto-Pargman, T., Bolander-Laksov, K., McGrath, C. (2023). Hello GPT! Goodbye home examination? An exploratory study of AI chatbots impact on university teachers' assessment practices. *Assessment & Evaluation in Higher Education*, pp. 1–13.

Krsmanović, I., Tica, L. (2023). That's not a word: Innovation in Language, Vocabulary Acquisition and Chat GPT. In: Simon Zupan and Tomaž Onič (eds.). *SDAŠ 2023 Book of Abstracts*, pp. 18. Faculty of Arts, University of Maribor.

Manning, C. (2020.). Artificial Intelligence Definitions. Stanford University, Human-Centered Artificial Intelligence. <https://hai.stanford.edu/sites/default/files/2020-09/AI-Definitions-HAI.pdf>

Mead, M. (1970). *Culture and Commitment: A Study of the Generation Gap*. Natural History Press. <https://x.com/alldexone/status/1694364439271891136>

Nacionalna platforma za veštačku inteligenciju (2021). <https://www.ai.gov.rs/>. Accessed: 17.7.2024.

OECD. (2023). *OECD Employment Outlook 2023: Artificial Intelligence and the Labour Market*. OECD Publishing, Paris. <https://doi.org/10.1787/08785bba-en>.

Ministarstvo prosvete, nauke i tehnološkog razvoja Republike Srbije. (2017 i 2019, 2024). *Okvir digitalnih kompetencija – Nastavnik za digitalno doba*. <https://prosveta.gov.rs/wp-content/uploads/2017/04/Okvir-digitalnih-kompetencija-Final-2.pdf>

Project "The World of Work Before and After Chat GPT - "Chat GPT - The Perfect Worker Without Consciousness?". Center for Professional Development Kruševac in collaboration with the Center for Innovative Learning "Better ME - Better WE". Authors and project implementers: Marija Marković Blagojević, Danijela Simonović

Punie, Y., Redecker, C. (2017). *European Framework for the Digital Competence of Educators: DigCompEdu*, EUR 28775 EN, Publications Office of the European Union, Luxembourg.

Stanić., M., Stanić., T. (2024). The impact of artificial intelligence on education. *Sinergija University Scientific Conference with International Participation, Proceedings*, pp. 41-47. <https://api.semanticscholar.org/CorpusID:268832442>

STRATEGIJA razvoja veštačke inteligencije u Republici Srbiji za period 2020–2025. godina, "Službeni glasnik RS", broj 96/2019.

Tlili, A., Shehata, B., Adarkwah, M. A. et al. (2023). What if the devil is my guardian angel: ChatGPT as a case study of using chatbots in education. *Smart Learning Environment*, 10, 15.

UNESCO (2018). *UNESCO okvir IKT kompetencija za nastavnike*. United Nations Educational, Scientific and Cultural Organization, Paris.



## Conference Proceedings

UNESCO (2024). AI competency framework for teachers. United Nations Educational, Scientific and Cultural Organization, Paris.

Marković Vblagojević, M., Simonović, D. (2024). Vebinar za članove Društva pedagoga Srbije "Uticaj VI i ChatGPT na obrazovanje i ulogu nastavnika". <https://www.pedagog.rs/2024/03/14/odrzan-vebinar-uticaj-ai-i-chatgpt-na-obrazovanje-i-ulogu-nastavnika/>

Vukmirovic, D., Popovac, R., Stanojević, N., Čomić, T. (2024). Challenges of Integration and Implementation of Generative Artificial Intelligence in the Process of Higher Education. International Multidisciplinary Conference "Challenges of Contemporary Higher Education" – CCHE 2024, Kopaonik, Proceedings, pp. 1-6.

Vuorikari, R., Kluzer, S., Punie, Y. (2022). DigComp 2.2: The Digital Competence Framework for Citizens – With new examples of knowledge, skills and attitudes. Publications Office of the European Union, Luxembourg.

Zaključak o usvajanju etičkih smernica za razvoj, primenu i upotrebu pouzdane i odgovorne veštačke inteligencije ("Sl. glasnik RS", br. 23/2023)



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# SOCIOLOGICAL CLASSICS IN THE MODERN AGE

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DOI: 10.5937/EEE24039M  
JEL: A14, Z10  
Review Scientific Paper

### ABSTRACT

*We are witnessing the great changes of human society that took place throughout history. Sociology, as a scientific science, cannot be freed from the fact that all its knowledge is directly related to social changes and social conditions of cognition. The progress of knowledge in social science presupposes the progress of knowledge. It simultaneously reviews social changes and the fate of sociological ideas in the applied conditions of knowledge. In the overall structure of sociological knowledge, sociological theories are very important. The importance of sociological classics is also indicated by the fact that all major world powers have produced their 'representatives' and their theories in order to resist changes. Observing modern society, we're asking ourselves how and if we can adapt the classical sociological theories in modern society. Considering modern tendencies, in this work the authors will mention several classical sociological theories and emphasize their application in a far more developed society than when they were made, and if they are still applicable today.*

### KEYWORDS

*sociological classics, concept of trends, modern time, applicability of sociological classics*

## INTRODUCTION

In the overall structure of sociological knowledge, sociological theories are very important. Therefore, they are classified as a special subject of study and academic education. The scientific discipline deals with a more detailed and comprehensive interpretative review of ideas, authors and diverse knowledge that have classical importance (privileged status of classicism), not for rhetorical reasons, but precisely because the foundations of modern sociology as a science were laid on their account. That is the reason the followers attribute them the place that Plato and Aristotle occupy in political theory, or Shakespeare in English literature (Alexander, 1987).

We can consider the end of 19th and start of 20th century quite a turbulent time, or a time when society as the subject of research experienced big changes. Many famous sociologists had a great impact during those times, and the authors here will point out four most remarkable ones; Max Weber, Karl Marx, Emile Durkheim and Geoge Simmel. All of them, each in their own time, devoted themselves to research of problems offering their deliberation. Each prominent sociologist in his own way tried to resist the time in which he found himself and to give birth to his answer to the time in which he found himself.

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# BASIC SOCIOLOGICAL THEORIES

Georg Ritzer tells us that: 'Industrial revolution and capitalism, as well as the reactions to them, led to enormous upheavals in Western society that also greatly influenced sociologists themselves. Four most important people in the early history of sociological theory- Max Weber, Karl Marx, Emile Durkheim and Georg Simmel- were preoccupied, like many other less important thinkers, with the changes and problems that industrialization and capitalism created in society.' (Ritzer 1997). The problems arising from the socio-political context were the basis of the research of Karl Marx, Max Weber, Emile Durkheim and Georg Simmel. That is how Karl Marx tried to explain to us the nature of capitalist economies that were in the foreground in the 18th century Western Europe. It is safe to say that he was a revolutionist who aspired to overthrow capitalism. It all started with the industrial revolution that spread across Great Britain. Technological progress in communication, transportation and production led to the explosion of commercial commodity markets.

All these further led to the birth of modern capitalism. As the industry developed, agricultural labor declined, and families moved from rural areas to urban centers. The effects of industrial revolution were the most prominent in England. Due to the rapid growth of population, families had to live in poor housing conditions, which often resulted in the spread of disease. Engels described Manchester as 'Hell on Earth', as a way to emphasize poor living and working conditions (Chapter 2, Karl Marx). 'Wage workers, capitalists and land owners constitute the three great classes of modern society based on the capitalist mode of production.'

Thus, in capitalism there are 'only owners of labor, owners of capital and landowners whose respective sources of income are wages, profit and ground rent' (Marx 1867/1978). A very interesting statement by Marx is that when human actions are no different than machine actions, the individual is dehumanized. Even today, in the age of modern technology, the same can be concluded without any doubt. Karl Marx's views showed clear criticism of the capitalistic society, however, he did not fully develop the theory of socialism. Furthermore, Marx stated in one of his most famous passages that although 'men make their own history, they do not make it as they please; they do not make it under self-selected circumstances, but under circumstances existing already, given and transmitted from the past' (Marx 1852/1978).

Karl Marx was an active supporter of overthrowing the capitalistic system and its replacement with the socialist system. He was not a typical example of the early years of sociological theory. Thus, Ritzer states that many early theorists, such as Weber and Dürkheim, were the opponents of socialism (at least in the sense that Marx outlined it). Although they also recognized the problems of the capitalistic society, they strove for social reform within capitalism, not the social revolutions advocated by Marx (Ritzer 1997). It can be concluded that the sociological theory developed as a reaction against Marxist and general socialist theory.

On the other hand, Dürkheim is the most famous successor of the conservative tradition. He was afraid of social turmoils. He believed that social tensions are not a necessary element of the modern world and that they can be reduced by social reforms. While Marx understood problems of the modern world as socially inherent problems, Dürkheim (as well as Comte, Weber and others) does not share that opinion (Ritzer-Contemporary Sociological Theory, 16). With the development of theories, Dürkheim's theory became dominant, while Marx's theory remained on the sidelines for many years.

Like many others, Max Weber also had his interests, so he presented the theory of the process of rationalization. Weber's interest and the main question was why the institutions of the Western world were progressively becoming more and more rational, while strong barriers seemed to prevent a similar





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development in the rest of the world. Weber considered bureaucracy a classic example of rationalization. He incorporated his consideration of the process of bureaucratization into a broader discussion on political institutions. He also presented detailed and elegant analyses of the rationalization of the phenomena such as, for example, religion, law, city, and even music.

Later sociological theorists, predominantly conservative in their orientation, grouped themselves around theoretical alternatives to Marxism, and this is where Max Weber proved to be very interesting. The rationalization affected not only socialist but also capitalist societies. And indeed- from Weber's point of view, rationalization led to even greater problems for socialist than for capitalist societies (Ritzer-Contemporary Sociological Theory, 28). In conclusion, Weber offered a more complete approach to the social world, so his interest was a broad part of social phenomena. That diversity was later more acceptable for studies.

While studying the relevance of sociological classics, and at the same time trying to represent different geographical areas and periods, it is necessary to mention Georg Simmel. While Marx and Weber were ignored in the USA for a long time, Georg Simmel had an immediate effect on the development of American sociological theory. According to Ritzer, Weber and Marx were preoccupied with the macro aspects of the rationalization of society and the capitalist economy, whereas Simmel was best known for his work on micro sociological analyses, especially on individual actions and interactions. Simmel actually considered that understanding the interaction between people is one of the most important tasks of sociology. With its appealing title Simmel's Philosophy of Money attracted a large number of theorists interested in studying the culture and society.

Ritzer states that an important sociological development takes place when a group of two people (or dyad) transforms into a triad, that is, when a third person joins the dyad. Then new sociological possibilities that could not exist in a dyad open up. For example, in a triad, one of the members can become an arbiter or mediator in any differences between the other two persons. More importantly, two members can team up and dominate a third member. On a small scale, this represents the situation that can occur if the macrostructures of society become separated from individuals and begin to dominate them. The stated topic represents the core of the Philosophy of Money, and Simmel was preoccupied with the expansion of the global money economy which became dominant and separated from the individual.

From everything stated above, it can be concluded that there were many social powers or people who influenced the development of sociological theories, however, the author focused on a few of the most prominent ones. They showed the impact of political revolutions, the industrial revolution, the growth of capitalism, socialism, urbanization, religious changes as well as the rise of science on sociological theory. Another thing that is shown is the influence of intellectual powers on the growth of sociological theory in various countries, such as France, Germany, the Great Britain.

Therefore, classical sociological theories are truly classical, not only because they made a 'sociological revolution', but also because they constituted a field of thought which, no matter how supplemented, deconstructed or even prevailed over, represents the basis of today's scientific-sociological analysis of society (Kilminster, 1998, Martuccelli, 1999).

After an affirmative answer, it is desirable to support that answer with facts from the literature covered in this paper. As one of the most striking examples, we will list Georg Ritzer, who already in the introduction of his 'McDonaldization of society' states that the book deals with the criticism of society, according to which the theory of society serves its criticism, and therefore its improvement. In order not to be misinterpreted, Ritzer did not write a book about McDonald's, or even fast food industry, but he used McDonald's as a broader example or a 'paradigm' of a wide-reaching process that he called



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McDonaldization, that is, the process by which the principles of fast food restaurants prevail an increasing number of segments of American society, and further spread on the rest of the world. McDonaldization did not refer only to hospitality industry, but it also spread its influence on education, health care, travel, free time, eating habits, politics, family life, basically, it affected almost every aspect of society. He described the success of McDonaldization through four attractive dimensions. In short, McDonald's is successful because it offers consumers, workers and management as well, efficiency, profitability, predictability and control. He established without any doubt that McDonaldization led to positive examples such as: the growth of the goods and services market, the possibility to obtain whatever is necessary almost immediately, the fact that goods and services of different types are equalized in quality, and, due to quantification, consumers can more easily compare competing products. Moreover, the probability of treating people in a similar way, regardless of their race, gender or social status, is increased, organizational and technological innovations spread faster and easier through networks of identical subsidiaries. However, despite all these benefits, Ritzer also mentioned the downside of McDonaldization..

Efficiency, predictability, profitability and control through non-human technology can be considered basic components of a rational system. However, irrationality is inevitably born from a rational system. He studies the downsides of McDonaldization through the irrationality of rationality, so he paradoxically calls it the fifth dimension of McDonaldization. McDonaldization has caused harmful effects on the environment. The feeling of being 'on a conveyor belt' is proven to be inhumane in the form of work and dining. Therefore, he concludes that although a large part of the world is McDonaldized, at least three forms of society have successfully managed to avoid it. In that context, he mentions postmodern society, undertakings that defy McDonaldization, and that the world has entered a new 'postmodern age' where society is much less rationalized than before. He states bureaucracy as a great achievement of the modern West, and describes it as a highly developed organization which is composed of hierarchically organized regulations. As the roots of the modern reflection on bureaucracy go back to Max Weber, they represent an integral part of his broader theory on the process of rationalization.

Weber states that modern West has produced a specific type of rationality, more precisely, formal rationality, explaining that formal rationality means that the human search for optimal means to achieve the goal is shaped by rules, regulations and wider social structures (Ritzer, McDonaldization and its precursors, 36). According to Weber, it is one of the most significant developments in world history. He praised the bureaucracy, his paradigm of formal rationality and listed the most important advantages: the four basic dimensions of rationalization (and McDonaldization). He compares bureaucracy to a fast food restaurant which is strictly defined by four components of formal rationality: efficiency, predictability, quantification, and control through the replacement of human technologies with non-human ones. He described his greatest concern with the term 'iron cage of rationality'.

Defining bureaucracy through a 'cage', he claimed that people are caught in a trap and their basic humanity is denied. He predicted the emergence of a society in which people are stuck in a series of rational structures, moving only from one rational system to the other, concluding that society would turn into invisible networks of rational structures from which there would be no way out. Referring to the given answer, it can be established that George Ritzer personally believed that fast food restaurant has become a modern model of rationalization, as he found a theoretical base in Weber's theory, and also predicted the same kind of iron cage as Weber feared. Finding its starting point in sociological classics, the importance of sociological classics as a source of new theories and discussions is actually confirmed.



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# ACTUALITY OF SOCIOLOGICAL THEORIES THROUGH THE CONCEPT OF TRENDS

The concept of trends is indispensable while connecting sociological classics with the modern age, so it is necessary to observe the actuality of sociological theories through the concept of trends. According to Sergio Benvenuto, in the 20th century a lot was written about fashion, but there were few systematic theories of fashion. He highlights previously mentioned Georg Simmel and his work 'Fashion' as the only real attempt at a general theory of fashion, which is still relevant although it was published as far back as 1895. Fashion is a process that can also appear in spheres that have nothing to do with clothes, whereas clothing consists of items adapted to our needs: 'While our clothes are basically adapted to our needs, the decisions that form fashion are neither ruled by the slightest trail of practicality, nor whether wide or tight skirts, long or short haircuts, colorful or black ties are worn. Sometimes modern things are so ugly and repulsive, as if fashion itself tries to demonstrate power precisely by making us accept even the most disgusting things because of it' (Simmel, 2001).

According to Simmel, fashion as a social fact- that is, non-cumulative change of cultural characteristics- arises from the basic tension specific to the social condition of the human being: on the one hand, the tendency of each of us to imitate someone else, and on the other hand, the tendency of each of us to differ from others (The Fashion of Georg Simmel, Sergio Benvenuto, 2000). Furthermore, he states that contradictory incentives are necessary for fashion trends to work. He also sees fashion as an example of how real social life always includes, in a way, its opposite, asocial life. It is very interesting how Simmel established the principle 'fashion (...) is a product of class difference' where the impulse to behave- and thus to imitate, unify, equalize- is not directed towards any of our neighbors; instead, we imitate someone who, on one way or another, is superior to us (Georg Simmel, Fashion).

This Simmer's principle has been relevant for many years, and even today, when in all parts of society, in economy, in politics, there is an urge to imitate, which manifests the appeal of fashion. Furthermore, like fashion- which often oscillates between two opposite poles- sociological classics find their relevance in the present as well- where through the special characteristics of fashion, they enable social obedience, which is at the same time a form of individual differentiation, and through the success of the Western democratic model and its values, one can observe the ostentatious development of fashion and in that way confirm the relevance of sociological classics.

## SOCIOLOGY OF THE MODERN AGE

Sociology is a social science that arised in the 19th century due to great revolutions, mostly to the political, i.e. the French Revolution, and later the industrial revolution, so it was legitimate to ask ourselves in which direction sociology will develop later, and which themes will occupy the sociologists in the modern age. In the late 20th and the start of the 21st century four theories of great significance arised. All of them offer a conceptual tool, but they also deal with overlapping themes such as forming of identity, the impact of science and technology on the formation of society and roles that information and information technologies play in the organization of modern social life. The queer theory is a perspective that deals with the construction of sex and sexuality. Actor-Network Theory is a perspective that arises from a wider field of study and technological studies. The social movement impact theory is focused on the estimation of the impact of social movements on the society, and the factors that could



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have led to those effects. The last theory of importance is the theory of presumption, a perspective that tries to overcome the usual sociological difference between production and consumption. We could point out C. Wright Mill as the most applicable author. The modern sociologist C. Wright Mill set sociological imagination as a frame for the connection of personal challenges and social questions of bigger importance. Through sociological imagination, sociologists are developing a certain way of thinking so they could explain how those personal experiences, together with their challenges, impact on the wider society in which we operate. Better understanding of relation between personal and public questions can help us have a bigger impact on the outcome on all levels.

## CONCLUSION

Every day we can witness research of the social relations and human behavior in our society, and in many areas of our lives we witness speculations so we could explain how our personal experiences, together with our challenges, impact the wider society in which we operate. Better understanding of relation between personal and public questions can help us have a bigger impact on the outcome on all levels. Sociological theories, or sociology itself has found its implementation in daily life and daily themes like crime, religion, family relations, race and gender identity, class divisions, communities, cultures and social stability. Sociologists identify and evaluate the influence of cultural trends, beliefs and values on the behavior of an individual and identify those factors using sociological research which includes observing behavior of a bigger collective group which consists of individuals in the same area with the same social influences. We are assuming that if we can reach a better understanding of personal and public questions, we can help influence the outcome on all levels, and we can conclude that we can achieve a considerably improved outcome.

Furthermore, it is very important to mention the fact that sociology has even found its way in business, education and all other areas of the modern age. Assessment of human behavior is on all levels, from micro level to macro level, searching for patterns inside and between bigger groups and smaller societies. Starting from the standpoint that sociological classics have created the foundation for development of sociology as an independent science discipline, and considering the applicability of sociology in the research of social relations and human behavior in our society, it is unquestionable to affirm the importance and applicability of sociological classics in the modern age.

## REFERENCES

- Alexsander, J.C. (1987). *The Centrality of the Classics*. In: Giddens, A., Turner, J. H. *Social Theory Today*. Cambridge: Polity Press, Cambridge.
- Benvenuto, S. (2000). Book Review of Georg Simmel's *Fashion*. *Journal of Artificial Societies and Social Simulation*, 3(2), 1-10.
- Bodurdieu, P. (1984). *Questions de sociologie*. Seuil, Paris.
- Johnson & Wales University (2022). 5 Examples of How Sociology Impacts Everyday life. Available at: <https://online.jwu.edu/blog/5-examples-how-sociology-impacts-everyday-life/>
- Kalanj, R. (2002). Današnje značenje klasičnih socioloških teorija. *Revija za sociologiju*, 33(1-2), 1-16.



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Karl Marx (2017). Chapter 2, pp. 43-75. Sage Publishing, Los Angeles.

Ritzer, G. (1999). McDonaldizacija društva. Naklada Jesenski i Turk, Zagreb.

Ritzer, G. (1997). Suvremena sociološkijska teorija. Nakladni zavod Globus, Zagreb.

Ritzer, G., Stepnisky, J. (2017). Sociological Theory, Tenth Edition, Chapter 18, Social Theory in the 21st Century. Sage Publishing, Los Angeles.

Simmel, G. (1904). Fasion. International Quarterly, 10, pp. 130-155

Simmel, G. (2001). Filozofija mode u Kontrapunkti kulture. Naklada Jesenski i Turk, Zagreb.

Wright Mills, C. (1959). The Sociological Imagination. Oxford University Press, Oxford.



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# THE CONCEPT OF FINANCIAL MANAGEMENT IN THE COMPANY

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DOI: 10.5937/EEE24040C  
JEL: G39, G390  
Review Scientific Paper

### ABSTRACT

*The modern way of doing business has the effect that the business of many organizations and companies becomes very complex, challenging, and subject to constant comparison with the competition, generally making it less predictable and much more difficult to manage. To survive the dynamism imposed by globalization, companies must improve their way of doing business and develop operating systems that will be able to cope with unpredictability and the emergence of changes. The essence and goal of the paper is to point out the importance of financial management as a way of overcoming risks and difficulties in business through the analysis of the economic concept. To point out the most important features of financial management through theoretical considerations, and to consider the possibilities of the contribution of adequate management in the financial function. An adequate model of change management in finance can open up space for better and more stable business operations and timely responses to negative business indicators on the market.*

### KEYWORDS

*company, finance, management, risk, business*

## INTRODUCTION

Finance affects all segments of economic and social life. That's why a lot of attention is paid to this issue, both at the macro and micro level of the company. The task of financial management in a company is to maximize profits, survive in the market, facing numerous challenges and risks. The financial concept of company management aims to establish a balance between the assumed risk and the expected premium for the assumed risk.

The dynamic development of the role and increasing responsibility of financial management within the company directly depends on the level of development of corporate management and clearly defined goals established by the management of the corporation. In addition, it is important to highlight the fact that every financial crisis strongly affects the stability of the company's operations and directly contributes to the implementation of changes in the process of adapting corporate governance.

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With the development of the company, its need for a capital increase, especially its funds, grows. So the company needs to find constant sources of financing for new ventures and investments. The company's financing structure is determined by the rate of its productivity and efficiency. The financial function is comprehensively involved in the process of individual reproduction, in the operation of all other functions. There is almost no function in the range of which there is no interaction with the financial function. The circular movement of monetary capital begins and ends with it, the business process begins with procurement, and ends with sale. The initial and final stages are in the form of money, and the money should be obtained or had, and also under certain conditions and returned. The transformation of money in the process of reproduction is done by the circulation of funds, while the problem of acquiring, possessing and returning money is from the domain of financial relations and financial management.

### **DEVELOPMENT AND SIGNIFICANCE OF THE FINANCIAL CONCEPT FOR THE COMPANY**

Financial management primarily deals with policies and decisions that direct the business operations of the company, defining long-term and short-term goals and providing the means for their realization. Through the concept of financial management, the implementation of financial analysis enables the monitoring of business results based on which strategic decisions are made.

In modern market economies, the management of company finances becomes a primary task, because the fertilization of financial capital at the maximum rate of profitability, that is, at the highest possible rate of profit, is the central motive of entrepreneurship. Financing is one of the biggest challenges facing businesses. „The range of possible sources of financing largely depends on the degree of economic development, especially the development of the financial system and financial markets” (Erić, 2003). More developed systems are those that have developed mechanisms of so-called indirect financing (Mishkin, Eakins, 2006) where there are more financial institutions and intermediaries”.

Until the beginning of the 20th century, finance was considered an integral part of the science of business economics, when it was separated into a separate scientific area, dealing with the study of money value flows in a business entity, that is, a company. Finance is usually related to money, money transactions, and money management. In modern society, money, in various forms, permeates every pore of human activity, and finance represents a very broad and dynamic scientific field. Finance has the goal of using financial theory to explain and examine all important elements for making financial decisions about the placement of funds.

The first steps in the development of finance in the company occurred at the beginning of the 20th century in the USA. The finances of the company in that period were exclusively oriented towards the growth of the company as well as the problems of external sources of financing and the capital market. A turning point in financial thinking occurred in the 50s of the last century when the description of the development of financial thinking gave way to an analytical understanding of financial categories. The beginning of the new millennium includes the category of opportunity cost in the process of creating and managing the company's finances.

Finance, as a scientific discipline, achieves its goal and task by providing answers to the questions of how to harmonize goals and tasks with available funds. As a money management skill within a company, business finance is implemented through financial management that takes care of the acquisition, financing, and management of assets. The main areas of activity of financial management are investing, financing, and asset management decisions. „The development of corporate finance was initiated by



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pragmatic reasons, derived from the problem of business practice to control and harmonize value flows in the process of enterprise activity. The business activity of a company understood as the process of creating new value, is reduced, in the broadest sense, to two flows of value - goods and money, which permeate and form the essence of the company's business activity" (Stančić, 2006). „Without going into the different possibilities of differentiating the field of finance, today it is almost universally accepted that this scientific discipline includes three closely related areas: money and the capital market (microfinance), investment (investments), and finance of business entities. Although it is difficult to draw precise boundaries between these areas, the fact is that each of them focuses on specific financial problems“ (Brigham, 2002).

The issue of financial management in the company is determined by the meaning and content of the financial function itself within the complex functional mechanism and the overall task of the company. Financial management means such an operational-professional activity that, using appropriate methods and instruments, ensures the timely and optimal execution of the basic goals and tasks of a specific financial function. „Financial management as a part of overall management comes down to directing, regulating and changing financial flows for the maximum achievement of the company's economic and social goals, as well as for achieving optimal business results“ (Finansijski menadžment i računovodstvo, 2020).

Table 1. Basic groups of decisions within business finance

Decision	Description
Investment decisions	Enable the realization of income and corresponding savings in the company. They are extremely important for the company because most of them are characterized by a lack of capital, so it is necessary to place the capital where it will be used most efficiently. Analogously, one of the basic functions of business finance is to create a framework for making rational investment decisions.
Financing Decisions	Represent decisions related to how to obtain additional capital to finance the survival, growth, and development of a corporate enterprise. It is profitable to use debt in the financing of the company's operations until the moment when a rate of return is achieved that is higher than the weighted interest rate for the assumed debt of the company.
Decisions on dividends	If the company is organized as a joint stock company, it must decide on how much of the profit it will pay out as dividends to the shareholders. Decisions on dividends are decisively influenced by managers as well as by the real circumstances dictated by the market in which the company operates. However, decisions on dividends should still respect the expectations of shareholders, but at the same time be in line with the needs, policies, and goals of the company's development and operations.

*Source: Barjaktarević, Lj., Jović, Z., Milojević, M., Poslovne finansije, Poslovni fakultet, Univerzitet Singidunum, Beograd, 2021.*





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In modern conditions, the acquisition of production factors implies the availability of funds for their payment, from which it follows that without an outflow in the company's cash flows, there is no inflow in the company's commodity flows. It follows that the provision of capital (funds) is a condition sine qua non (a condition without which one cannot do) for the initiation of commodity flows in the company (procurement, production, and sales). The company can count on receiving money from operations (inflows in cash flows) only after the completed cycle of production and sale of products and services obtained from the acquired factors of production (after the outflow from the company's commodity flows). The character of these two value streams indicates that there is no practical possibility of their synchronization in time or direction of movement.

Through the development of the concept of financial management, significant actions are taken in the direction of strengthening the fiscal responsibility of companies, because it is financial management that should enable strict compliance with public regulations defined in the direction of achieving a greater degree of fiscal responsibility. Financial management represents the internal "guardian" of fiscal responsibility because it strives for the constant implementation without exception of all defined public rules and the reduction or mitigation of the effects of all risks encountered by business entities in their operations.

## FINANCIAL ENGINEERING AS A SOURCE OF BUSINESS FINANCING

Financial engineering is a set of financial services, the main goal of which is to facilitate the establishment and development of companies. For companies looking for more sophisticated financial innovations, financial engineering enables mediation in the structure of innovative deals. In the process of evolution of financial management in the company, some innovations are manifested through the introduction of new financial stock instruments and the issuance of securities. The growing need for external sources of financing for companies, finance has imposed the issue of maintaining liquidity and external financing.

„Financial management is part of the system of the overall corporate management concept. It refers to the comprehensive control of business indicators that can show the direction in which business activities should develop with efficient, timely, and rational use of the financial potential of the corporation, with the task of helping to achieve financial results, the achievement of the defined strategic and operational goals of the corporation and the planned business results” (Perić, 2018).

Financial engineering can be defined in the following ways:

1. Creation and design of securities in accordance with market and investor requirements;
2. Unpacking/separating one financial instrument into its component parts and repackaging those components into new financial instruments with changed structural characteristics;
3. According to Bodie et al. (2001) financial engineering is the process of innovating existing and creating new financial instruments (Stakić, Barjaktarević, 2021).

The task of financial engineering is to ensure the financing of the company, to propose new financing procedures, to prepare operations that ensure financing, and to arrange the financing of projects. In this context, the bank appears as the manager of the company for which it forms a banking pool for financing or organizes the issue of shares or bonds. For the financial engineering of the company, the banker arranges euro issues and the granting of euro loans, introduces the shares of the company to the stock exchange, and determines the initial quotation prices. As a process of innovating existing and creating



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new instruments, financial engineering ensures better liquidity and creates more favorable conditions for obtaining the necessary funds, because it transforms illiquid loans into liquid securities.

As an integral system of technologies, money, and people, financial engineering includes the decision-making system as well as its implementation in possible areas of human action. That is why financial development is a constant companion of financial engineering, which through business performance should ensure cooperation in the transfer of knowledge and transfer of experiences. The goal of financial engineering is an offensive performance both on the domestic and foreign markets. Financial engineering involves the creation of new securities through:

- unbundling and allocation of the cash flow of one security to create several new securities,
- by combining several existing securities (bundling). (Vašer, 1990)

As a result of the pursuit of new sources of financing, financial engineering provides new products to strengthen the financial position of companies through speculative bonds, zero-coupon bonds, asset securitization, financial derivatives, and repo deals. Speculative bonds are attractive because they offer investors higher earnings by 3-4% more than high-quality bonds. By issuing speculative bonds, the purchase of company shares is financed, especially for the so-called "hostile" takeover. In the case of bonds without coupons, the essence is that a larger batch of new bonds is created from one bond because coupons and principal are separated and each coupon becomes a separate bond. Securitization ensures the collection of "fresh" funds and the reduction of risk exposure through the transformation of illiquid loans into liquid securities. Financial derivatives (forwards, futures, options, swaps, and interest rate agreements) as a product of financial engineering enable financial market participants to protect themselves from interest rate changes and currency disturbances. Repo transactions represent a contract for the sale of securities with the obligation to repurchase them within a precisely determined period and at an accurately determined price.

Strong competition between banks and other financial institutions, frequent changes and amendments to legal regulations, and demand for new sources of financing have increased the importance of financial engineering. As a multidisciplinary scientific field, financial engineering contributes to the growth of investors' profits but it also has great importance at the macro level through the allocation of resources in the economic system. So its importance is great, both for the financing of the economy and for the development of the financial management of the company.

## FINANCIAL MANAGEMENT OF THE COMPANY

Financial management deals with determining the best and most optimal capital structure. What is significant is that the financial function with its influence in this domain in companies, can change the entire state of business by changing its capital structure, so it is necessary to achieve an optimal combination of financing in which the market price per share could be maximized. "Knowledge is also an important resource and driver of any development. Human resources, especially highly educated ones, boost the competitiveness of both the entire economy and companies" (Đorđević, Cvetković, Momčilović, 2021).

For financial management, it is extremely important to see the connection between the future value of a certain amount and the interest rate, that is, the number of interest periods. The future value of money represents the value of the initial sum (investment) of money at some future point in time, at a given interest rate, and the number of interest periods until that future point in time. "To determine the future

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value of money (present investment) in financial mathematics, the compound interest account is used, which includes the following variables:

- amount of invested funds (X),
- the length of time to which the investments relate,
- interest on the invested amount (k),
- frequency of calculation of interest on interest (n)"(Stančić, 2006).

In financial analysis and planning, a specific time value option called discounting is used much more often than compound interest accounts, which provides an answer to the question: What amount should be invested today with a certain annual interest to get 1 dinar after a certain number of years, that is, how much is the present value of an amount that will be available at some point in the future.

The general formula for calculating the future value of stakes at the end of year n when interest is paid m times per year reads:

$$BV_n = SV \left[ 1 + \frac{i}{m} \right]^n$$

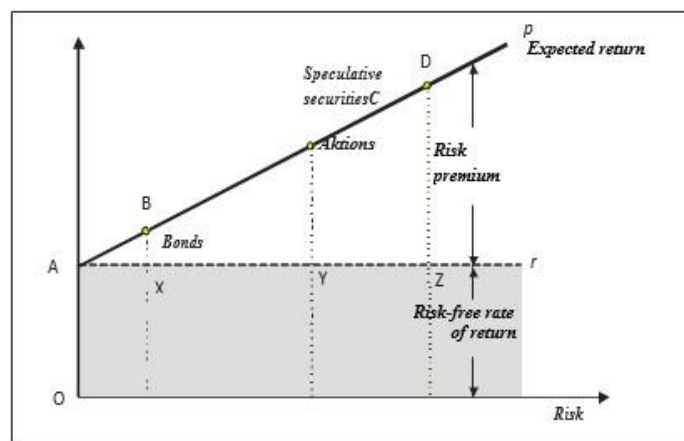
In practice, such an extensive calculation of BV (future value) is not necessary because special financial tables with interest factors (BVIF) have been developed for different combinations of i and n (Future value from din. 1). The calculation of BV is thereby greatly simplified - it is enough to find the appropriate interest factor for the given i and n and multiply it by the investment amount (interest factor multiplier), i.e. BVIF<sub>i,n</sub> serves as a multiplier.

$$BV = SV \cdot BVIF_{i,n}$$

The present value of any amount is determined by the model

$$SV = BV \cdot SVDF_{i,n}$$

When managing the company's finances, investors must take into account the amount of future expected returns as well as the degree of risk to realize the expected benefits. The relationship between risk and return is graphically presented.



Graph No. 1. Interdependence of risk and return

Source: Stančić, 2006.



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The future value of the invested sum of capital increases with the increase in the interest rate that is, with time. While the investment required to obtain a future amount decreases if the interest rate or the time necessary to do so increases. For the company to be liquid, the working capital must be greater than the current liabilities, that is, by turning the working capital into cash, the current debts will be paid off. When a company does not have enough working capital, it decides to borrow money with a longer repayment period, to use that money and earn profits from which it will return the borrowed money.

Relationships between assets and liabilities, established by investment and financing decisions, change relatively slowly, exposing the company to the risk that uncertain future revenues will be insufficient to cover fixed financial expenses based on the source of financing. Potential permanent tensions in the company's financial status suggest caution in defining the relationship between the company's assets and liabilities. After that, changing the established relationship between assets and liabilities is possible only through increasing the earning capacity of the assets or through the payment, prolongation, or conversion of liabilities that are due.

## CONCLUSION

To start an economic activity, the company can provide the necessary capital from its own (internal) sources or borrow. Any inflow of money into the company outside of regular commodity flows, such as loans, implies the obligation to return the borrowed capital and service its price, interest. If there is a discrepancy, if the coverage of the thus formed obligations towards the sources exceeds the income from current inflows, the company faces a discrepancy that may lead to the interruption of the business activity of the company.

The necessity of maintaining financial balance, as a condition for the long-term existence of the company, imposes the obligation of continuous control and direction of cash flows in the company, that is, management of the company's finances. The analysis of the company's financial position should determine the current position of the company, in order to define measures for possible improvement of the company's financial position based on the results of the analysis. The action of financial management is defined by the primary goal, to achieve the defined goals in the best possible way, through obtaining the optimal volume of favorable sources for financing and achieving growth, i.e. the company's business goals.

In the modern business concept, constant monitoring of global changes in the environment is required and, based on this, modification of measurement methods and instruments for optimal operation of the financial function in the company. This means, on the one hand, the optimal adaptation of processes and activities to the resulting changes to increase the quality of work, which implies achieving significant results, and on the other hand, recognizing risks in business and drawing attention to inefficient and risky processes. Modern management increasingly recognizes the importance and role of the financial function in achieving the desired results in business, which are set by the owners of the capital.

The business of corporations in modern conditions is becoming very complex, which makes it less predictable and much more difficult to manage changes and risks. Companies should systematically plan their operations, especially the financial part, and in that context, precisely determine certain systems and standards of active protective action, with which they will be able to protect themselves from risks and similar phenomena and processes. The biggest challenges come from unplanned and unexpected changes in the financial segment of corporations, and in that context, it is a fully justified conclusion that one of the essential functions of every company is the valid, systemically, and planned management of financial changes.



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### REFERENCES

- Barjaktarević, L., Jović, Z., Milojević, M. (2021). Poslovne finansije. Poslovni fakultet, Univerzitet Singidunum, Beograd.
- Bodie, Z., Kane, A., Marcus, J. A. (2001). Essential of Investments. Fourth edition. McGraw-Hill, New York.
- Brigham, E. (2002). Financial management. 10th edition. South-Western Thomson Learning, Mason.
- Đorđević, V., Cvetković, M., Momčilović, A. (2021). Uticaj humanog kapitala na privredni razvoj. Oditor, 7(1), 107-120.
- Erić, D. (2003). Finansijska tržišta i instrumenti. 2. izdanje. Čigoja štampa, Beograd.
- Riznić, D. (2020). Finansijski menadžment i računovodstvo – podloga menadžerskih odluka. Univerzitet u Beogradu, Tehnički fakultet Bor.
- Mishkin, F.S., Eakins, S.G. (2006). Financial Markets and Institutions. 6th edition. Pearson – Addison Wesley, Boston.
- Perić, M. (2018). Upravljanje promenama u finansijama korporacije u funkciji unapređenja korporativnog upravljanja. Doktorska disertacija, Fakultet za bankarstvo, osiguranje i finansije, Univerzitet Union, Beograd.
- Stančić, P. (2006). Savremeno upravljanje finansijama preduzeća. Ekonomski fakultet Kragujevac, Kragujevac.
- Stakić, N., Barjaktarević, L. (2021). Osnovi finansijskog inženjeringa. Poslovni fakultet, Univerzitet Singidunum, Beograd.
- Vašer, M. (1990). Finansijski inženjering, Jugoslovensko bankarstvo, 8, 23.



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# THE ROLE OF THE ACTUARY IN RISK MANAGEMENT: HOW ACTUARIAL SCIENCE CONTRIBUTES TO THE PRECISE ASSESSMENT OF RISKS AND INSURANCE PREMIUMS

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DOI: 10.5937/EEE24041L  
JEL: G22, G32, M41  
Review Scientific Paper

### ABSTRACT

*In today's business environment, risk management is becoming increasingly important due to the increased complexity and uncertainty in global financial markets. Actuaries, as experts in mathematics, statistics and finance, have a key role in this process. This paper explores the role of actuaries in the identification, assessment and management of different types of risk. Special emphasis is placed on quantitative methods and techniques that actuaries use to predict future events and their financial consequences. Concrete examples from practice, including insurance companies, pension funds and banks, are analyzed in order to show how actuaries contribute to the stability and security of these institutions. The paper also looks at ways in which actuaries design and implement financial products and insurance policies that reduce risk and increase the resilience of organizations to unforeseen events. Through a detailed analysis, this paper highlights the importance of the actuarial profession in modern risk management, pointing out the necessity of their contribution for the long-term stability and sustainability of financial systems. Research results suggest that actuaries are an indispensable part of the risk management team in all major financial institutions.*

### KEYWORDS

*risk management, actuaries, quantitative methods, financial system*

## INTRODUCTION

In today's world, risk management is becoming increasingly important due to the increasing complexity of business environments and uncertainty in economic and financial markets. In this context, actuary stands out as a key profession that contributes to the identification, assessment and management of risks. Actuaries, as experts in mathematics, statistics and finance, play a vital role in insurance companies, pension funds, banks, as well as in many other industries that deal with different types of risk.

The actuary's main task is to provide quantitative analyzes and models that enable accurate prediction of future events and their possible financial consequences. Through these analyses, actuaries enable

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insurance companies to make informed decisions and develop risk mitigation strategies. In addition, actuaries are often involved in the design and implementation of insurance policies and other financial products that provide risk protection .

Actuaries, with their professional knowledge and quantitative skills, enable insurance companies to correctly assess risks and set insurance premiums that are fair and sustainable. Their role is crucial in ensuring that companies can cover their obligations to policyholders while remaining profitable and competitive in the market.

### **SWOT ANALYSIS OF THE INFLUENCE OF AQUARIUM IN THE RISK MANAGEMENT PROCESS**

A SWOT analysis of the impact of actuaries in the risk management process provides insight into the key strengths, weaknesses, opportunities and threats relevant to the insurance sector.

#### **STRENGTHS:**

- Expertise and knowledge - actuaries have a deep knowledge of mathematics, statistics and finance, which enables them to make accurate risk assessments. A high level of education and certification guarantees expertise and professionalism.
- Quantitative methods - use sophisticated quantitative methods and models for forecasting and risk assessment. Ability to analyze large amounts of data and identify trends.
- Objectivity - actuaries provide independent and objective risk assessments, thus minimizing subjectivity in decision-making.
- Flexibility - the ability to adapt models and methods to different industries and types of risk. Quick response to changes in market conditions and regulations.

#### **WEAKNESSES:**

- Complexity of methods - complex methods and models can be difficult for management and other stakeholders to understand. They require significant resources for data collection and analysis.
- Dependence on historical data - risk assessments often rely on historical data, which can be problematic in case of changes in market conditions or emergence of new risks.
- High costs - hiring and training actuaries can be expensive for smaller organizations. Implementing complex actuarial models can increase operating costs.

#### **OPPORTUNITIES:**

- Technological advances - the development of new technologies, such as machine learning and artificial intelligence, can improve risk analysis processes. Automation and digitization can improve the efficiency and accuracy of assessments.
- Growing Needs for Risk Management - Increased regulation and complexity of financial markets increase the need for risk management professionals. New markets and products provide opportunities to expand the actuary's role.



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- Globalization - increased global connectivity and international business creates a need for comprehensive risk assessments.

### **THREATS:**

- Regulatory challenges - changes in regulatory frameworks can make actuaries' work more difficult or limited. Increased requirements for transparency and reporting.
- Competition - increased competition from other risk management professionals such as financial analysts and consultants. Technology companies developing risk analysis tools can reduce the need for traditional actuarial skills.
- External shocks - unexpected events, such as financial crises or natural disasters, can significantly change risk profiles and make accurate assessments difficult.

Actuaries play a key role in the risk management process, using their professional skills and quantitative methods to make accurate assessments. Although they face challenges such as the complexity of the methods and the dependence on historical data, the opportunities provided by technological progress and the growing need for risk management open new opportunities for their development and improvement. However, threats such as regulatory challenges and competition require continuous adaptation and innovation for actuaries to remain relevant and effective in their work.

## **ACTUARIAL SCIENCE AND ITS PRINCIPLES**

Actuarial science is a multidisciplinary field that combines mathematics, statistics, economics and finance to analyze and manage risks in various industries, most commonly in insurance and pension funds. Actuaries use their skills to develop models to estimate the likelihood and financial consequences of future events, enabling informed decision-making and risk management strategies.

Main principles of actuarial science (McNeil, Frey, Embrechts, 2005):

- Principle of data collection and analysis - actuaries collect large amounts of data from various sources, including historical data on losses, claims, demographic data and economic indicators. Using statistical methods and software tools, actuaries analyze collected data to identify patterns, trends and key risk factors.
- The principle of risk quantification - risk modeling includes the development of mathematical and statistical models for estimating the probability of occurrence of certain events and their financial consequences. Probability and severity assessment includes risk quantification by determining the probability and expected costs of potential events, which enables accurate determination of insurance premiums and provisions.
- The principle of actuarial value - discounting of future obligations includes the use of discount rates to calculate the present value of future obligations, taking into account the time value of money. Actuaries determine the required reserves that an insurance company should have in order to meet future obligations to policyholders.
- Principle of proportionality and adequacy - fair distribution of premiums actuaries ensure that the premiums charged to policyholders are proportional to the risk that each policyholder represents. Premiums must be sufficient to cover expected losses, administrative costs and ensure the profitability of the insurance company.





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- Principle of uncertainty and conservatism - actuaries take uncertainty into account in their estimates and models, using conservative assumptions to ensure the stability and safety of financial institutions. Using stress tests and scenario analysis to assess the resilience of insurance companies to extreme events and adverse conditions.
- Principle of continuous monitoring and adjustment - actuaries continuously monitor business results and deviations from planned values, adjusting models and strategies as needed. Constant improvement of methods and tools, as well as adaptation to new regulations, market conditions and technological innovations.

Actuarial science also relies on a number of mathematical and statistical tools that enable risk assessment and premium formation. The basic principles include:

- Probability theory - used to estimate the probability of various events, such as death, illness, accidents and other insured events.
- Statistical Models - Actuaries use models such as regression analysis, time series, and stochastic processes to analyze data and predict future events. For example, regression analysis can help understand how various factors (eg age, health, lifestyle) affect the probability of a certain insured event occurring. (Klugman, Panjer, Willmott, 2008)
- Financial mathematics - used to estimate the value of future liabilities and income, including discounting cash flows and estimating reserves for claims payments. (Promislow, 2010)

Actuarial science is based on rigorous quantitative methods and principles that enable accurate risk assessment and management. The application of these principles ensures the stability and security of financial institutions, enabling them to effectively manage risks and fulfill their obligations to policyholders and clients. Actuaries, as key professionals in this process, use their skills and knowledge to contribute to the long-term sustainability and profitability of the organizations in which they work.

## **RISK ASSESSMENT IS THE KEY TASK OF THE ACTUARY**

Risk assessment is a fundamental task of actuaries and a key component in the insurance industry, financial institutions and many other sectors that face uncertainty. Stages of risk assessment (Wang, Venter, Bovbjerg, 2007):

- Risk identification - Actuaries collect and analyze relevant data, including historical losses, demographics, economic indicators and specific client or portfolio information. Identification of external factors that may affect risk, such as economic conditions, regulatory changes and market trends.
- Risk quantification - the development of mathematical and statistical models for estimating the probability of the occurrence of certain events and their financial consequences is used for process modeling. These models may include regression analyses, Monte Carlo simulations, and actuarial tables. Actuaries determine the probability and expected costs of potential events, taking into account different scenarios and possible outcomes.
- Risk evaluation - actuaries analyze model results to understand the overall risk of a portfolio or specific products. This includes assessing how different factors affect risk and identifying key risk drivers. Examining the portfolio's resistance to extreme events and adverse conditions through stress tests and analysis of different scenarios.



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- Development of risk management strategies - based on risk assessment, actuaries provide recommendations to reduce or control risk, which may include changes in premiums, insurance terms, reinsurance or other strategies. Adjusting the portfolio structure to optimize the balance between risk and return.
- Continuous monitoring and adjustment - continuous monitoring of actual results against estimates and adjustment of models and strategies as needed. Regular review and updating of actuarial models to remain relevant in light of new data and changes in the environment.

Risk assessment is a central actuary task that enables organizations to effectively manage uncertainty and minimize potential losses. Through the systematic identification, quantification and evaluation of risks, actuaries provide key insights and strategies that ensure the stability and profitability of financial institutions. Their role is indispensable in creating sustainable and more resilient systems, which can successfully respond to the challenges of the modern business environment.

## PRECISE ESTIMATION OF PREMIUMS

Premium setting is the process in which actuaries use their risk assessments to determine adequate insurance premiums. This includes:

- Use of actuarial tables - actuaries use mortality, morbidity and other actuarial tables that provide statistical data on the probability of various events. For example, mortality tables show the probability of death for different age groups, which is a key piece of information for setting life insurance premiums.
- Formation of premiums - actuaries use mathematical models to calculate premiums that will cover the expected costs of paying claims and administrative costs, while ensuring a profit for the insurance company. For example, using an expected value model, actuaries can calculate the required premium to cover a risk taking into account the probability and severity of potential claims (Bowers, Gerber, Hickman, Jones, Nesbitt, 1997).
- Balancing risk and profitability - insurance companies must balance between the need for risk coverage and profit making. Actuaries play a key role in this process, ensuring that premiums are high enough to cover risks but also competitive in the market (Cairns, 2000).

Premium formation is a complex process that requires a deep understanding of risk and the ability to quantify the likelihood and severity of future claims. Actuaries play a key role in this process. This process ensures the financial stability and sustainability of insurance companies, enabling them to effectively manage risks and fulfill their obligations to policyholders.

## THE ROLE OF THE ACTUARY IN REINSURANCE

Reinsurance is a key risk management tool in insurance companies, and actuaries play an important role in assessing the need for reinsurance. Reinsurance allows insurers to transfer part of their risks to reinsurers, thereby reducing their exposure to large claims. The actuary's role includes (Solvency II Directive, 2019):



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- Assessing the need for reinsurance - actuaries analyze the portfolios of insurance companies to identify risks that may be too large for a single company. For example, in the case of natural disasters, such as earthquakes or hurricanes, reinsurance may be necessary to reduce financial risk.
- Selection of reinsurance partners - actuaries use their professional analysis to help insurance companies in the selection of reinsurance partners. This includes an analysis of the financial stability of reinsurers, their conditions and reinsurance prices.
- Negotiation and formation of reinsurance contracts - actuaries play a key role in the negotiation and formation of reinsurance contracts, ensuring that the terms are favorable for the insurance company. This includes defining coverage limits, premiums and other contract terms.

Actuaries play an essential role in the reinsurance process, using their professional skills to assess risk, determine the structure of reinsurance, negotiate terms, monitor performance and manage capital. Their contribution enables insurance companies to effectively manage risks, improve financial stability and ensure long-term business viability. The actuary's role in reinsurance is essential for making informed decisions that optimize risk protection and support the business goals of insurance companies.

## APPLICATION OF TECHNOLOGY IN THE ACTUARY

Technology is playing an increasingly important role in actuarial practice, enabling faster and more accurate data analysis. Actuaries use sophisticated software tools and platforms to analyze large amounts of data and model risk. Some of the key technologies include:

- Software tools and platforms - actuaries use software tools such as R, Python, and specialized actuarial software for data analysis and risk modeling. These tools allow actuaries to process large amounts of data faster and more accurately (Biffis, Millosovich, 2006).
- Analysis of big data (Big Data) - the use of big data allows actuaries to use huge amounts of data for more accurate risk assessments. For example, analyzing data from social networks, mobile devices and other sources can provide new insights into policyholder behavior and potential risks (Elling, Schmeiser, 2010).
- Artificial intelligence and machine learning - the application of artificial intelligence and machine learning enables advanced methods for data analysis and risk modelling. These technologies can improve forecasting accuracy and enable actuaries to identify new patterns and trends in data.
- Blockchain - enables secure and transparent exchange of data between different stakeholders, reducing the risk of fraud and increasing trust. Using smart contracts on the blockchain to automate insurance and reinsurance processes, including automatic fulfilment of contractual obligations when certain conditions are met.
- Cloud computing - cloud platforms enable the scalability of actuarial analyses, enabling access to large resources for data collection and processing without the need for significant investments in infrastructure. They enable collaboration between actuarial teams in different locations through real-time sharing of data and models (IFRS 17, 2017).



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- Internet of Things (IoT) - real-time data collection. IoT devices enable real-time data collection, which allows actuaries to better understand current risks and adjust their models accordingly. Using data collected through IoT devices to develop preventive measures that can reduce the likelihood and severity of damages.

Applying technologies in actuarial practice brings significant benefits, including greater precision in risk assessment, more efficient data processing and automation of routine tasks. Actuaries using these technologies can make better informed decisions, develop more advanced models and improve the overall efficiency of the risk management process. Technological innovations continue to transform actuarial practice, providing new tools and opportunities to advance this vital profession.

## CHALLENGES AND FUTURE OF THE ACTUARIAL PROFESSION

The actuarial profession faces numerous challenges, including changes in the regulatory environment and the evolution of risk. Some of the key challenges include:

- Changes in the regulatory environment - new laws and regulations can significantly affect the way actuaries assess risks and form premiums. For example, the Solvency II directive in the European Union sets new requirements for risk and capital management in insurance companies (Elling, Schmeiser, 2010).
- Development of skills and education - the future of the actuarial profession depends on the development of new skills and educational programs that will enable actuaries to remain relevant in an increasingly complex world of risk. This includes constant training in new technologies, regulation and risk management.
- Quantitative risks and uncertainty - the emergence of new risks, such as climate change, pandemics and cyber attacks, is challenging traditional risk assessment models. Actuaries must develop new approaches to quantifying and managing these risks. Complex financial products and markets require advanced models and analyses, which can be challenging and require constant improvement of techniques and tools ( Anderson, Brown, 2005).
- Global perspective and collaboration - globalization and international regulation will require actuaries to develop a global perspective and collaborate with colleagues around the world to share knowledge and best practices. Actuaries will expand their roles beyond the traditional insurance and pension sectors, entering areas such as health economics, the energy sector and risk management in government institutions.

## EXAMPLES OF APPLICATION OF ACTUARIAL PRACTICE IN INSURANCE COMPANIES IN SERBIA

Actuarial practice in insurance companies in Serbia includes a wide range of activities that are key to risk assessment, premium formation, reserve management, and reinsurance. Here are some concrete examples of the application of actuarial practice in Serbia:



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Formation of premiums in life insurance - insurance companies in Serbia, such as Dunav osiguranje and Generali osiguranje, use actuarial methods for formation of premiums in life insurance. Actuaries analyze mortality and morbidity data, using domestic and international mortality tables, to accurately determine risk-appropriate premiums. For example, to determine premiums for life insurance with a savings component, actuaries take into account factors such as age, gender, health and length of insurance period.

Risk assessment in property insurance - insurance companies such as Wiener Städtische and Triglav osiguranje use actuarial analyzes to assess risk in property insurance. This includes analyzing historical data on damages caused by natural disasters, such as floods and earthquakes. Actuaries develop models that predict the frequency and severity of these events, allowing companies to set premiums that cover potential losses. For example, after the floods that hit Serbia in 2014, actuaries had to reevaluate risks and adjust premiums for flood insurance.

Management of reserves for claims - all insurance companies in Serbia must maintain adequate reserves for the payment of future claims. Actuaries play a key role in this process, estimating the amount to be set aside for reserves. For example, Uniqa Insurance uses actuarial models to estimate claims reserves based on historical data on reported claims, average claims processing time and trends in claims payouts.

Reinsurance is an important tool for risk management, and actuaries help insurance companies in Serbia decide when and how to use reinsurance. For example, Dunav osiguranje uses reinsurance to cover large risks such as industrial facilities and infrastructure projects. Actuaries assess potential losses and negotiate reinsurance terms with international reinsurers.

Risk assessment in health insurance - in insurance companies such as Sava Insurance, actuaries assess risks in health insurance. By analyzing data on the frequency and cost of medical treatments, actuaries form premiums for various health policies. For example, when forming premiums for supplementary health insurance, actuaries take into account factors such as the insured's age, existing health problems and expected treatment costs.

Risk assessment in motor vehicle insurance - insurance companies such as DDOR Novi Sad and Generali use actuarial methods to assess risk and form premiums in motor vehicle insurance. Actuaries analyze data on the frequency and severity of traffic accidents, as well as driver characteristics (e.g. age, experience, claims history) to determine premiums that adequately cover the risks. For example, young drivers with less experience often pay higher premiums due to their higher risk of accidents.

Analysis of market trends and competition - actuaries in insurance companies in Serbia often analyze market trends and competition in order to adjust their products and premiums. For example, after the introduction of new legal regulations or changes in the economic environment, actuaries assess how these changes affect the insurance market and adjust the strategies of insurance companies accordingly.

These examples show how actuarial practice plays a key role in insurance companies in Serbia, enabling precise risk management and formation of premiums that are in line with real risks and market needs.

## CONCLUSION

The actuary's role in the risk management process is essential for the stability and sustainability of financial institutions and insurance companies. Actuaries, with their deep knowledge of mathematics, statistics and finance, provide key quantitative analyzes that enable the precise identification, assessment and management of different types of risk. Through processes such as premium formation, reinsurance



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and continuous performance monitoring, actuaries enable insurance companies to optimize their risk reduction strategies, improve resource allocation and ensure long-term profitability. Their analyzes and recommendations based on rigorous methods and models provide the foundation for making informed decisions that minimize uncertainty and maximize certainty.

Although they face challenges such as technological change, regulatory changes and the emergence of new risks, actuaries demonstrate a remarkable ability to adapt and innovate. The integration of advanced technologies, such as artificial intelligence and machine learning, allows actuaries to improve their methods and models, improving the accuracy and efficiency of their valuations. In the future, the role of the actuary is expected to become even more important as the world faces increasingly complex and dynamic risks. Their ability to provide quantitative insights and develop risk management strategies will be essential for financial stability and security. Through continuing education and professional development, actuaries will continue to play a key role in protecting policyholders' interests and strengthening trust in financial institutions.

In conclusion, the actuarial profession is a pillar of the modern economy, enabling organizations to effectively manage risks and achieve sustainable growth. Their contribution is not only technical but also strategic, providing invaluable value in the decision-making process and creating more resilient financial systems.

## REFERENCES

- Anderson, D.R., Brown, R.L. (2005). *The Theory of Risk and Insurance*. Oklahoma City University, Manhattan.
- Biffis, E., Millosovich, P. (2006). A flexible framework for mortality, longevity, and the valuation of insurance liabilities. *Insurance: Mathematics and Economics*, 38(3), 717-728.
- Bowers, N.L., Gerber, H.U., Hickman, J.C., Jones, D.A., Nesbitt, C.J. (1997). *Actuarial Mathematics*. The Society of Actuaries. Schaumburg.
- Cairns, A.J.G. (2000). A discussion of parameter and model uncertainty in insurance. *Insurance: Mathematics and Economics*, 27(3), 313-330.
- Eling, M., Schmeiser, H. (2010). Insurance and Risk Management. *Journal of Risk and Insurance*, 77(1), 1-29.
- International Financial Reporting Standards (IFRS 17). International Accounting Standards Board (IASB). (2017).
- Klugman, S.A., Panjer, H.H., Willmot, G.E. (2008). *Loss Models: From Data to Decisions*. John Wiley & Sons Inc., New Jersey.
- McNeil, A.J., Frey, R., Embrechts, P. (2005). *Quantitative Risk Management: Concepts, Techniques, and Tools*. Princeton University Press, Princeton.
- Promislow, S.D. (2010). *Fundamentals of Actuarial Mathematics*. John Wiley & Sons, Ltd., Chichester.
- Solvency II Directive. European Parliament and Council of the European Union. (2019).
- Wang, S.S., Venter, G.G., Bovbjerg, R.R. (2007). Insurance Risk and Ruin. *North American Actuarial Journal*, 11(2), 66-79.



## Conference Proceedings

# LEGAL ISSUES REGARDING CREDIT IN THE JUDICIAL PRACTICE OF BALKAN COUNTRIES

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DOI: 10.5937/EEE24042M

JEL: M14

Review Scientific Paper

### ABSTRACT

*Credit in modern conditions represents one of the most significant sources of financing. Through credit, the broadest needs of both the economy and the population are satisfied. Credit enables entities with surplus financial resources to employ them in the most rational manner, thereby achieving a certain profit. At the same time, credit allows entities lacking financial resources to acquire them and use these funds to realize their projects. Each of explored court decisions of Balkan countries provides insights into how local courts interpret and apply legal frameworks regarding financial agreements, particularly those involving currency clauses or loans denominated in foreign currencies. They reflect the legal landscape and judicial approaches in their respective jurisdictions. Policies governing credit and interest rates should prioritize the safety, liquidity, and profitability of banks, employing monetary and credit policy measures throughout the entire state to achieve these objectives.*

### KEYWORDS

*credit, law, practice, Balkan*

## INTRODUCTION

Credit mobilizes and concentrates free financial resources, thereby facilitating the financing of the reproduction process. This ensures liquidity and maintains the continuity of economic activity, especially since production today cannot be financed solely from internal sources.

After nearly a decade of isolation and economic blockade by developed market countries, following almost sixty years of dominant rule under the economically illogical form of ownership – social ownership, and after who knows how many inflationary and monetary shocks, today perhaps more than ever, credits are needed by our economic entities. In our current circumstances, financing the reproduction of economic activities through credit mechanisms is a fundamental necessity, whether sourced externally or internally. It's noteworthy that internal financing during production shows more pronounced advantages due to intensified financial effects. Despite the inherent pros and cons in credit relationships, effective implementation of credit policies can substantially amplify benefits while mitigating drawbacks.

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Each of exploring court decisions in different Balkan countries provides insights into how local courts interpret and apply legal frameworks regarding financial agreements, particularly those involving currency clauses or loans denominated in foreign currencies. They reflect the legal landscape and judicial approaches in their respective jurisdictions.

### **THE LEGAL NATURE OF CREDIT**

According to Article 1065 of the Law of Obligations and Contracts of the Republic of Serbia a loan agreement obligates the bank to make a specified amount of money available to the borrower for a determined or undetermined period, either for a specific purpose or without a specified purpose. In return, the borrower undertakes to pay the agreed interest to the bank and to repay the borrowed amount within the time and in the manner stipulated in the contract. In line with the principle of monetary nominalism and Articles 394 and 395 of this legal act, when the obligation pertains to a sum of money, the debtor must discharge the obligation by delivering the exact number of monetary units specified, unless otherwise provided by law. If a monetary obligation is denominated in a foreign currency or gold, its fulfillment may be demanded in domestic currency based on the exchange rate applicable at the time of fulfillment.

Under international legal norms, particularly Directive 93/13/EEC of the European Community concerning unfair terms in consumer contracts, Article 3 stipulates that contractual terms not individually negotiated are considered unfair if they significantly disturb the balance to the detriment of the consumer, contrary to the principle of good faith. A term is considered not individually negotiated if it is drafted in advance in a standardized contract.

There is an evident need for legislation to play a more active role in regulating fundamental legal provisions to prevent major issues, thereby preserving the integrity of banks as market participants and ensuring their survival as active players. The essential theoretical characteristics of credit agreements come to the forefront in analyzing judicial practices, both in the Republic of Serbia and in examples from Montenegro, Croatia, Greece, Slovenia and Bosnia and Herzegovina.

### **CREDIT IN THE JUDICIAL PRACTICE OF BALKAN COUNTRIES**

Research of judicial practice was conducted based on available court decisions. By analyzing the state of judicial practice in the observed judicial systems, commonalities and differences in court procedures among the analyzed states can be observed. This provides a common comparative review and commentary. Most commonly, the research concerns long-term residential loan agreements, where the issue arose due to the appreciation of the Swiss franc, resulting in a significant increase in monthly loan installments. It is concluded that courts in the observed states have generally dealt with the following issues concerning loan agreements indexed in Swiss francs:

- classification of the subject loan agreements,
- permissibility of negotiating a currency clause in CHF,
- voidability of variable interest rates, and





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- issues of termination or modification of contracts due to changed circumstances.

Only in Croatia have these issues been primarily considered from the perspective of consumer protection (collective interests), alongside purely contractual legal viewpoints. There are specific cases and decisions from the Croatian judiciary related to issues likely involving Swiss franc-indexed loans. Here's a brief overview of the cases mentioned. Decision of the Supreme Court of the Republic of Croatia, No. Rev-249/14-2 dated April 9, 2015 would typically represent a significant ruling by the highest court in Croatia on a particular legal issue, possibly related to consumer protection or contractual law concerning loans indexed in Swiss francs. Decision of the High Commercial Court of the Republic of Croatia, No. Pž-7129/13-4 dated June 13, 2014 handles commercial disputes and this decision could pertain to a specific case involving commercial aspects of Swiss franc-indexed loans, such as contractual interpretation or business-related implications.

Decision of the Commercial Court in Zagreb, No. P-1401/2012 dated July 4, 2013 indicating it deals with similar issues but at the lower court level, possibly providing insights into initial rulings or specific local interpretations. Each of these decisions would involve legal analysis and judgments specific to the circumstances of the cases, potentially addressing issues such as the validity of currency clauses in loan agreements, consumer protection concerns, or contractual obligations in the context of changing economic circumstances affecting Swiss franc-indexed loans. The consumer aspect includes the application of both domestic and European regulations on consumer protection, including EU directives. This is the case not only in Croatia but also in Hungary and some other countries. These regulations aim to safeguard consumers' rights and interests when dealing with financial agreements such as loans indexed in foreign currencies like the Swiss franc.

The directives from the EU provide a framework for member states to ensure a level of protection consistent across the European Union, addressing issues such as transparency, fairness in contract terms, and consumer rights in financial transactions. Similar considerations and legal frameworks are likely applied in Hungary and other EU countries facing similar issues related to Swiss franc-indexed loans. The Croatian court maintains that cases from Hungary or Austria cannot be directly used to settle disputes in Croatia. This position is evident in the ruling of the Supreme Court of the Republic of Croatia, No. Rev 249/14-2 dated April 9, 2015. For more insights into the Hungarian case, one could consult the judgment of the Court of Justice of the European Union, Case C-26/13 dated April 30, 2014. This case likely addresses issues concerning the application of EU laws and directives related to consumer protection and financial agreements involving currencies such as the Swiss franc. The European Court's decision offers guidance on how EU law should be interpreted and implemented across member states, including Croatia, Hungary, and Austria, in similar disputes.

Except in Bosnia and Herzegovina and partially in Serbia, courts in the observed countries have not specifically delved into the elaboration of whether loans are foreign currency-denominated or contain an agreed currency clause. However, they have addressed the issue of the permissibility of negotiating a currency clause in Swiss francs (CHF). Comparatively, all courts in these countries have reached the identical conclusion that negotiating a currency clause is permissible. This indicates a uniform approach across these jurisdictions regarding the permissibility of including Swiss franc currency clauses in loan agreements, despite not extensively distinguishing between foreign currency loans and those with currency clauses in their deliberations.

In Bosnia and Herzegovina, the Supreme Court concluded that the agreement indeed contained a currency clause because the loan funds were disbursed in KM (Bosnian Convertible Mark), the currency in which both the principal and interest payments are made. This legal interpretation was provided in the decision of the Supreme Court of the Federation of Bosnia and Herzegovina, No. 58 0 P 135023 16 Spp dated May 25, 2016. This decision highlights that despite the use of KM for payments, the



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underlying loan agreement was considered to have a currency clause, impacting how the legal framework applies to such financial contracts in Bosnia and Herzegovina.

Decision of the District Court in Banja Luka, No. 71 0 P 150675 14 Gzh dated February 9, 2016 (Republic of Srpska, Bosnia and Herzegovina) pertains to a specific case involving financial matters, possibly related to loan agreements or currency clauses. It would reflect the legal interpretation and application of local laws in the Republic of Srpska. Legal opinions of the Supreme Court of the Federation of Bosnia and Herzegovina, No. 58 0 P 135023 16 Spp dated May 25, 2016 brings legal opinions from the Supreme Court of the Federation of Bosnia and Herzegovina are likely related to the interpretation of financial contracts, possibly addressing issues such as the presence of currency clauses in loan agreements.

Decision of the Court of Appeals in Novi Sad, No. Gzh. 1781/16 dated September 1, 2016 (Serbia) would involve legal considerations specific to Serbian law regarding financial agreements, potentially including issues related to currency clauses or foreign currency loans.

Decision and ruling of the Supreme Court of the Republic of Croatia, No. Revt 249/14-2 dated April 9, 2015 is likely significant in the context of legal principles concerning financial agreements, possibly addressing aspects such as the validity or interpretation of currency clauses in loan contracts.

Only in Republika Srpska was there discussion in relation to the conversion of loans before the court and payment of amounts due to exchange rate differences, to which the appellate court provided a negative response. The judgment of the District Court in Banja Luka, No. 71 0 P 150675 14 Gzh dated February 9, 2016, concerns this point.

In the judicial practice of Montenegro, the permissibility of negotiating this clause has not been posed as problematic. However, there has been a narrow discussion concerning the possibility for banks to simultaneously utilize protective clauses in the form of both a currency clause and agreed-upon interest rates. This discussion is contextualized by the principle that disproportionate property benefits must not be realized, linked with the principle of equal value of mutual exchanges. The Higher Court in Podgorica holds the view that protective clauses, such as currency clauses and agreed-upon interest rates, cannot be used if they would result in disproportionate property benefits. (Judgment of the Higher Court in Podgorica, No. Gzh. 5754/12-11 dated October 1, 2013.) In Croatian legal practice, particularly in the realm of consumer rights protection, courts have assessed whether contractual clauses are clear, understandable, conspicuous, and fair. Generally, courts have consistently supported this standard (except for the initial commercial court, which held a different view).

Regarding the legality of variable interest rates, courts in Serbia, Bosnia and Herzegovina, and Croatia have reached similar conclusions. They argue that such provisions are unilaterally established without negotiation or addendum, considered incomprehensible, unfair, null, and contrary to fundamental principles of contract law. Consequently, they determine these obligations as indefinite and impossible to ascertain, leading to the reimbursement of excessive interest payments (in Croatia, Serbia, and Republika Srpska). In Montenegro, courts have also addressed the application of conversion laws concerning these loans, applying them to the transfer of receivables in case of assignment and considering the deadlines for invoking the excessive damage doctrine. However, their treatment of this doctrine has been relatively limited.

The European Court ruled in case C-26/13 dated April 30, 2013, following a request from a Hungarian court for a preliminary ruling regarding unfair terms in Swiss franc (CHF) loans, declaring the currency clause invalid. Furthermore, the Court of Appeal in Piraeus, handling a collective lawsuit involving 70,000 consumers organized by Greek consumer associations and users' association of franc-indexed loans against EFG Eurobank in Greece, completely voided and annulled franc indexing, both prospectively and retroactively from the



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contracts' inception. This ruling nullified the currency clause due to the bank's unfair practices in negotiating CHF clauses. Likewise, Slovenia's Higher Court issued a comparable ruling, nullifying an entire housing loan agreement with a franc currency clause. Consequently, the debtor is obligated to repay only the principal amount to the bank, devoid of interest and franc indexing.

### IN THE SHADOW OF OBLIGATORY RULES

From a socio-legal standpoint, the focal issue revolves around the implications of court rulings, particularly those that nullify contracts or specific contractual terms (while upholding other clauses in line with civil law principles) or terminate contracts due to changed circumstances. Typically, each party is required to undertake restitution, which includes addressing the fate of tangible security measures such as mortgages. The future course of action by courts remains uncertain, especially in jurisdictions lacking clear legal precedents from supreme courts. There may also be potential claims seeking application of alternative legal frameworks. It's important not to dismiss the possibility of reaching contrary conclusions outright, given the circumstances outlined in court decisions. Banks, as specialized entities, may possess insights into these matters that differ from those of individual loan users. Nevertheless, since such insights have not been conclusively proven in court, other legal mechanisms must be employed to resolve disputes, adhering to the principles of contract law as interpreted by the judiciary. Is voiding the contract the optimal solution, or might termination or revision be more appropriate? The latter involves potential court decisions to terminate or revise a contract due to changed circumstances, known as the "rebus sic stantibus" clause. In broader terms, the principle suggests that agreements remain binding only as long as the fundamental circumstances or conditions remain unchanged. If significant changes occur, parties may seek to modify or terminate the agreement based on these altered circumstances. For instance, in international law, "rebus sic stantibus" can be invoked to argue for adjusting or ending treaties when there has been a substantial change in circumstances since the treaty's inception. Ultimately, "rebus sic stantibus" emphasizes that agreements are contingent upon existing conditions and may be subject to revision if those conditions undergo significant transformation over time.

Under our legal system, the conditions for applying this clause include:

- The contract must be mutually obligatory,
- It involves enduring obligations,
- Significant changes have occurred after the contract's conclusion, leading to a substantial imbalance in the performance of obligations by one party,
- As a result, the original purpose of the contract can no longer be fulfilled,
- The contract no longer aligns with the reasonable expectations of the parties involved;
- Maintaining the contract in its current form would generally be unjust,
- These changes were unforeseeable, unavoidable, and insurmountable at the time of contract formation,
- The affected party promptly informed the other party about these changes.

In terms of sanctions, preference is given to contract termination, which can be sought only by the affected party, while contract revision (a fair change of contract terms) is available to the other contracting party that wishes to keep the contract in force. (Dragicevic, 2012, 309) The reason for nullity



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exists from the very drafting of the contract, whereas termination of the contract occurs after that moment. The court's decision in the case of nullity is declarative, while in the case of termination, it is constitutive. However, in terms of consequences or actions (court-initiated) of termination and nullity of the contract, the situation is similar. Termination, much like nullity, operates retroactively, and restitution (unilateral or mutual) is carried out, meaning repayment in money, without affecting the right to default interest from the date of receiving the money and compensation for damages. (Perovic, 1980, 517) The European Union addressed the issue of loans with currency clauses by adopting Directive 2014/17/EU of the European Parliament and Council on February 4, 2014. This directive pertains to consumer credit agreements related to residential real estate, amending Directives 2008/48/EC and 2013/36/EU, as well as Regulation (EU) No 1093/2010/17.

## CONCLUSION

Restoring public trust in banks stands out as a critical objective for the state during our economy and society's transition phase. This aim is crucial to prevent a scenario where more than three billion euros, converted from various EU currencies, remain outside the banking system despite a consistent demand for loans. This funding should ideally serve as the strongest and most reliable source for bolstering our struggling economy, facilitating the resurgence of production, higher employment rates, optimal capacity utilization, and ensuring adequate liquidity. Given that many of our businesses are equipped with aging infrastructure like deteriorating factory buildings, outdated technology, excessive workforce, and financial constraints such as blocked accounts, substantial receivables, and even larger liabilities (sometimes triple their total capital), this financing source gains significant importance. Our businesses often lack internal resources for financing their operations, and with uncertain political conditions both domestically and regionally, the inflow of foreign direct investment is likely to be delayed.

Furthermore, credit and interest rate policies must ensure the stability, liquidity, and profitability of banks, achieved through comprehensive monetary and credit policy measures enacted across the entire state. The authors underscores the need for enhanced and more rigorous market oversight to deter misuse and to keep abreast of developments in European Union laws. They anticipate future revisions to national regulatory frameworks to converge with EU regulations, seeking to standardize legal provisions for enhancing fairness and creating an ideal environment for parties engaging in credit transactions. Policies governing credit and interest rates should prioritize the safety, liquidity, and profitability of banks, employing monetary and credit policy measures throughout the entire state to achieve these objectives.

## REFERENCES

Dragičević, M. (2012). Raskid ili izmena ugovora zbog promenjenih okolnosti. Savremene tendencije u razvoju pravnog sistema Republike Srbije – Zbornik radova studenata doktorskih akademskih studija – LX, p. 309.

Decision of the Supreme Court of the Republic of Croatia, No. Rev-249/14-2 dated April 9, 2015

Decision of the High Commercial Court of the Republic of Croatia, No. Pž-7129/13-4 dated June 13, 2014

Decision of the Commercial Court in Zagreb, No. P-1401/2012 dated July 4, 2013



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- Decision of Supreme Court of the Republic of Croatia, No. Rev 249/14-2 dated April 9, 2015.
- Judgment of the Court of Justice of the European Union, Case C-26/13 dated April 30, 2014
- Decision of the Supreme Court of the Federation of Bosnia and Herzegovina, No. 58 0 P 135023 16 Spp dated May 25, 2016.
- Decision of the District Court in Banja Luka, No. 71 0 P 150675 14 Gzh dated February 9, 2016 (Republic of Srpska, Bosnia and Herzegovina)
- Decision Supreme Court of the Federation of Bosnia and Herzegovina, No. 58 0 P 135023 16 Spp dated May 25, 2016
- Decision of the Court of Appeals in Novi Sad, Serbia, No. Gzh. 1781/16 dated September 1, 2016
- Decision of the Supreme Court of the Republic of Croatia, No. Revt 249/14-2 dated April 9, 2015
- Judgment of the District Court in Banja Luka, No. 71 0 P 150675 14 Gzh dated February 9, 2016
- Judgment of the Higher Court in Podgorica, No. Gzh. 5754/12-11 dated October 1, 2013.
- Judgment of the Court of Justice of the European Union, Case C-26/13 dated April 30, 2014.
- Perović, S. (1980). Obligaciono pravo. Privredna štampa, Beograd.



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# ANALYSIS OF THE PERFORMANCE OF INVESTMENT FUNDS IN SERBIA DURING TIMES OF UNCERTAINTY

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DOI: 10.5937/EEE24043R  
JEL: E22, G11, P24  
Review Scientific Paper

### ABSTRACT

*The level of development achieved in the financial market is a fundamental indicator of the overall development of the national economy. Investment funds represent another alternative for small investors to place their funds and thereby attempt to preserve the value of their assets. However, the question remains whether this investment strategy is effective in an underdeveloped capital market. The aim of this paper is to analyze the performance of investment funds in Serbia during a period of significant global uncertainty and instability, characterized by high inflation rates and geopolitical tensions. The research focuses on the operations of investment funds in Serbia from the beginning of 2017 to the end of 2022. The findings indicate a negative trend in the performance of investment funds, highlighting the challenges in fully utilizing their potential in Serbia, a transitioning economy, unlike their role in more developed countries.*

### KEYWORDS

*investment funds, Sharpe ratio, inflation*

## INTRODUCTION

An investment fund is a collective investment organization that gathers and invests monetary resources into various types of assets with the goal of generating income and minimizing investment risk. A fund management company is a business enterprise that establishes, organizes, and manages investment funds. (Republic of Serbia Securities Commission, 2023). An investment fund is a financial institution that collects funds from smaller investors to whom it issues shares or issues certificates of the fund's financial assets (Šoškić, Živković, 2006).

Efficient investment of fund assets is entrusted to a professional manager or expert team representing the portfolio management company. Leveraging the knowledge of their managers and the scale of their resources, they have greater capabilities than individuals—from high-quality and professional market analysis to risk diversification through investment in various securities. Revenues from securities are distributed in proportion to their participation, reduced by the value of the portfolio manager's service fees. Investment funds are managed by an Investment Fund Management Company. This company is structured as a closed joint-stock company and can oversee multiple investment funds with different

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investment policies and returns. The Investment Fund Management Company manages the fund, implements the investment policy, makes investment decisions, maintains records of fund members and the value of their holdings, and performs specific administrative, accounting, and marketing tasks on behalf of the fund (Brcanski, 2011).

Investment funds in developed economies have solidified their position in the financial market, generating considerable interest among small savers. Their rapid expansion in the 21st century has firmly established them as essential institutions within a broad range of financial entities. The global growth of investment funds correlates closely with the rise of the middle class. These funds have enabled middle-class participation in securities markets through small investments and regular savings, opportunities previously accessible primarily to investors with significant capital.

In Serbia, investment funds entered the scene relatively late. Legalization and operationalization of investment funds occurred only recently, lagging behind other transition economies that implemented these measures much earlier. Investment funds were formally established in Serbia in 2007. Prompted by a significant surge in the stock market during that period, numerous equity funds were swiftly launched, achieving notable returns until the market crisis ensued, causing a significant decline (Đekić et al., 2017).

Leading up to the global economic crisis in 2008, investment funds had been performing well. However, during the crisis itself, there was a marked decrease in demand and securities prices, resulting in a devaluation of investment units and subsequent years of negative outcomes. Prior to the crisis, investment funds had concentrated on high-risk investments with substantial returns, but by 2008, they had shifted their investment strategies towards more conservative portfolios (Pavlović, Muminović, 2010).

The contemporary development of the investment funds sector plays a vital role in ensuring the effective functioning of financial markets and expanding options for investors to diversify their capital allocation. For example, as of Q4 2021, investment funds held 22.5 trillion euros in net assets in the United States, 15.2 trillion euros across Europe, including 2.7 trillion euros in Ireland, 2.2 trillion euros in Germany, and 1.8 trillion euros in France (Kravchuk, 2022).

As of December 31, 2022, the total net asset value of all open-end investment funds in Serbia amounted to 62.6 billion dinars or approximately 534 million euros, which is a decrease of about 19% compared to December 31, 2021 (Republic of Serbia Securities Commission, 2023).

The subject of this research is the performance of investment funds in Serbia from 2017 to 2022. The aim is to determine whether investing retail savings in investment funds in Serbia is a sound investment decision or carries excessive risk with insufficient returns. For the purposes of this study, the following hypotheses have been formulated:

- H1: Open-end investment funds in Serbia have achieved a positive return during the period of 2017-2022 and represent a good investment alternative.
- H2: Investing in investment funds in Serbia from 2017 to 2022 has preserved the real value of money and mitigated the negative effects of inflation.

The rest of the article is structured in the following manner: the second section provides a brief overview of the literature concerning investment funds and their characteristics. The third section defines the research sample and methodology. Moving forward, the fourth section presents the findings and discussion, while the fifth section concludes the paper and offers directions for further research.



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# LITERATURE REVIEW

In most developed market economies, investment funds have emerged as significant players in the securities market. While there are open-end, closed-end, and private investment funds, open-end funds are the most prevalent worldwide. Based on their investment objectives, risk tolerance, and desired returns, open-end investment funds can be divided into several categories: asset preservation funds, which invest in short-term debt securities and cash deposits; income funds, which allocate at least 75% of their assets to debt securities; balanced funds, which invest at least 85% of their assets in both equity and debt securities; and growth funds, which invest at least 75% of their assets in equity securities (Republic of Serbia Securities Commission).

The emergence of investment funds has enriched the structure of the financial sector, increased competition, deepened the capital market, and facilitated a transition to modern practices. Their rapid growth has driven explosive expansion, particularly in the securities market. Their establishment primarily aims to address the shortcomings associated with individual investing (Brcanski, 2011).

Since investment funds have provided an alternative for small investors, analyzing their performance is of crucial importance. Brueggeman et al. (1984) found that real estate investment funds exhibit positive investment performance, offer inflation-hedging properties, and provide diversification benefits compared to other types of investments. Conversely, Bollen and Busse (2005) determined that the exceptional performance of mutual funds is temporary and fades when assessed over extended timeframes.

Phalippou (2006) concludes that, after adjusting for sample bias and inflated accounting values, private equity funds significantly underperform relative to the S&P 500. Liang (2006) asserted that hedge funds boast higher Sharpe ratios and superior management skills relative to mutual funds, with their average returns being tied to factors such as incentives, assets, and lockup periods.

Kozak & Ochnio (2016) analyzed monthly data from 26 investment funds operating continuously in Poland from 2005 to 2014 and concluded that the financial crisis significantly reduced the efficiency of these funds from 2008 onwards. Returns achieved in the years following the crisis were substantially lower compared to the pre-crisis period. The negative impact of the crisis on fund performance was further confirmed by the decline in the Sharpe index values. The level of risk indicates that funds took on additional risk to increase returns in favorable economic conditions, but this strategy also weakened their performance during recession periods.

In their study on U.S. small-size value mutual funds, Korenak & Stakić (2022) discovered that factors such as the market premium and a portfolio emphasis on stocks from companies with robust operating profits, small market capitalization, and an aggressive investment approach were key drivers of positive investment performance.

Kaufmann (2023) analyzed the impact of US monetary policy and the influence of loose monetary policy on fund inflows. He concluded and empirically proved that easing US monetary policy leads to spillover effects of liquidity into the Euro Area (EA) during the period from 2007 to 2019. The results have shown that loosening US monetary policy leads to inflows into the investment fund sector globally.

Korenak et al. (2023) analyzed the performance of ETFs in the U.S. market and found that the bear market starting in early 2022 had a uniformly negative effect on the observed ETFs, largely because of their long-only exposures. This period also indicated a shift in the relative performance between value and growth styles, with conservative investment approaches outperforming, highlighting the need to adapt to evolving market dynamics.





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In capital market practice, investment funds offer several advantages: professional management by experienced experts who handle portfolios more effectively than individual investors could; diversification within the fund's portfolio, reducing risk by investing in securities from various issuers; and flexibility in (re)investment, often without minimum initial investment requirements, allowing investors to buy additional shares later even with smaller amounts of capital (Šoškić, 2006).

Apart from their advantages, it's important to consider the drawbacks of open-end investment funds to get a comprehensive picture. These include limitations on the types of assets they can hold, trading costs, tax implications for investors, regulatory challenges, and fund expenses (Haslem, 2009).

## DATA AND METHODOLOGY

For the research on the performance of open-end investment funds in Serbia, data on the achieved results of investment funds from 2017 to 2022 were used. The data were sourced from reports by the Republic of Serbia Securities Commission (2018, 2019, 2020, 2021, 2022, 2023). The Sharpe ratio was utilized for the econometric analysis of the data. Many authors also used Sharpe ratio for analyzing the performance of investment funds (Bogołębska, 2018, Filip, Karaś, 2018, Homa, Mościbrodzka, 2020).

The Sharpe ratio is a fundamental and extensively used measure for evaluating portfolio performance, which adjusts returns to account for risk. The Sharpe ratio is among several metrics designed to quantify the balance between return and risk (Switkay, 2022). The Sharpe ratio is widely appreciated because it integrates two key statistics that are highly relevant to investors: the mean (average return) and the variance (square of the standard deviation), combining them into a single metric (O'Connor, 2022). It measures the difference between a portfolio's average return and the risk-free rate, relative to the portfolio's volatility. This metric quantifies the excess return per unit of total risk taken. Essentially, the Sharpe Ratio assesses the net performance of a portfolio considering the level of risk assumed. A portfolio deemed "risk-free" would have a Sharpe Ratio of zero. Typically, a higher Sharpe Ratio indicates a more favorable risk-adjusted return (Brinza et al., 2023).

The ex post Sharpe ratio is calculated using the formula introduced by Sharpe (1994):

$$S_h = \frac{\overline{(r_i - r_f)}}{\sigma(r_i - r_f)} \quad (1)$$

In equation (1):  $S_h$  - represents the Sharpe ratio;  $r_i$  - represents the return rate of an open-end investment fund;  $r_f$  - represents the risk-free rate;  $\overline{(r_i - r_f)}$  - represents the average excess return above the risk-free rate and  $\sigma(r_i - r_f)$  - represents the standard deviation of the excess return above the risk-free rate.

There is not a universally optimal value for the Sharpe ratio, unlike some other financial ratios commonly used in financial analysis. Ideally, the ratio's denominator should be low, indicating low risk for the investment fund, while the numerator should be high. A negative numerator indicates that the fund has yielded a lower average return than the risk-free asset, suggesting the investment was suboptimal. In such cases, investing in risk-free securities could have potentially yielded a better return. A negative overall ratio indicates that the fund's risk-reward performance has been worse compared to the risk-free rate. One drawback of the Sharpe ratio is its inability to distinguish whether a high value is a result of prudent investment decisions or mere luck.

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## DISCUSSION OF RESULTS

The performance analysis of investment funds was conducted using the Sharpe ratio based on data for all open-end investment funds that operated continuously from 2017 until the end of 2022. The analysis was performed for 3 growth funds (Ilirika Dynamic, WVP Dynamic, WVP Premium), 6 capital preservation funds (Ilirika Cash Dinar, KomBank devizni fond, KomBank novčani fond, Raiffeisen Cash, Raiffeisen Euro Cash, WVP Cash), and 4 balanced funds (Ilirika Balanced, KomBank IN Fund, Raiffeisen World, WVP Balanced). The risk-free rate used was the 10-year US Treasury bond note rate. The obtained results are presented in Table 1.

Table 1. Performance of Investment Funds - Sharpe ratio

	Realized yield of the fund (r)						Risk free rate (rf)						(r-rf)						avg.(r-rf)	stdev(r-rf)	Sh
	2017	2018	2019	2020	2021	2022	2017	2018	2019	2020	2021	2022	2017	2018	2019	2020	2021	2022			
<b>Growth Funds</b>																					
Ilirika Dynamic	-0.0050	-0.0940	0.2140	-0.0610	0.1760	-0.1442	0.0233	0.0291	0.0214	0.0089	0.0145	0.0295	-0.0283	-0.1231	0.1926	-0.0699	0.1615	-0.1737	-0.0068	0.1378	-0.0495
WVP Dynamic	-0.0230	-0.1490	0.2520	0.0160	0.1530	-0.2679	0.0233	0.0291	0.0214	0.0089	0.0145	0.0295	-0.0463	-0.1781	0.2306	0.0071	0.1385	-0.2974	-0.0243	0.1785	-0.1359
WVP Premium	-0.0070	-0.0930	0.2310	-0.0490	0.2090	-0.0578	0.0233	0.0291	0.0214	0.0089	0.0145	0.0295	-0.0303	-0.1221	0.2096	-0.0579	0.1945	-0.0873	0.0178	0.1333	0.1331
<b>Capital Preservation Funds</b>																					
Ilirika Cash Dinar	0.0170	0.0280	0.0190	0.0070	0.0010	0.0079	0.0233	0.0291	0.0214	0.0089	0.0145	0.0295	-0.0063	-0.0011	-0.0024	-0.0019	-0.0135	-0.0216	-0.0078	0.0075	-1.0454
KomBank devizni fond	-0.0050	0.0050	0.0080	0.0390	0.0150	0.0060	0.0233	0.0291	0.0214	0.0089	0.0145	0.0295	-0.0283	-0.0261	-0.0134	0.0301	0.0005	-0.0235	-0.0101	0.0204	-0.4850
KomBank novčani fond	0.0100	0.0340	0.0250	0.0150	0.0130	0.0267	0.0233	0.0291	0.0214	0.0089	0.0145	0.0295	-0.0133	0.0049	0.0036	0.0061	-0.0015	-0.0028	-0.0005	0.0066	-0.0760
Raiffeisen Cash	0.0090	0.0280	0.0300	0.0130	0.0080	0.0150	0.0233	0.0291	0.0214	0.0089	0.0145	0.0295	-0.0143	-0.0011	0.0086	0.0041	-0.0065	-0.0145	-0.0040	0.0087	-0.4534
Raiffeisen Euro Cash	-0.0060	0.0040	0.0010	0.0060	0.0030	0.0075	0.0233	0.0291	0.0214	0.0089	0.0145	0.0295	-0.0293	-0.0251	-0.0204	-0.0029	-0.0115	-0.0220	-0.0185	0.0088	-2.0976
WVP Cash	0.0010	0.0210	0.0220	0.0130	0.0120	0.0188	0.0233	0.0291	0.0214	0.0089	0.0145	0.0295	-0.0223	-0.0081	0.0006	0.0041	-0.0025	-0.0107	-0.0065	0.0086	-0.7493
<b>Balanced Funds</b>																					
Ilirika Balanced	0.0030	-0.0790	0.1130	-0.0020	0.1320	-0.1136	0.0233	0.0291	0.0214	0.0089	0.0145	0.0295	-0.0203	-0.1081	0.0916	-0.0109	0.1175	-0.1431	-0.0122	0.0949	-0.1288
KomBank IN Fund	-0.0040	0.0040	0.0630	-0.0420	0.0500	0.0138	0.0233	0.0291	0.0214	0.0089	0.0145	0.0295	-0.0273	-0.0251	0.0416	-0.0509	0.0355	-0.0157	-0.0070	0.0339	-0.2058
Raiffeisen World	-0.0050	-0.0710	0.1210	-0.0130	0.0960	0.1207	0.0233	0.0291	0.0214	0.0089	0.0145	0.0295	-0.0283	-0.1001	0.0996	-0.0219	0.0815	0.0912	0.0203	0.0749	0.2713
WVP Balanced	-0.0290	-0.0610	0.1280	0.0140	0.1110	-0.1182	0.0233	0.0291	0.0214	0.0089	0.0145	0.0295	-0.0523	-0.0901	0.1066	0.0051	0.0965	-0.1477	-0.0137	0.0933	-0.1463

Source: Authors

As previously mentioned, negative Sharpe ratios indicate that the fund's achieved results are below optimal, meaning the returns are lower than those that would be achieved by investing in a risk-free asset (although there is no truly risk-free asset, it is generally accepted that investing in 10-year T-bonds is relatively safe). As we can see from Table 1, only two funds (WVP Premium and Raiffeisen World) have positive Sharpe ratios, indicating that only by investing in these two funds could one achieve returns above the risk-free rate.

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Furthermore, to fulfill the analysis, we compared the nominal returns of the funds with the inflation rate during the observed period to see if investing in investment funds at least preserved real value. The cumulative inflation is presented in Figure 1.

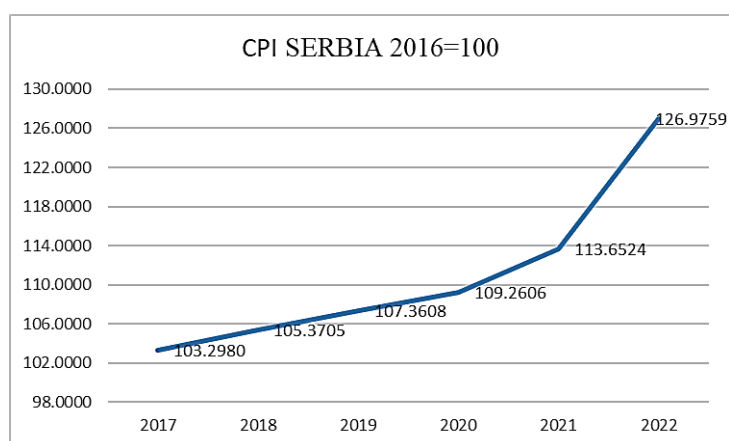


Figure 1. Inflation in Serbia 2017-2022

Source: Authors

From Figure 1, it is evident that the cumulative inflation rate during the observed period in Serbia is a high 26.98%.

In Table 2, the cumulative nominal returns of the investment funds are shown, indicating how much 100 invested units at the beginning of 2017 would be worth at the end of 2022.

Table 2. Cumulative nominal yield of investments funds

Investment fund / Time	2017	2018	2019	2020	2021	2022
Iirika Dynamic	99.50	90.15	109.44	102.76	120.85	103.42
WVP Dynamic	97.70	83.14	104.09	105.76	121.94	89.27
WVP Premium	99.30	90.07	110.87	105.44	127.47	120.11
Iirika Cash Dinar	101.70	104.55	106.53	107.28	107.39	108.24
KomBank devizni fond	99.50	99.80	100.60	104.52	106.09	106.72
Kombank novčani fond	101.00	104.43	107.04	108.65	110.06	113.00
Raiffeisen Cash	100.90	103.73	106.84	108.23	109.09	110.73
Raiffeisen Euro Cash	99.40	99.80	99.90	100.50	100.80	101.55
WVP Cash	100.10	102.20	104.45	105.81	107.08	109.09
Iirika Balanced	100.30	92.38	102.81	102.61	116.15	102.96
KomBank IN Fond	99.60	100.00	106.30	101.83	106.93	108.40
Raiffeisen World	99.50	92.44	103.62	102.27	112.09	125.62
WVP Balanced	97.10	91.18	102.85	104.29	115.86	102.17

Source: Authors

Since the cumulative inflation during the observed period was 26.98%, none of the investment funds managed to preserve the real value of the invested funds. The closest were Raiffeisen World with a nominal return of 25.62% and WVP Premium with 20.11%, while WVP Dynamic achieved a negative nominal return of -10.73%, indicating that holding cash would have been more profitable.



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# CONCLUSIONS

Serbia faces considerable challenges compared to developed countries in the realm of investment funds. This is largely due to factors such as underdeveloped capital markets, heavy reliance on banks and credit for financing, a lack of widespread investment culture marked by low public awareness and limited knowledge. These issues have hindered the effectiveness of investment funds in transitional economies.

The hypotheses set in the research were not confirmed. Despite achieving positive nominal returns, none of the open-end investment funds realized a positive real return. Therefore, investing in Serbian investment funds did not represent a good investment strategy during the observed period. The majority of surplus funds (savings) in Serbia end up in the real estate market, leaving little room for portfolio managers to diversify. This, coupled with fund management costs, significantly hinders the ability to achieve positive results and renders this type of investment unattractive. It creates a vicious cycle: inadequate inflow of money into investment funds significantly reduces the chances of positive results, while poor outcomes deter investors and push them towards more profitable markets.

Further research could focus on identifying the causes of inefficiencies in investment funds and developing strategies to attract more capital into these funds, thereby increasing the potential for generating returns.

# REFERENCES

- Bogołębska, J. (2018). Rates of return and management fees – Comparative analysis of investment funds. *Zesz. Nauk. Uniw. Szczecińskiego Finans. Rynk. Finans. Ubezpieczenia*, 92, 235-242.
- Bollen, N., Busse, J. (2005). Short-Term Persistence in Mutual Fund Performance. *Review of Financial Studies*, 18, 569-597.
- Brcanski, B. (2011). Investment funds in the development of capital market. *Poslovna ekonomija*, 5(1), 23-39.
- Brinza, A., Ioan, V., Lazarescu, I. (2023). Critical Analysis of the Sharpe Ratio: Assessing Performance and Risk in Financial Portfolio Management. *Ovidius University Annals, Economic Sciences Series*, 23(2), 633-639.
- Brueggeman, W., Chen, A., Thibodeau, T. (1984). Real Estate Investment Funds: Performance and Portfolio Considerations. *Real Estate Economics*, 12, 333-354.
- Đekić, M., Gavrilović, M., Roganović, M., Gojković, R. (2017). The Role of Investment Funds in Countries with Transition Economies. *Economic Analysis*, 50(1-2), 1-12.
- Filip, D., Karaś, D. (2018). Koszty obsługi a wyniki funduszy inwestycyjnych w Polsce – relacja długoterminowa. *Metody Ilościowe w Badaniach Ekonomicznych*, 19(2), 128-139.
- Haslem, J. (2009). *Mutual funds: risk and performance analysis for decision making*. John Wiley & Sons, New Jersey.
- Homa, M., Mościbrodzka, M. (2020). Ocena efektywności inwestycji w fundusze inwestycyjne w kontekście zaburzenia symetrii rozkładu. *Stud. Pr. Prawnicze Adm. Ekon*, 32, 131-149.



## Conference Proceedings

- Kaufmann, C. (2023). Investment funds, monetary policy, and the global financial cycle. *Journal of the European Economic Association*, 21(2), 593-636.
- Korenak, B., Stakić, N. (2022). Investment performance attribution of the US small-size value mutual funds using Fama-French five-factor model. *International Review*, (1-2), 17-23.
- Korenak, B., Stakić, N., Vesić, T. (2023). Understanding the dynamics of investment factors and exchange-traded funds performance in the US market 2018-2022. *International Review*, (3-4), 125-135.
- Kozak, S., Ochnio, E. (2016). Did the financial crisis impact the level of investment efficiency of equity investment funds in Poland?. *Electronic Journal of Polish Agricultural Universities*, 19(2) #03.
- Kravchuk, I. (2022). Performance of Equity Fund Investment Strategies in Poland. *Sustainability*, 14(20), 13078.
- Liang, B. (2006). On the Performance of Hedge Funds. *Financial Analysts Journal*, 55, 72-85.
- O'Connor, M. C. (2022). Revisiting Hypothesis Testing with the Sharpe Ratio. Available at SSRN 4052914.
- Pavlović, V., Muminović, S. (2010). Significance development of financial markets for Serbian economy. *Industrija*, 38(4), 41-67.
- Phalippou, L. (2006). The Performance of Private Equity Funds. <https://doi.org/10.1093/rfs/hhn014>.
- Republic of Serbia Securities Commission (2018), Annual Report on Operations and Developments in the Capital Market for 2017, Retrieved May 25, 2024 from <https://www.sec.gov.rs/index.php/en/about-us/internal-documents/commission-reports>
- Republic of Serbia Securities Commission (2019), Annual Report on Operations and Developments in the Capital Market for 2018, Retrieved May 25, 2024 from <https://www.sec.gov.rs/index.php/en/about-us/internal-documents/commission-reports>
- Republic of Serbia Securities Commission (2020), Annual Report on Operations and Developments in the Capital Market for 2019, Retrieved May 25, 2024 from <https://www.sec.gov.rs/index.php/en/about-us/internal-documents/commission-reports>
- Republic of Serbia Securities Commission (2021), Annual Report on Operations and Developments in the Capital Market for 2020, Retrieved May 25, 2024 from <https://www.sec.gov.rs/index.php/en/about-us/internal-documents/commission-reports>
- Republic of Serbia Securities Commission (2022), Annual Report on Operations and Developments in the Capital Market for 2021, Retrieved May 25, 2024 from <https://www.sec.gov.rs/index.php/en/about-us/internal-documents/commission-reports>
- Republic of Serbia Securities Commission (2023), Annual Report on Operations and Developments in the Capital Market for 2022, Retrieved May 25, 2024 from <https://www.sec.gov.rs/index.php/en/about-us/internal-documents/commission-reports>
- Sharpe, W. F. (1994). The Sharpe ratio. *Journal of portfolio management*, 21(1), 49-58.
- Switkay, H. M. (2022). Generalizing the Sharpe Ratio and Infinite Divisibility in Financial Markets. *Journal of Applied Business and Economics*, 24(2), 157-168.
- Šoškić, D. B. (2006). Hartije od vrednosti: upravljanje portfoliom i investicioni fondovi. Centar za izdavačku delatnost Ekonomskog fakulteta.
- Šoškić, D. B., Živković, B. R. (2006). Finansijska tržišta i institucije. Centar za izdavačku delatnost Ekonomskog fakulteta.



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# SPECIFICS OF ARTIFICIAL INTELLIGENCE APPLICATION IN THE BANKING INDUSTRY

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DOI: 10.5937/EEE24044B  
JEL: G18, G21, G23  
Review Scientific Paper

## ABSTRACT

*Increased use of artificial intelligence (AI) in banks has huge profit potential through the improvement, audit, and alignment of business processes, increased efficiency, and enhancement of customer experiences. It enables the automation of business processes, data entry, data processing, and verification, thus enhancing the operational efficiency of the bank and redirecting employees to more important tasks such as critical thinking and decision-making. The application of AI represents a key aspect of the development of the banking sector through the transformation of the value chain from the front - office to the back - office. In the front office, it serves as a valuable tool in acquiring and retaining clients as well as in risk management. Through chatbots and virtual assistants, banks achieve significant improvements in interactions with service users through personalized support, addressing their queries, and reducing the operational effort of employees. AI enhances cross-selling and upselling based on the behavior and preferences of individual bank service users. It also enables an increase in user trust, better risk assessment, and the detection of fraud based on extensive datasets.*

## KEYWORDS

*artificial intelligence, banking, risks, efficiency, chatbots, security*

## INTRODUCTION

In an era of geopolitical instability, an evolving regulatory environment, and a volatile economic landscape, the banking industry today faces a multitude of challenges such as macro and microeconomic challenges, digital transformation, intense regulation, and employee expectations (KPMG, 2024; Capgemini Research Institute for Financial Services Analysis, 2024). Banks are financial institutions that manage the money and investments of their clients. They strive to maintain trust with their clients and achieve high levels of security and efficiency in their operations. They offer a wide range of services such as managing various types of accounts, payments, loans, and more. Artificial Intelligence (AI) is a modern digital technology that enables computers and machines to make decisions. Generative artificial intelligence development and implementation represent a revolutionary technological advancement. Today, AI plays a significant role in various aspects of our daily lives, particularly impacting the functioning of financial and banking systems where it has made significant progress.

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Banks globally are utilizing artificial intelligence to make banking operations faster, simpler, and more secure. According to the McKinsey Global Institute report, generative artificial intelligence could increase total revenues in this sector worldwide to over \$300 billion annually, representing more than 4 percent of total revenues, through enhanced productivity (McKinsey Worldwide Institute, 2024). The banking industry is expected to increase its investments in generative artificial intelligence to reach \$84.99 billion by the year 2030, with an annual growth rate of 55.55 percent (Statista Research Department, 2024). This significant growth highlights the increasing importance of artificial intelligence in redefining the banking sector, aiming to leverage AI-based technologies to improve customer experiences, streamline operations, and drive innovation. In the year 2023, the banking sector was one of the largest investors in artificial intelligence, with over 20 billion dollars, in line with global investment trends in artificial intelligence by the corporate sector, which surpassed 95 billion dollars in 2022. This substantial increase underscores the growing importance of developing artificial intelligence on a global scale and provides a strong foundation for further advancement and implementation of AI-based technologies.

The advancement of digitalization and data analytics enables significant benefits from the application of artificial intelligence in industry, in business processes, and in company business models. It enhances companies' ability to make decisions, create sophisticated innovations and trading strategies in the financial market, and implement measures for cybersecurity protection (Paramesha et al., 2024). According to (Königstorfe, Thalmann, 2020), the implementation of artificial intelligence enables banks to reduce losses, improve risk detection, increase security in the payment system, operational efficiency such as speeding up processes and optimizing client documentation compliance, advanced data analysis, decision-making assistance, automation of repetitive tasks, and acquiring new service users through improved customer relationship experiences. However, it also carries increased exposure to operational risks in data management, model management, and responsibility risks.

## BASICS OF APPLYING ARTIFICIAL INTELLIGENCE IN BANKING SYSTEMS

The specificity of artificial intelligence lies in its ability to mimic human functions (speech, learning, understanding, perception, problem-solving, autonomy, creativity, mechanical control). It can create music, trade in the financial market, manage airplanes or solve puzzles. Each of these tasks requires solving a specific technical challenge. Essentially, artificial intelligence solves certain technical challenges and enables repetitiveness instead of specific abilities.

As a result, the definition of AI is expansive, encompassing a multitude of solutions primarily used to model goals, states, or elements instead of the nature of modeling itself, which is fundamental to understanding AI (Lui, Lamb, 1970).

*Machine learning* is based on mathematical models that can process large amounts of complex data. It represents a crucial part of AI, as its application enables machines to independently process new data based on experience. By processing large amounts of data, algorithms find behavioral patterns and can improve their predictions over time. Machine learning is a powerful tool for recognizing patterns and making future predictions. In the banking industry, it can streamline processes, improve efficiency, and enhance security. There are various types of machine learning techniques, with supervised learning being the most widely used in banking. (Mhlanga, 2021). In supervised learning, the algorithm is trained with a dataset that includes both the input variables and the corresponding outputs. These datasets allow



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the system to learn how to predict the output from the input variables. There are a large number of techniques that allow the development of supervised learning systems at different levels of complexity. Popular sample techniques are Bayesian classifiers, artificial neural networks, and k-nearest neighbors.

*Natural language processing (NLP)* is one of the most important branches of artificial intelligence. It enables systems to understand, interpret, and respond to the language spoken by humans (Shaik et al., 2023). Natural language processing is a valuable tool in banking because it allows for the analysis of queries, complaints, and customer feedback. This way, banks can gain insights into their customers' feelings and preferences, respond more quickly to their requests, and enhance their satisfaction. NLP plays an important role in ensuring the security of the bank and clients, as it can analyze client data and thereby uncover patterns of their behavior that may indicate potential fraud opportunities. Chatbots represent important segments of AI; they are NLP tools available to clients 24 hours a day. They are crucial support for clients and banks because they can provide answers to user questions and direct them to the sector of the bank that can resolve their issues.

Another important role of NLP is the automation of business processes, such as extracting vital information from client documentation that is crucial for approving loans and addressing other banking business problems. Through NLP, banks receive concise information regarding, for example, a client's creditworthiness, based on which they make decisions on loan approvals or rejections. NLP in this segment enables rapid data processing, analysis of extensive documentation, and reduces the chances of human error. Based on the summarized reports obtained, banks can make quicker and more efficient decisions that result in improved customer satisfaction and the bank's competitiveness in the banking services market. Robotic Process Automation is also a very significant part of AI that refers to software used for task automation. It is used for automating repetitive activities or business processes according to business rules and logic. It is an emerging technology with the ability to mimic human behavior and automate human tasks such as reading emails, opening web pages, working with software, acquiring information and instructions from humans, and automating repetitive activities. With the implementation of robotic process automation in banking systems, these mundane and repetitive tasks can be outsourced to robotic process automation solutions, which will enhance operational efficiency. Robotic process automation would ensure that the human workforce can focus on value-adding activities instead of attending to these mundane tasks.

## **BENEFITS OF ARTIFICIAL INTELLIGENCE IN BANKING**

By incorporating AI, banks can reduce expenses and improve processes, ultimately leading to increased profit. AI has the power to significantly boost efficiency in several key areas, including back-end processing, regulatory compliance, fraud detection, and customer service (Bank for International Settlements, 2024). Banks are also permitted to use AI systems to take control of operations such as processing loans, asset management, and managing stocks and deposits. These systems are potentially hundreds of times faster than products of human labor, meaning better market outcomes for the banking operation. AI enables lenders to accurately assess individuals' creditworthiness, especially among underserved groups. This, in turn, promotes financial inclusion by better identifying creditworthy borrowers who may not have strong traditional credit scores. AI's ability to sift through vast amounts of data to identify important patterns is especially useful, making it a valuable tool for improving know-your-customer processes and detecting fraud in the financial industry. Additionally, AI can enhance the user experience for banking customers, offering personalized services and reinforcing financial literacy.





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### Improving Operational Efficiency

Banks are characterized by activities such as accepting deposits, giving loans, and even more complex activities like foreign exchange. This, blended with the volume of the transactions, means that retail banks are among the top sectors embracing artificial intelligence. By employing machines to understand and interpret complex messages from customers, AI improves operational efficiency, thereby optimizing the time spent by the human workforce. In today's digitally driven environment, financial institutions need to focus on adopting the latest technology and tools to be used by customers. Digitally savvy customers expect faster, secure, and easier services.

According to a study by Capgemini Research Institute (Figure 1), a survey among employees showed that employees in the banking sector spend around 70% of their time at work on operational activities, while the remaining 30% is dedicated to clients. Due to operational tasks, the banking sector faces decreased productivity and efficiency of employees in client relationships. Over 60% of banking employees are frustrated with lengthy documentation processes in compliance with regulatory requirements related to basic client checks and documentation. Client risk assessment is also time-consuming due to a high number of inaccurate data and fragmented client databases, which slows down responses to clients, account openings, credit approvals, etc., leading to client dissatisfaction (Capgemini Research Institute for Financial Services Analysis, 2024).

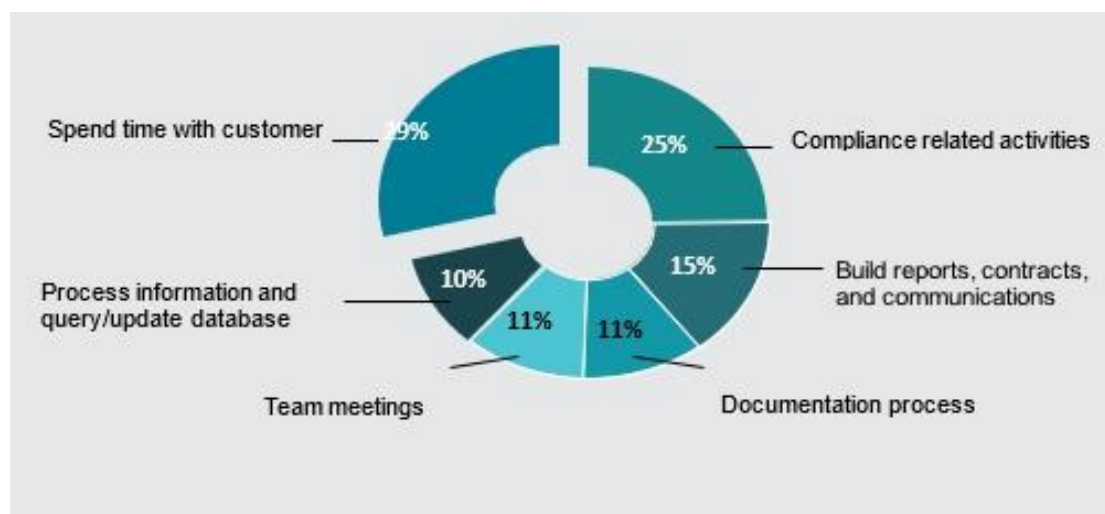


Figure 1. Customer experience suffers as bank employees struggle with mundane tasks

Sources: Capgemini Research Institute for Financial Services Analysis, 2024, World Retail Banking Report 2024 bank employee survey

The use of AI in the form of chatbots for real-time customer engagement supports customer requests and provides support while improving customer convenience and enhancing employee productivity. The zero wait time feature for customers is the primary conventional support for these chatbots. On the client side, AI in chatbots can be used to improve the banking user experience. Big data processing of clients' transactions can personalize service offers. AI can also reinforce financial literacy by informatively generating articles and answering questions regarding personal economics. This technology is crucial for the future of the banking industry, making it a vital area of research and development. With fast computing and networking, financial institutions can use AI (fintech) to analyze transactions on the go, instantly finding patterns of fraudulent transactions and data breaches.



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### Enhancing Customer Experience

Today, banking is not just about exchanging money but much more about enhancing the customer experience by providing high-quality and understandable information and services to clients. The idea is to achieve ease of use for clients. The new digital banking system should aim to place the customer experience as the main driver of business through the development of new applications as a key tool aimed at gaining the trust of new digital clients. The focus should be on building customer loyalty through various benefits without imposing conditions. (Barroso, Laborda, 2021). Clients want a bank that knows them and offers something more personal than personal meetings. Banks need to understand clients' goals and provide appropriate services to help them achieve them. Artificial intelligence is extremely useful in providing a more personalized service to banking clients. It is an assistant that can persuade the client and put necessary documents in one place, provide missing information, and advise on maintaining customer accounts and protecting their data.

Data compiled by financial companies contains keys that can enhance the financial well-being and security of bank clients. To do this, collecting all the necessary data and critical rules that will help protect financial institutions from customer behavior and identification detection is necessary. Using AI in customer identification has an added advantage that it is constantly changing. Mobile and online platforms are beneficial for AI algorithms that learn by example. Incorrectly used data promotes illegal conduct. However, it is not just bad actors with access to financial services data that can undermine the security of a financial institution. All people who provide bank services must be aware of banking information, as this information is the most valuable data that bank clients must provide to be helped and trusted. The AI process will take a lot of time in the future to provide advice and all levels of feedback on the protection and care of client finances.

To enhance their services and deliver satisfactory customer experiences, banks analyze customer data such as transaction history, merchant names, and level purchase data, as well as demographic information. AI algorithms such as NLP processing are a form of artificial intelligence that allows computers to understand human language, whether it be written or spoken) technology already enables chatbots to handle routine tasks. The first generation of chatbots was rule-driven and worked within a limited scope. However, advances in NLP, applied deep learning technology, have allowed banks to expand the capability of these chatbots to hold full conversations. This has increased the economies of volume and allowed banks to expand their customer support services. NLP has also enhanced area-based tools, which assist clients with tasks such as foreign exchange trading. Data analytics has allowed banks to use marketing insights to transform a segment into an audience one.

In conjunction with NLP and data analytics, advanced signal processing and machine learning techniques can improve the overall banking customer service experience. Particularly useful are deep learning technologies including ordinal regression and anomaly detection. Anomaly detection tools and algorithms can help detect and reduce POS terminal failures and fraud rates. Backend solutions can use multimodal emotion recognition to analyze body language, voice intonations, and conversational context to deliver rapid insights on client sentiment and suggest routes to effective issue resolution. NLP can be applied to marketing and sales in the form of autonomous customer profiling to predict how clients will behave. Automated conversation recommendation technology agents provide more effective sales and customer-facing teams, suggesting additional products and services to add value to the customer. The advances in facial recognition technology could also help to spot when clients are displeased or uncomfortable during conversations. Acing sales representatives can be alerted to potential issues, with bank managers briefed on aggregate customer service performance to enhance the broader feedback and coaching.



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In recent years, retail banking institutions have been striving to give clients a better experience by offering more personalized services and developing stronger relationships. These institutions can better understand their clients by collecting data about clients' transactions and creating clients' profiles. Clients' profiles include their behavior, transactions, age, income, location, preferences, and needs, among others. Personalized recommendations can be used for promoting the banking institution's products, for increasing customers' loyalty, and for cross-selling and upselling products, which will increase banks' profits. Deep learning and artificial intelligence can be used as a means of aiding organizations in dealing with big amounts of data and delivering personalized recommendations.

Deep learning methods have proved to be effective in solving numerous problems such as speech, image recognition, and natural language processing. These methods are not an exception in personalized recommendations because they can manage huge datasets, find complex patterns, and learn the interaction between features. However, these methods are very demanding in terms of resources and need to be trained in big data infrastructures. Moreover, the models generate recommendations that can be difficult to explain.

Chatbots initiate user engagement through their near-humanlike conversations and are commonly used in retail banking. Some banks use chatbots for purposes like providing information and answering simple banking-related questions online. The technology could also be extended to act as the first customer contact point to respond to customer requests and implement a follow-up route. Currently, customers can contact the chatbot through their preferred digital channels like mobile apps, Facebook Messenger, web browsers, or Twitter. These chatbot conversations save time and add a sense of security with a banker, present context, solve problems, and gently guide customers. AI powers some advanced chatbots and also provides trade and currency exchange opportunities and can provide account balance and transaction details.

Virtual assistants and chatbots can answer user questions, find content, reply to messages, and perform tasks. They have become so advanced thanks to advancements in speech recognition and natural language processing technology. On the other side, chat kind of clogs data and communications adjusts bank brands, and makes banks more interactive and closer to customers through a more social channel. Banks should include chatbots and virtual assistants in their online portfolio of personal assistants like Siri, Echo, and Google. By adopting AI-driven chatbots or autonomic systems, chat apps will improve conversations with customers and reduce effort in ordering and personal service. AI chatbots are also used to continuously train algorithms in a self-learning process. AI virtual advisors provide wide-ranging opportunities for customer engagement in different retail banking environments.

## Risks Associated with AI

Artificial intelligence enables numerous benefits to the banking industry, especially in assessing credit risk. By utilizing advanced machine learning algorithms and powerful big data, financial institutions can significantly improve assessments of clients' creditworthiness. This, in turn, allows low-income earners, small businesses, smallholder farmers, women, and other marginalized groups to gain access to much-needed credit. As a result, we witness a tremendous surge in financial inclusion, leading to substantial increases in incomes for these underserved populations. Moreover, the implementation of AI technologies has the potential to address widespread issues like information asymmetry in credit markets, effectively mitigating problems such as adverse selection and moral hazard that currently plague the industry. Incorporating AI in credit analysis revolutionizes how large and complex datasets are shared and analyzed, significantly reducing our dependence on human agents. By minimizing human involvement, we eradicate potential biases and inefficiencies that often lead to adversarial outcomes.



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Consequently, the use of AI minimizes the risks associated with moral hazard and ensures a fair and objective evaluation of creditworthiness. The transformative power of AI also extends to the broader picture of global economic development and poverty reduction, particularly within emerging markets. By empowering marginalized groups with access to credit, AI stimulates entrepreneurship, innovation, and economic growth. Artificial intelligence today enables banks to reevaluate credit requests that were previously postponed or denied, significantly improving the financial position of marginalized groups and reducing poverty in developing countries. Additionally, it can help address issues such as moral hazard, information asymmetry, and adverse selection. The use of artificial intelligence can revolutionize the banking industry by promoting fair development and inclusion within the ecosystem (Mhlanga, 2021).

There is a trend in the banking industry towards reducing correspondent international banking due to low returns and high-risk transactions worldwide associated with money laundering and terrorism financing. Artificial intelligence plays a key role in client identification processes and combating money laundering by enhancing the understanding of compliance and reputational risks, analyzing payment methods, and identifying anomalies. Many financial institutions are already harnessing the power of artificial intelligence to address a range of obstacles, from improving fraud detection to identifying security vulnerabilities. Surveys show that a large number of financial firms around the world are harnessing the potential of AI to enhance cash flow predictions, improve liquidity management, fine-tune credit scores, and strengthen fraud detection. While banks have been using machine learning for credit assessment and lending, AI offers the potential to significantly enhance credit scoring by incorporating unstructured data (Bank for International Settlements, 2024).

The rise of AI presents both significant opportunities and risks for the financial sector, as it deals with many cognitively demanding tasks and relies heavily on data. Table 1 demonstrates how AI is impacting key areas such as payments, lending, insurance, and asset management. This illustrates the importance of understanding and harnessing the power of AI in the whole financial industry (Bank for International Settlements, 2024).

Table 1. Opportunities, challenges and financial stability risks of AI in the financial sector

	<b>Payments</b>	<b>Lending</b>	<b>Insurance</b>	<b>Asset management</b>
General opportunities	Back-end processing, virtual assistants, co-pilots, fraud detection, regulatory compliance			
Sector-specific opportunities	Liquidity management, AML/KYC	Credit risk analysis, financial inclusion	Risk assessment, pricing, claims processing	Portfolio allocation, algorithmic trading, robo-advising, asset embeddings
General challenges	Lack of explainability, data silos, third-party dependencies, algorithmic collusion, hallucinations, cyber security risks			
Sector-specific challenges	Liquidity crises, sophisticated fraud and cyber attacks	Algorithmic discrimination, privacy concerns	Zero-sum arms race for private gains, herding, algorithmic coordination	
Financial stability challenges	Herding, network interconnectedness and procyclicality, single point of failure, incorrect decisions based on short samples of non-representative data, spillovers from real sector			

*Source: Adapted from Aldaroso, Gambacorta, Korinek, Shreeti and Stein, 2024.*

Artificial intelligence plays a paramount role in increasing the efficiency and safety of banking systems. As banking systems are digitalizing and the internet's purchase capacity is growing more popular, the new digital currency and transaction systems are gaining momentum. Many banking institutions are online now. Nevertheless, many banking systems are suffering from a security attack that may be caused



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by denial of service, impersonation, phishing, malware, or fraud. Terrorist who are instigated by their friends or relatives uses their knowledge and financial support from outside of the country to use the bank accounts of innocent persons by receiving funds, phone calls, and information. Artificial intelligence represents one of the most reliable and specialized technologies that banks use to increase efficiency and reduce fraud (Congressional Research Services, 2024).

AI's strength and efficiency, compared to humans, can increase systemic financial risk, potentially leading to serious financial crises and economic recessions. The application and capabilities of artificial intelligence can destabilize financial systems, and jeopardize the mechanisms of their functioning considering their complexity, benefits, and economic growth (Danielsson, Uthemann, 2023). Therefore, it is very important to carefully consider and identify the risks and challenges that its application brings to ensure financial stability and reduce exposure to systemic risks. The intensive use of artificial intelligence can lead to errors, complications such as generating false or illogical information, and limitations in transparency in operations (McKinsey Worldwide Institute, 2024). The overall impact will depend on how challenges related to data, model development, and implementation are effectively addressed by financial institutions and the financial system as a whole (Leitner et al., 2024).

Increased AI implementation raises serious concerns regarding cyber attacks, which pose a major problem for the financial industry. Frauds through phishing emails, and data mining for accessing customer accounts involving the misuse of user data, names, and passwords are prevalent. Using artificial intelligence, hackers could strengthen their abilities by creating new ways to steal information, block a company's files for ransom, mimic the voices or writing styles of individuals, and create fake avatars. All these factors could significantly increase security risks for banks and their clients (Bank for International Settlements, 2024). The increased use of AI could lead to issues in user protection, bias, and discrimination in fair lending processes. Specifically, AI models may reflect biases in decision-making due to being trained on a certain type of data, resulting in unfair decisions when approving loans for users. Additionally, the question of data security and confidentiality arises in line with high standards in this field. These issues must be addressed to maintain user trust and avoid legal risks (Bank for International Settlements, 2024).

Market participants' overreliance on a small number of algorithms may pose financial stability risks. As AI becomes more prevalent in the financial system and gains the ability to make independent decisions at a speed far beyond humans, there is a potential for increased market volatility and procyclicality. Furthermore, the rapid development and introduction of new products by AI could introduce new and unknown risks. (Bank for International Settlements, 2024).

## AI TECHNOLOGIES – TOOL FOR ENHANCING SECURITY

In today's rapidly evolving banking landscape, security is of utmost importance. AI technology has emerged as a powerful tool for enhancing security in banking systems. One key application of AI in banking security is biometric authentication. By leveraging advanced algorithms, biometric authentication provides an additional layer of security by using unique physical characteristics such as fingerprints, facial recognition, and voice patterns to verify the identity of customers. This not only reduces the risk of unauthorized access but also improves the overall customer experience by streamlining the authentication process.

Another significant security enhancement through AI in banking systems is anomaly detection. AI-powered anomaly detection systems are capable of analyzing large volumes of data in real time to identify irregular



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patterns or suspicious activities that deviate from normal behavior. Artificial intelligence enables banks to act quickly in the process of risk reduction and protecting the interests of clients. It can identify fraudulent activities such as money laundering or vulnerabilities in bank security concerning both the bank itself and its clients. It provides increased security for banks and clients through the use of biometric authentication, which offers a high level of accuracy and reliability in carrying out banking transactions. It surpasses traditional security methods such as passwords and PIN codes and the need to memorize them. It relies on physical and behavioral human characteristics (fingerprints, voice recognition, and iris scanning). This advanced authentication method has significantly reduced the risks of theft and unauthorized access, enhancing efficiency and security in this field. In the future, this technology will enable banks to authenticate their users through facial and vein recognition, significantly increasing their efficiency and security. One of the significant benefits of implementing artificial intelligence is its ability to detect anomalies, learn, and adapt to new threats, and various forms of fraud. This proactive approach allows banks to anticipate potential security threats, minimize fraud risks, and ensure safety in operations, ultimately securing their business and the interests of their clients.

## CHALLENGES AND ETHICAL CONSIDERATIONS

As the banking sector increasingly integrates artificial intelligence (AI) to enhance efficiency and security, it is imperative to examine the potential hurdles that might impede its successful deployment. High-value, often confidential transactions take place in seconds - second to none. One mishap could ruin clients' trust and war the bank with criminal organizations; therefore, banking systems demand high safety precaution losses and malfunction avoidance (Radanliev et al., 2024). Banking flows represent one of the largest datasets across the globe and allow tracking of every customer like a GPS point. This raises ethical dilemmas related to data-accessible usage in prediction models, tracking employees' activity, and revealing highly confidential information without the owner's consent of usage. Additionally, as commercially available solutions would be improved over a larger amount of training data, there is a risk of exposing banks to system malfunction and crimes that involve secrecy agreements.

An ethical issue is the incomprehensive and obscure (black box) style of predictions generated from bank accounts compliance with the law. Irregularities in credit ratings and outsources credit capability information could keep people from opportunities enlarging holes in the financial system. A black box error in intention for fraud cannot challenge the decision and genuine reasons for a credit hold would raise a smoke signal for lawsuits. Should algorithms work based on older social studies and thus disadvantage social groups, it would be discrimination as well as in the case of using sex, age, national culture, etc. data in calculations.

## CONCLUSIONS

In summary, the text sheds light on many aspects in which artificial intelligence can be utilized in the banking system. Firstly, it is evident that AI can be a stepping stone toward greater efficiency; fraud detection makes real-time analysis of vast datasets possible, and AI trading can achieve both quicker and more precise trades. Secondly, AI can dramatically improve banks' security, detect attacks in the early stages, and protect sensitive data, which is very important as banking systems become increasingly complex and more vulnerable to potential risks. NLP enables the processing of large databases that banks handle and analyze with optimal efficiency. The data processing process enables the preemptive



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detection of fraud and money laundering. However, artificial intelligence is a very complex and multidimensional field. Its implications must be uncovered, with banks being cautioned to do this task in collaboration with professional investigators and regulators.

As for the future, expectations are that the development and refinement of artificial intelligence will continue even though abuses are still possible. Nonetheless, financial institutions are encouraged to invest responsibly in research and development, as the benefits of using AI far outweigh the risks. The banking system has accelerated the evolution of the Internet from an elite technology to a democratized source of information. Exploring opportunities to rename the process with artificial intelligence produces the potential to induce yet another monumental transformation of this financial system. Such a transformation has the power to address injustices in banking operations, such as irregularities in loan approvals and credit card debts, creating financial uncertainty for millions of banking service users. The original wrongdoings of the banking system ought to catalyze a responsible investment of their resources in shoring up its safety and integrity given the deadliest threats to democracy posed by their actions.

## REFERENCES

- Bank for International Settlements (2024) Artificial intelligence and the economy: implications for central banks BIS Annual Economic Report, BIS – Basel. <https://www.bis.org/publ/arpdf/ar2024e3.htm>
- Barroso, M., Laborda, J. (2021). Digital transformation and the emergence of the Fintech sector: Systematic literature review. *Digital Business*, 2(2), 100028.
- Buchanan, B. (2019). Artificial intelligence in finance. The Alan Turing Institute, London.
- Capgemini Research Institute for Financial Services Analysis (2024). World Retail Banking Report 2024 bank employee survey. <https://www.capgemini.com/insights/research-library/world-retail-banking-report/>
- Congressional Research Services. (2024). Artificial Intelligence and Machine Learning in Financial Services, <https://crsreports.congress.gov/product/pdf/R/R47997>
- Danielsson, J., Uthemann, A. (2024). On the use of artificial intelligence in financial regulations and the impact on financial stability. SSRN: <https://ssrn.com/abstract=4604628> or <http://dx.doi.org/10.2139/ssrn.4604628>
- Königstorfer, F., Thalmann, S. (2020). Applications of Artificial Intelligence in commercial banks – A research agenda for behavioral finance. *Journal of behavioral and experimental finance*, 27, 100352.
- KPMG (2024) 2024 Banking trends. <https://kpmg.com/us/en/articles/2024/banking-trends.html>
- Leitner, G., Singh, J., Kraaij, A., Zsámboki, B. (2024) The rise of artificial intelligence: benefits and risks for financial stability. *Financial stability review*, European Central Bank, Frankfurt.
- Lui, A., Lamb, G. (1970). Artificial intelligence and augmented intelligence collaboration: Regaining trust and confidence in the financial sector, <https://core.ac.uk/download/155787162.pdf>
- Mhlanga, D. (2021). Financial inclusion in emerging economies: The application of Machine learning and artificial Intelligence in Credit Risk assessment. *International Journal of Financial Studies*, 9(3),39.



## Conference Proceedings

McKinsey Worldwide Institute (2024). Scaling gen AI in banking: Choosing the best operating model, <https://www.mckinsey.com/industries/financial-services/our-insights/scaling-gen-ai-in-banking-choosing-the-best-operating-model>

Paramesha, M. Rane, N., Rane, Y. (2024). Artificial Intelligence, Machine Learning, Deep Learning, and Blockchain in Financial and Banking Services: A Comprehensive Review. <https://ssrn.com/abstract=4855893> or <http://dx.doi.org/10.2139/ssrn.4855893>

Radanliev, P., Santos, O., Brandon-Jones, A., Joinson, A. (2024). Ethics and responsible AI deployment. *Frontiers in Artificial Intelligence*, Mar 27; 7; 1377011.

Shaik, T., Tao, X., Li, Y., Dann, C., Mcdonald, J., Redmond, P., Galligan, L. (2023). A Review of the Trends and Challenges in Adopting Natural Language Processing Methods for Education Feedback Analysis. *IEEE Access*, 10, 56720-56739

Statista Research Department (2024). Most popular AI use cases in financial services globally 2023. Available at: [www.statista.com/topics/7083/artificial-intelligence-ai-in-finance/](http://www.statista.com/topics/7083/artificial-intelligence-ai-in-finance/)

Statista Research Department (2024). Artificial intelligence (AI) in finance - statistics & facts, <https://www.statista.com/topics/7083/artificial-intelligence-ai-in-finance/>

Statista Research Department (2024) Banking sector gen AI spending worldwide 2023, with forecasts to 2027. <https://www.statista.com/statistics/1446037/financial-sector-estimated-ai-spending-forecast/>





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# THINKING FAST AND GLOBAL: THE ROLE OF HEURISTICS IN INTERNATIONAL SME DECISION-MAKING

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DOI: 10.5937/EEE24045L  
JEL: L20, M16  
Review Scientific Paper

### ABSTRACT

*This systematic review investigates the use of heuristics in the internationalization process of SMEs. By asking this open-ended question: "How do SMEs use heuristics during the internationalization process?" This study seeks to understand how these firms employ heuristics, the areas in which heuristics are applied, and how decision-makers handle uncertainty in the context of internationalization. This review analyzes eleven relevant works, drawn from scientific databases (Scopus, Web of science) and the snowball sampling. Thematic and descriptive analyses are conducted to identify trends, difficulties, and outcomes related to the use of heuristics in SME internationalization. While highlighting the scarcity of interdisciplinary research, the review emphasizes the potential of heuristics for mitigating uncertainty. Interestingly, the research suggests a clear distinction between heuristics and judgment-based decisions. This initial exploration identifies a critical gap: limited research on different types of heuristics and their impact on SME decision-making in the international context. Additionally, the need to compare heuristics used in international business with those identified in psychology is stressed to avoid redundant terminology. Claiming to be the first of its kind, this review clarifies our understanding of heuristics in SME internationalization and opens doors for future investigations into this under-explored but potentially valuable area.*

### KEYWORDS

*heuristics, international SME, rules of thumb, cognitive shortcuts, systematic literature review*

## INTRODUCTION

A traditional point of departure for most internationalization studies is that entering foreign markets is risky and that uncertainty prevails between the firm's home market and the foreign market it is targeting. This uncertainty is a product of multiple factors ranging from political risk, lack of experience to institutional and cultural differences, and can compromise not only the international endeavor but the very existence of the firm (Oliveira et al., 2019). To conquer this threat, decision makers need to be well aware of the challenges that lie ahead when embarking on this uncertain journey; however, the pressure

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to make swift decisions often compels business owners to rely on heuristics, which can be a double-edged sword. This divergence reflects the current state of the literature.

Heuristics emerged as a result of the bounded rationality of decision makers first coined by H. Simon (1955) and later labeled as ‘cognitive biases’ by Tversky & Kahneman (1974). With the proliferation of studies in the area, researchers began to witness the positive side of heuristics which later developed into the ‘fast and frugal’ current with Gigerenzer and colleagues as the main advocates (2022). Such advancements resulted in the debate we are currently facing. Yet, the international business (IB) literature seems disconnected from this debate since few, if any, studies have tackled the use of heuristics within the international context (Guercini, Milanese, 2020), particularly for SMEs who are most susceptible to these challenges. Our systematic review seeks to remedy this gap by serving as the first study to illuminate the trends, difficulties, and outcomes associated with the application of heuristics in SMEs' internationalization. Which begs the open-ended question, "How are heuristics employed by SMEs during their internationalization process?"

In the next section we will delve into the two currents of the debate that shape the literature on the use of heuristics, followed by the methodology that guided our research, the thematic analysis of the selected articles and then we round up the paper with a discussion and a conclusion of the main findings.

## THEORETICAL BACKGROUND

### The heuristics and bias approach

This paradigm connects systematic errors (biases) in decision-making to mental shortcuts (heuristics). The notion of bounded rationality, which holds that human cognitive constraints limit our ability to make completely logical decisions, is the foundation of this approach (Simon, 1955). The seminal work of Kahneman and Tversky (1974) linked heuristics and biases for the first time. Their work paved the way for further exploration, culminating in Kahneman's Nobel Prize in Economics (2002) for his contributions to prospect theory (Kahneman, Tversky, 1979) which sheds light on how individuals evaluate potential gains and losses when faced with uncertainty.

The psychological foundations of human cognition, judgment, and decision-making have been extensively studied during the past four decades, greatly expanding our knowledge of how and why entrepreneurial decision-making frequently deviates from logical models, and to this day this paradigm remains relevant (Palmucci, Ferraris, 2023).

### The fast-and-frugal approach

Despite its simplifying nature, scholars recognize the value of heuristics. Goldstein and Gigerenzer (2002) consider them as a form of ‘ecological rationality’. This notion highlights the ability to use the structure of information that is readily available in our environment (ibid). In this paradigm, researchers recognize that heuristics can be strategically useful in some cases (Gigerenzer et al., 2022), contrasting with Kahneman et al.'s (1986) more skeptical approach, which acknowledges their value but emphasizes the risk of information neglect. Heuristics are useful cognitive processes that concentrate on pertinent environmental cues for the ‘fast-and-frugal’ school (Gigerenzer, Brighton, 2009). Researchers in this field investigate the rationale and timing of applying basic guidelines to capitalize on these properties. This involves understanding which cues to pay attention to first, when to give up looking for more information, and how to apply the signals you've gathered to make decisions (Czerlinski et al., 1999).



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This discussion has gained momentum in the fields of entrepreneurship and strategic management research (Cristofaro, Giannetti, 2021), igniting a conversation across disciplines with organizational theory (Bingham, Eisenhardt, 2011, Saab, Botelho, 2020). However, the IB literature remains a curious outlier. The area appears to have paid little attention to the function of heuristics and elementary judgment types, especially for SMEs, despite acknowledging the inherent unpredictability of international expansion. It is still necessary to pursue additional research to fully comprehend the nature of both individual and international decision-making processes.

## METHODOLOGY

Following recognized protocols for performing a systematic review (Cefis et al., 2022, Cristofaro, Giannetti, 2021), we used a rigorous and replicable method to locate and synthesize relevant research. This methodology has several advantages over typical reviews, including the use of clear search criteria and a focus on linking current findings to past research (Tranfield, Denyer, Smart, 2003).

### Search Strategy and Selection Criteria:

- 1) Databases: To ensure complete coverage of relevant literature, we scanned two major academic databases: Scopus and WoS (Tranfield et al., 2003).
- 2) Publication type and language: To guarantee quality control, we confined our search to peer-reviewed journal papers written in English.
- 3) Search query for Heuristics: To capture the concept of heuristics, we included a broad variety of synonymous words, as proposed by Kahneman (2011): "heuristic\*," "cognitive shortcut\*," "shortcut\*," "rule of thumb\*," "mental rule\*," or "cognitive rule\*." This initial search yielded 146,742 items from Scopus and 188,955 from WoS
- 4) Keywords for SMEs Internationalization: Martineau & Pastoriza (2016) suggested the following keywords to make sure the studies were centered on international SMEs: ("SME" OR "SMEs" OR "small firm\*" OR "small enterprise\*" OR "small and medium enterprise\*" OR "small and medium firm\*") AND ("internationalization" OR "internationalisation"). This produced 56 results after merging datasets and eliminating duplicates.
- 5) Abstracts Screening: Each author separately examined the remaining papers' abstracts to determine the extent to which they addressed the research topic and the variables under investigation. This resulted in 10 papers for further evaluation.
- 6) Full-Text Review: The remaining papers were thoroughly reviewed and evaluated to ensure that they were consistent with the research aims. This approach resulted in 7 papers.
- 7) Snowballing Technique: Finally, we used a snowballing strategy in which references from selected papers were evaluated to discover other relevant studies. This method resulted in four additional papers, increasing the total sample size to 11 empirical studies.

The chosen papers underwent a thematic analysis, in which the results of separate investigations were combined to identify major themes that appeared throughout the body of literature. Further exploration of the thematic analysis will be provided in the following sections



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### Thematic analysis

Our analysis centers on four key thematic categories identified from the selected articles (see Table 1). These categories align with four of the five study areas highlighted by Guercini, Milanese (2020) within the IB domain: Foreign market entry, post-entry international expansion, international entrepreneurship, and foreign market selection.

Table 1. Thematic analysis overview

Topic/area	Authors/year	No articles
International entrepreneurship	(Barron et al., 2016; Galkina & Chetty, 2015; Khorrami et al., 2017; Niittymies, 2020; Perks & Hughes, 2008)	5
Foreign market entry	(Oehme & Bort, 2015; Masiello & Izzo, 2019; Guercini & Runfola, 2021; Gray et al., 2017)	4
Foreign market selection	(Bell, 1995)	1
Post-entry international expansion	(Pellegrino & McNaughton, 2017)	1

### International entrepreneurship

The category "International Entrepreneurship" produced the most articles (Barron et al., 2016, Galkina, Chetty, 2015, Khorrami et al., 2017, Niittymies, 2020, Perks, Hughes, 2008) revealing an intriguing interplay between heuristics and entrepreneurial decision-making in the international context. Khorrami et al. (2017) emphasize the importance of heuristics, particularly in emerging economies with limited knowledge of managing the inherent risks of internationalization. Their findings back up the "fast-and-frugal" approach and establish a 'hybrid' category of heuristics, stressing their multifaceted nature. Another facet is added by Perks & Hughes (2008), who argue that entrepreneurs in mid-sized firms might prioritize opportunity seeking over initial resource abundance, suggesting heuristics as a deliberate strategy.

Galkina and Chetty (2015) demonstrate how effectuation theory, which emphasizes entrepreneurial decision-making, is compatible with the Uppsala model, bridging the gap between entrepreneurship and IB. According to their research, entrepreneurs leverage heuristics to create networks and find partners, and this non-predictive, effectual reasoning process gives rise to internationalization opportunities. Niittymies (2020) investigates the importance of experience, concluding that, while heuristics aid in expansion planning, entrepreneurs may not fully apply them initially. Interestingly, expertise does not guarantee superior heuristics; only after accumulating a certain amount of context-specific experience can management teams effectively use them in unusual circumstances.

In their exploration of crisis management, Barron et al. (2016) show how SMEs actively employ heuristics to navigate political crises, such as the Eurozone crisis of 2012. According to their research, entrepreneurs are more inclined to pursue new export opportunities if they have established procedures for utilizing political information. This study also discloses an unexpected finding—SMEs may lower current export commitments in reaction to declining market conditions, despite using heuristics to seek new opportunities.

### Foreign market entry

This category emerged as a prominent theme, with four studies exploring diverse aspects (Gray et al., 2017, Masiello, Izzo, 2019, Guercini, Runfola, 2021, Oehme, Bort, 2015). Gray et al. (2017) looked into



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the reshoring and offshoring decisions of US SMEs. Notably, the first offshore decisions were based on a simple heuristic, 'lowest per-unit landed cost (LPLC),' demonstrating the potential for heuristics to impact even complicated internationalization decisions. This conclusion is consistent with the 'take the best' heuristic, in which executives analyze options based on readily available cues and select the most advantageous one (Gigerenzer, Brighton, 2009).

Social networks are also essential for finding opportunities abroad. The 'social embeddedness' of internationalization is shown by Masiello & Izzo's (2019) discovery that SMEs frequently detect internationalization opportunities through the flow of information and heuristics that are shared within their social networks. This implies that SMEs use their networks to help them tackle the risks associated with expanding into new markets.

Guercini & Runfola (2021) identified eight SMEs' rules of thumb when focusing on export decisions in B2B marketplaces. Among these heuristics were matching product offerings with target markets and providing discounts to mitigate non-payment uncertainty. The authors divided these heuristics into three categories: choosing export markets (shaped by factors such as cultural proximity or perceived demand), defining the product offering (which includes product adjustments, pricing plans, and communication strategies), and setting export prices (which may be guided by cost-plus pricing or competition). Guercini and Runfola (2021) argue for greater awareness of heuristics.

Understanding these mental shortcuts allows SMEs to leverage their strengths while reducing potential biases. Interestingly, they claim that heuristics can outperform complicated, data-driven algorithms, especially when dealing with limited data or time restrictions. Another study that challenges conventional views by Oehme and Bort (2015) claiming that SME entry decisions are not always logical and analytical. Their findings show that SMEs frequently imitate the internationalization methods of their network peers, which serves as a practical shortcut in the early stages. However, this strategy is significantly dependent on the strength and form of existing network connections.

### **Foreign market selection**

While most studies explored general heuristics in foreign market entry, only one delved specifically into market selection (Bell, 1995). This study validated the idea that 'psychic distance' is a critical component for software companies in Scandinavia. When they first started exporting, SMEs usually focused on 'closer' markets. For instance, Finland's businesses gave priority to close-knit markets such as Sweden, Norway, and the former USSR, with whom they had deep historical connections. In a similar vein, Norwegians prioritized Finland, Sweden, or the UK, while Irish businesses favored the UK. Even without a direct focus on heuristics, Bell (1995) points to 'client followership'. This heuristic suggests that firms select new export markets depending on the foreign strategies and preferences of their domestic clients. Their findings also challenge the classic 'stage' model of internationalization, which considers the process as linear and predictable. Instead, the research points to a more nuanced reality, in which factors such as customer loyalty and contacts with foreign suppliers can have a major impact on market selection, especially for software firms with established networks.

### **Post-entry international expansion**

Pellegrino and McNaughton (2017) wrap up the thematic analysis by their longitudinal study on the learning processes and information sources employed by eight New Zealand SMEs undergoing internationalization. Their findings prove distinct learning patterns across two groups: firms undergoing rapid internationalization and their slower counterparts.



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Congenital learning, which included the founders' prior knowledge and experience, was prominent during the pre-internationalization period (Pellegrino, McNaughton, 2017). This original 'knowledge base' had a considerable impact on early internationalization efforts, particularly for rapidly internationalizing enterprises looking for quick market penetration. However, the authors emphasize the short duration of this phase, since practical learning quickly prevails once firms penetrate foreign markets.

During internationalization, experiential learning—which is defined as 'learning by doing' through triumphs and setbacks in the new market environment—takes center stage as the main learning tool (Pellegrino, McNaughton, 2017). This shows that the practical lessons learned from real-world experiences quickly override the founders' initial expertise, which is important for starting the internationalization process.

The availability of resources was a crucial factor influencing learning in every group. Due to limited resources, SMEs were frequently compelled to prioritize learning about specific aspects of their internationalization plan in a sequential manner. When resources were scarce, some companies replaced the knowledge they would have otherwise obtained from distributors with experiential knowledge gleaned through heuristics (trial and error). As firms matured and resource allocation expanded, the relative value of internal learning sources grew, resulting in a decline in dependence on external sources. Additionally, the study highlighted a change in the learning curves and objectives for both rapidly and gradually internationalizing businesses. Product knowledge was focused in the early phases, while foreign market knowledge and wider internationalization expertise emerged as priorities in the later stages.

## CONCLUSION

This review examined the various applications of heuristics in IB research. Three different groups emerged from our literature analysis. The first group (e.g., Gray et al., 2017, Masiello, Izzo, 2019) adheres to the "heuristics and bias paradigm" and the "fast and frugal heuristics paradigm" (Kahneman, Tversky, 1972, Khorrani et al., 2017, Niittymies, 2020). However, a gap exists in directly comparing these approaches within the IB context. Furthermore, the examined studies make no distinction between risk and uncertainty, indicating a potential area for further study. Future research might delve into whether heuristics established in clinical psychology serve as sources of bias or effective decision-making tools in internationalization, potentially drawing on existing discussions in that field.

The second group includes studies with a psychological foundation that relate heuristics to well-known models such as effectuation theory (Galkina, Chetty, 2015). Future research could examine the particular usefulness of these heuristics in this context, as these studies demonstrate their potential for use in international decision-making.

The last group focuses on heuristics that are particular to IB. Here, heuristics pertaining to past experience (experiential learning), cultural familiarity, or "psychic distance" have been identified by researchers (e.g., Guercini, Runfola, 2021).

However, several studies employ the term "heuristics" without addressing the underlying ideas. This contrasts with multidisciplinary studies, that emphasize a deeper understanding of these heuristics. Future studies should examine the use and outcomes of commonly used heuristics such as imitation, past experience, and organizational capacities more extensively. It is important for academics to



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critically contrast these IB specific heuristics with those found in psychology in order to cut down on duplication and provide a more coherent understanding.

Table 2. Authors, title, year, journal

No	Authors	Title	Year	Journal
1.	Barron & Hultén & Vanyushyn	The Role of Political Intelligence in Firms' Export Decisions During the Euro Crisis	2016	Journal of Small Business Management
2.	Galkina & Chetty	Effectuation and Networking of Internationalizing SMEs	2015	Management International Review
3.	Khorrani & Zarei.B & Zarei. M	Heuristics of the internationalisation of SMEs: A grounded theory method	2017	International Journal of Management and Enterprise Development
4.	Niittymies	Heuristic decision-making in firm internationalization: The influence of context-specific experience	2020	International Business Review
5.	Perks & Hughes	Entrepreneurial decision-making in internationalization: propositions from mid-size firms	2008	International Business Review
6.	Oehme & Bort	SME internationalization modes in the German biotechnology industry: The influence of imitation, network position, and international experience	2015	Journal of International Business Studies
7.	Masiello & Izzo	Interpersonal Social Networks and Internationalization of Traditional SMEs	2019	Journal of Small Business Management
8.	Guercini & Runfola	Heuristics in decision-making by exporting textiles SMEs	2021	Journal of Global Fashion Marketing
9.	Gray & Esenduran & Rungtusanatham & Skowronski	Why in the world did they reshore? Examining small to medium-sized manufacturer decisions	2017	Journal of Operations Management
10.	Bell	The internationalization of small computer software firms: A further challenge to "stage" theories	1995	European Journal of Marketing
11.	Pellegrino & McNaughton	Beyond learning by experience: The use of alternative learning processes by incrementally and rapidly internationalizing SMEs	2017	International Business Review

## REFERENCES

Barron, A., Hultén, P., Vanyushyn, V. (2016). The Role of Political Intelligence in Firms' Export Decisions During the Euro Crisis. *Journal of Small Business Management*, 54(4), 1126–1146.

Bell, J. (1995). The internationalization of small computer software firms: A further challenge to "stage" theories. *European Journal of Marketing*, 29(8), 60–75.

Bingham, C. B., Eisenhardt, K. M. (2011). Rational heuristics: The 'simple rules' that strategists learn from process experience. *Strategic Management Journal*, 32(13), 1437–1464.



## Conference Proceedings

- Cefis, E., Bettinelli, C., Coad, A., Marsili, O. (2022). Understanding firm exit: A systematic literature review. *Small Business Economics*, 59(2), 423–446.
- Cristofaro, M., Giannetti, F. (2021). Heuristics in entrepreneurial decisions: A review, an ecological rationality model, and a research agenda. *Scandinavian Journal of Management*, 37(3), 101170.
- Cyert, R. M., March, J. G. (1963). *A behavioral theory of the firm*. Englewood Cliffs, New Jersey, 2(4), 169–187.
- Czerlinski, J., Gigerenzer, G., Goldstein, D. G. (1999). How good are simple heuristics? In *Simple heuristics that make us smart* (pp. 97–118). Oxford University Press, Oxford.
- Flyvbjerg, B. (2021). Top Ten Behavioral Biases in Project Management: An Overview. *Project Management Journal*, 52(6), 531–546.
- Galkina, T., Chetty, S. (2015). Effectuation and Networking of Internationalizing SMEs. *Management International Review*, 55(5), 647–676.
- Gigerenzer, G., Brighton, H. (2009). Homo Heuristicus: Why Biased Minds Make Better Inferences. *Topics in Cognitive Science*, 1(1), 107–143.
- Gigerenzer, G., Reb, J., Luan, S. (2022). Smart heuristics for individuals, teams, and organizations. *Annual Review of Organizational Psychology and Organizational Behavior*, 9, 171–198.
- Goldstein, D. G., Gigerenzer, G. (2002). Models of ecological rationality: The recognition heuristic. *Psychological Review*, 109(1), 75–90.
- Gray, J. V., Esenduran, G., Rungtusanatham, M. J., Skowronski, K. (2017). Why in the world did they reshore? Examining small to medium-sized manufacturer decisions. *Journal of Operations Management*, 49–51(1), 37–51.
- Guercini, S., Milanesi, M. (2020). Heuristics in international business: A systematic literature review and directions for future research. *Journal of International Management*, 26(4), 100782.
- Guercini, S., Runfola, A. (2021). Heuristics in decision-making by exporting textiles SMEs. *Journal of Global Fashion Marketing*, 12(1), 1–15.
- Jardet, C., Jude, C., Chinn, M. (2023). Foreign direct investment under uncertainty evidence from a large panel of countries. *Review of International Economics*, 31(3), 854–885.
- Kahneman, D. (2011). *Thinking, fast and slow*. MacMillan, New York.
- Kahneman, D., Tversky, A. (1979). Prospect Theory: An Analysis of Decision under Risk. *Econometrica*, 47(2), 263–291.
- Khorrami, H., Zarei, M., Zarei, B. (2017). Heuristics of the internationalisation of SMEs: A grounded theory method. *International Journal of Management and Enterprise Development*, 16(3), 174–206.
- Lahjiri, M., Benhida, Z. (2023). Cognitive bias between individuals and groups: How to improve sustainable decision making? *African Scientific Journal*, 3(20), 456–489.
- Martineau, C., Pastoriza, D. (2016). International involvement of established SMEs: A systematic review of antecedents, outcomes and moderators. *International Business Review*, 25(2), 458–470.
- Masiello, B., Izzo, F. (2019). Interpersonal Social Networks and Internationalization of Traditional SMEs. *Journal of Small Business Management*, 57(S2), 658–691.





## Conference Proceedings

- Niittymies, A. (2020). Heuristic decision-making in firm internationalization: The influence of context-specific experience. *International Business Review*, 29(6), 101752.
- Oehme, M., Bort, S. (2015). SME internationalization modes in the German biotechnology industry: The influence of imitation, network position, and international experience. *Journal of International Business Studies*, 46(6), 629–655.
- Palmucci, D. N., Ferraris, A. (2023). Climate change inaction : Cognitive bias influencing managers' decision making on environmental sustainability choices. The role of empathy and morality with the need of an integrated and comprehensive perspective. *Frontiers in Psychology*, 14, 1-10.
- Pellegrino, J. M., McNaughton, R. B. (2017). Beyond learning by experience: The use of alternative learning processes by incrementally and rapidly internationalizing SMEs. *International Business Review*, 26(4), 614–627.
- Perks, K. J., Hughes, M. (2008). Entrepreneurial decision-making in internationalization: Propositions from mid-size firms. *International Business Review*, 17(3), 310–330.
- Saab, A. B., & Botelho, D. (2020). Are organizational buyers rational? Using price heuristics in functional risk judgment. *Industrial Marketing Management*, 85, 141–151.
- Scranton, P. (2009). The Challenge of Technological Uncertainty. *Technology and Culture*, 50(2), 513–518.
- Sharfman, M. P., Shaft, T. M. (2011). Effect of Extreme Uncertainty on Decision-Making: The Case of Foreign Direct Investment in Emerging and Transitional Economies - ProQuest. *International Journal of Management*, 28(1), 51-70.
- Simon, H. A. (1955). A Behavioral Model of Rational Choice. *The Quarterly Journal of Economics*, 69(1), 99–118.
- Simon, H. A. (1979). Rational Decision Making in Business Organizations. *The American Economic Review*, 69(4), 493–513.
- Tversky, A., Kahneman, D. (1974). Judgment under Uncertainty: Heuristics and Biases: Biases in judgments reveal some heuristics of thinking under uncertainty. *Science*, 185(4157), 1124–1131.
- Tversky, A., Kahneman, D. (1986). Rational Choice and the Framing of Decisions. *The Journal of Business*, 59(4), 251-278.



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## MAPPING THE LANDSCAPE OF RESEARCH ON SUSTAINABLE AND INNOVATIVE SOLUTIONS FOR FOOD WASTE MANAGEMENT: A BIBLIOMETRIC ANALYSIS

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DOI: 10.5937/EEE24046M

JEL: L66, Q01

Review Scientific Paper

### ABSTRACT

*The goal of this bibliometric analysis is to present a thorough picture of the state of research on creative and sustainable approaches to managing food waste. It provides insightful information about the present and potential future orientations of this multidisciplinary area by examining co-authorship patterns, highly cited authors, eminent institutions, recurrent keywords, and co-citation networks. A comprehensive bibliometric analysis encompassing a range of topics, including publication output, subject areas, author contributions, and international collaborations, is carried out by the study using the Scopus database and the VOSviewer programme. The results demonstrate the interdisciplinary nature of the area, the notable increase in research activity, and the main forces behind the development of novel and sustainable methods for managing food waste. In addition, the analysis points up possible gaps and avenues for more research, encouraging cooperation and knowledge sharing. Researchers, decision-makers, and those involved in the food industry can benefit greatly from this thorough bibliometric analysis, which offers a data-driven framework for developing future research agendas and approaches to address the global problem of food waste with creative and sustainable solutions.*

### KEYWORDS

*publication trends, co-authorship networks, co-citation analysis, interdisciplinary research, VOSviewer, Scopus*

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# INTRODUCTION

Food waste has become a major worldwide issue with profound effects on the environment, the economy, and society. Food waste has become a major concern due to the world's population growth and the depletion of natural resources. Innovative and sustainable solutions are needed to solve this issue. The goal of this bibliometric study is to present a thorough picture of the state of research in this important field, highlighting the trends, well-known writers, and cooperative networks that influence present knowledge and future paths. Research initiatives in a wide range of fields, including engineering, policy studies, food science, and agribusiness, have increased in response to the pressing need to address food waste. This study aims to pinpoint the significant turning points and possible catalyst that have accelerated the expansion of research in this field by examining publication trends. It also looks at the kinds of papers and topics that have added to the corpus of knowledge, providing insights on the field's interdisciplinary nature.

This bibliometric study recognises the important contributions made by scholars and institutions by highlighting the authors who have published the most and the works that have received the most citations. It looks into the institutions that these well-known academics are affiliated with, which may help identify the top research hotspots and centres for creative and sustainable approaches to managing food waste. In addition, the examination explores the commonly recurring terms, offering an insight into the developing study subjects and areas of concentration.

To summarise, scientific advancement is often marked by collaboration. This study delves into the patterns of international co-authorship, revealing the worldwide networks and partnerships that have influenced the field of research. Furthermore, the relationships between authors and publications are traced by co-citation analysis, providing important insights on the field's intellectual structure and possible research communities. This bibliometric analysis attempts to provide a thorough and data-driven understanding of the research landscape by combining these different aspects. This understanding will help shape future research directions and collaborations in the search for creative and sustainable solutions to the global problem of food waste.

# LITERATURE REVIEW

Waste generation particularly food waste is observed to be escalating in the 21st century corresponding to the constant advancement in technology, industrialisation as well as the growth in population [18-19]. Food waste is now considered to be a global issue which involves every aspect regarding it throughout the supply chain beginning from the production followed by the storage, processing, transportation and consumption as it attaches along with various implications [19-21]. Efficient food waste management is vital in order to overcome its contribution negatively to the environment as in most countries food waste ends up in landfill which is considered to be the most common method of food waste disposal which leads to the generation of greenhouse gases such as methane that elevates the rapid occurrence of climate change [23-24]. Besides emitting greenhouse gases to the atmosphere, landfilling of food waste highly pose a risk of soil pollution due to harmful leachate production that might contain heavy metals which further worsens the implication by affecting the quality of the groundwater that gradually gets into the surface water as time goes by [22-23]. The dichotomy of abundance and shortage exists alongside in our current global food systems. As the demand for food increases with the growth of population, it associates with high amount of food wastage throughout the entire supply chain, from production up to



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consumers which technically incorporates the lifecycle of food [25-26]. Food waste is a ubiquitous and complex problem that embodies this unsettling truth.

Particular challenges occur at certain parts of the food supply chain, which then results in a large number of resources being squandered. Due to elements such as improper storage, aesthetic values, overharvesting to keep up with the demand, and logistical hurdles, significant amounts of agricultural yields are wasted during the production as well as the distribution phase aligning to the global estimate indicated by the Food and Agriculture Organisation of the United Nations (FAO) where roughly one-third of the food produced for human consumption is lost or wasted during the whole supply chain [27-29]. Following consumer consumption, a large amount of perfectly edible food becomes unfit for consumption due to household habits, expiration dates, and societal standards that lead to food waste. The Sustainable Food Systems International Panel of Experts (IPES) discovered that the European Union (EU) wastes approximately 20% of its food which is equivalent to 88 Million tonnes (Mt), costing 143 billion Euros a year in lost of resources and environmental effect [30-31]. In a similar vein, an estimated 165 billion US dollars worth of food is thrown out by Americans each year in which the uneaten food makes up about 40% of the country's solid municipal waste, which degrade in landfills and releases methane into the atmosphere at a rate of over 25% [32].

The detrimental impacts of food waste on the environment remain ongoing once it reaches consumers. One study that looked at the financial and environmental effects of food waste at university canteens, for example, revealed that regular food waste was the highest at 46.14%, highlighting the adverse consequences of food waste at the consumer level on the environment [33]. Furthermore, according to the UN Environment Programme's Food Waste Index Report 2021, consumer food waste accounts for a substantial amount of global food production and has a negative influence on the environment [34]. This situation further worsens when the food waste is eventually disposed of in a landfill, which increases the amount of methane produced onsite [35]. The Fifth Assessment Report of the Intergovernmental Panel on Climate Change (IPCC) estimates that methane, a potent greenhouse gas that accelerates climate change by absorbing heat and raising temperatures, has 28 times the global warming potential (GWP) of carbon dioxide over a 100-year time horizon [36]. The United States Environmental Protection Agency (US EPA) has proven that landfilling has detrimental environmental consequences, with landfill methane emissions in the United States estimated to be approximately 107.7 MtCO<sub>2</sub>e in 2016, making it the third largest source of methane emissions (Fs).

Food waste management has significant effects on the environment and human health, making it a critical global issue. Historically, the disposal of food waste, which constitutes a substantial portion of municipal solid trash, has involved either landfilling or incineration, which has resulted in serious health and environmental consequences [37-38]. But in addition to releasing toxic chemicals like dioxins and methane [39], these conventional techniques make it more difficult to collect important nutrients and chemical compounds from the burned substrate, which lowers the substrate's economic worth [40-41]. It is therefore essential to investigate suitable techniques for managing food waste.

Anaerobic digestion is one viable method that has been the subject of current research and is shown to be a more environmentally friendly treatment choice than landfilling and incineration [40-43] as it produces digestate water and biogas, which serve as a source of energy and a liquid fertilizer [42]. Its environmental benefits are highlighted by the possible decrease of impact categories by more than 50% when anaerobic digestion treats over 40% of food waste and landfilling ends by 2050 [43]. Even though anaerobic digestion produces resources and energy efficiently [40], it is important to remember that it has disadvantages. According to studies, it utilises more freshwater than landfilling and incineration [44], and a major portion of its environmental impact is attributed to massive energy use [45].



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Food waste is a plentiful source for the production of energy (biogas and biodiesel) and materials for improving soil (biochar and fertiliser) due to its organic richness and perishable nature [46-47]. There are numerous ways to address food waste, each with advantages and disadvantages of their own. For example, pyrolysis yields both biogas and solid biochar, providing a dual use of energy and soil amendment [48]. Gasification is an additional technique for producing syngas through the digestion of food waste, which expands the range of possible applications for food waste [49].

In conclusion, a move towards sustainable alternatives has been sparked by the pressing need to address the negative environmental effects of traditional food waste disposal techniques. Other than the food waste management aspect, the amount of wastage generated during the entire life cycle of food waste such as the primary production, processing, packaging, manufacturing, distribution, retail, and consumption should be considered the innovative strategies in order to maintain sustainability throughout the food chain [50].

## RESEARCH QUESTIONS

- RQ1: What are the publication trends in the research on sustainable and innovative solutions for food waste management over the years?
- RQ2: Who are the authors with the highest number of publications in this field?
- RQ3: What are the types of documents and their distribution based on the subject areas or disciplines?
- RQ4: Who are the authors with the most highly cited publications in this field, and what are their institutional affiliations?
- RQ5: What are the frequently occurring keywords related to sustainable and innovative solutions for food waste management?
- RQ6: What are co-authorship countries' collaboration?
- RQ7: How about network mapping based on co - citation by authorship?

## METHODOLOGY

The combination, administration, and analysis of bibliographic data gleaned from scientific publications is known as bibliometrics [7–9]. Wu and Wu (2017) It includes sophisticated methods like document co-citation analysis in addition to standard descriptive data like publishing journals, publication year, and major author categorization. In order to provide a full bibliography and reliable results, a successful literature review requires an iterative process that includes the discovery of appropriate keywords, literature search, and careful analysis [11]. Considering this, the study aimed to concentrate on high-calibre publications since they provide insightful information about the theoretical stances influencing the development of the field of study. The study used the SCOPUS database for data gathering in order to guarantee data dependability [12–14]. Furthermore, only papers published in carefully peer-reviewed academic journals were taken into consideration, with books and lecture notes purposefully left out in order to guarantee the inclusion of high-quality publications [15]. Especially, Elsevier's Scopus, which is renowned for its broad coverage, made it easier to gather publications from 2023 to March 2024 for further examination.



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### DATA SEARCH STRATEGY

The search terms for article retrieval were determined by the study using a screening sequence. The study was initiated by collecting 69,756 articles online and querying the Scopus database using the keywords "sustainable OR innovative" AND "solution OR fix OR technology" AND food AND waste. Later, the query string was refined to focus specifically on sustainable and innovative solutions for food waste management. 1,132 articles from the final search string refinement were used for the bibliometric analysis. All publications pertaining to sustainable and innovative solutions for food waste management that were indexed in the Scopus database as of June 2024 were included in the research.

Table 1. Scopus Search String for Literature

<b>Scopus</b>	TITLE-ABS-KEY [ ( sustainable OR innovative ) AND ( solution OR fix OR technology ) AND food AND waste ) AND PUBYEAR > 2022 AND PUBYEAR < 2025 AND ( LIMIT-TO ( LANGUAGE , "English" ) ] AND [ LIMIT-TO ( PUBSTAGE , "final" ) ] AND [ LIMIT-TO ( SRCTYPE , "j" ) ] AND [ LIMIT-TO ( DOCTYPE , "ar" ) OR LIMIT-TO ( DOCTYPE , "re" ) ]
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Table 2. Selection Criteria for Literature Inclusion and Exclusion

Criterion	Inclusion	Exclusion
<b>Timeline</b>	2023-2024	<2023
<b>Language</b>	English	Non-English
<b>Document Type</b>	Article, Review	Non-Article
<b>Source type</b>	Journal	Book

### DATA ANALYSIS

An approachable bibliometric programme called VOSviewer was created at Leiden University in the Netherlands by Nees Jan van Eck and Ludo Waltman [7], [8]. The tool, which is widely used for visualising and analysing scientific literature, is particularly good at producing density maps, clustering similar items, and making intuitive network visualisations. Because of its adaptability, researchers can analyse co-authorship, co-citation, and keyword co-occurrence networks, giving them a thorough grasp of the research landscape. The dynamic and efficient study of vast datasets is ensured by the interactive interface and ongoing updates. VOSviewer is an invaluable tool for researchers looking for insights into intricate research fields because of its capacity to compute metrics, customise visualisations, and work with a variety of bibliometric data sources.

VOSviewer's ability to convert complex bibliometric statistics into readable maps and charts is one of its most notable capabilities. The software is excellent at clustering related items, analysing keyword co-occurrence patterns, and creating density maps, with a focus on network visualisation. Its intuitive interface helps researchers by making it possible for both new and seasoned users to efficiently explore study landscapes. With its customisable visualisations and ongoing development, VOSviewer stays at the forefront of bibliometric analysis, providing insightful metrics computation. VOSviewer's versatility in handling various bibliometric data sources, including co-authorship and citation networks, makes it an essential tool for researchers looking to gain a deeper understanding of their fields of study.



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Large datasets containing PlainText formatted data on the publication year, title, author name, journal, citation, and keywords were obtained from the Scopus database between 2020 and December 2023. We then used VOSviewer software version 1.6.19 to analyse these datasets. This software made it easier to analyse and create maps by applying VOS clustering and mapping algorithms. As a substitute for the Multidimensional Scaling (MDS) method, VOSViewer concentrates on placing objects in low-dimensional areas so that the distance between any two objects correctly indicates their similarity and relatedness [8]. VOSViewer and the MDS methodology are comparable in this regard [9]. While MDS focuses on computing similarity metrics like cosine and Jaccard indices, VOS uses a more appropriate technique to normalise co-occurrence frequencies. This technique is called the associatio strength ( $AS_{ij}$ ), and it may be computed as [10]:

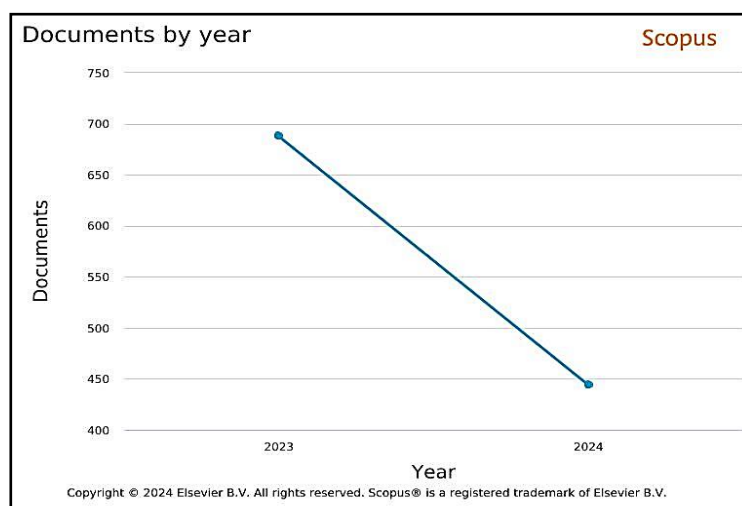
$$AS_{ij} = \frac{C_{ij}}{W_{ij}}$$

which is "proportional to the ratio between the expected number of co-occurrences of  $i$  and  $j$  under the assumption that co-occurrences of  $i$  and  $j$  are statistically independent and the observed number of co-occurrences of  $i$  and  $j$  on the one hand." Thus, after lowering the weighted total of the squared distances between each pair of items, VOSviewer arranges the items in the shape of a map with the aid of this index.

## RESULTS AND FINDINGS

*What are the research trends in online learning studies according to the year of 2023 till 2024?*

Table 3. Distribution of Publications on Sustainable and Innovative Solutions for Food Waste Management by Year



Year	Number of publication	Percentages
2024	444	39.22
2023	688	60.78



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An insightful understanding of the dynamics and trends in this topic may be gained from the bibliometric study of publications on Sustainable and Innovative Solutions for Food Waste. The information shows a significant amount of research output, with a noticeable peak in the last few years. With 688 articles, the year 2023 stands out in particular since it accounts for an impressive 60.78% of all the publications examined. The increase in publications indicates a notable resurgence of scholarly effort and interest, maybe due to technological improvements and their growing incorporation of food waste related knowledge into social behaviours. Nevertheless, it's important to note that, despite 2023's dominance, 2024 nevertheless shows a strong presence with 444 articles, suggesting that research production is still accelerating.

It is noticeable that there was a significant drop in the number of publications indexed in Scopus between 2023 and 2024. This negative trend raises the issue of what reasons could be responsible. A number of factors, such as adjustments to research funding or priorities, difficulties faced by academic institutions or researchers, changes in publishing trends or practices, transient anomalies or data discrepancies in the Scopus database, could account for the observed decline in publication output.

*Who wrote the most number of articles?*

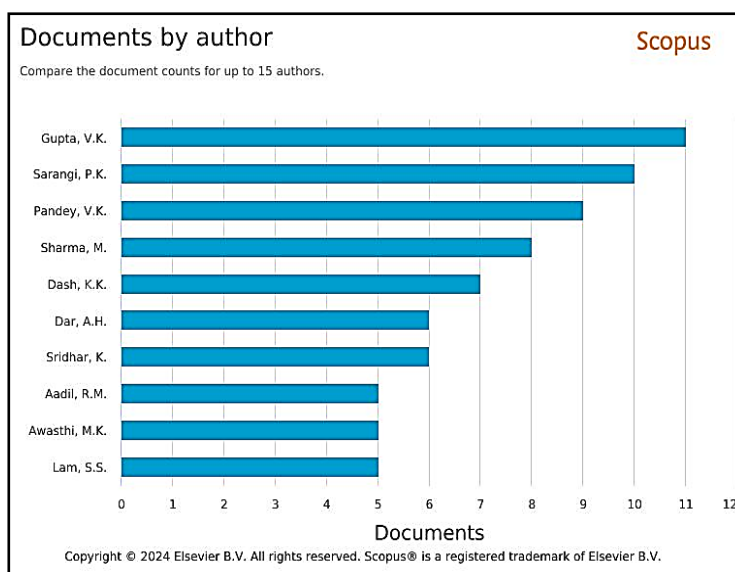


Figure 2. Top 10 Authors Contributing to Research on Sustainable and Innovative Solutions for Food Waste Management

Table 4. Leading Authors and Their Publication Output in Sustainable and Innovative Food Waste Management Research

Author name	Number of Article	Percentages
Gupta, V.K.	11	0.17
Sarangi, P.K.	10	0.15
Pandey, V.K.	9	0.14
Sharma, M.	8	0.12
Dash, K.K.	7	0.11
Dar, A.H.	6	0.09





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Sridhar, K.	6	0.09
Aadil, R.M.	5	0.08
Awasthi, M.K.	5	0.06

The bibliometric analysis reveals key contributors in the field of sustainable and innovative solutions for food waste management, as depicted in the table and bar chart. Notably, Gupta, V.K. emerges as the leading researcher with 11 publications, constituting 0.17% of the total articles analyzed. Their prolific output underscores their significant impact on the discourse surrounding sustainable and innovative approaches to address food waste. Following closely are Sarangi, P.K. with 10 publications (0.15%), Pandey, V.K. with 9 publications (0.14%), and Sharma, M. with 8 publications (0.12%). These authors' substantial contributions highlight their dedication and expertise in this research domain. Several other researchers, including Dash, K.K. with 7 publications (0.11%), Dar, A.H. and Sridhar, K. with 6 publications each (0.09%), Aadil, R.M. with 5 publications (0.08%), and Awasthi, M.K. with 5 publications (0.06%), have also made notable contributions to the body of literature on sustainable and innovative solutions for food waste management.

This bibliometric analysis shows the range of research activities in this topic in addition to identifying writers who are prolific. The distribution of publications among different experts suggests a collaborative and multidisciplinary approach to address food waste through creative and sustainable solutions, which is noteworthy. Furthermore, the constancy in the quantity of articles produced by multiple researchers highlights the continuous curiosity and persistent work in investigating new ways to tackle this worldwide problem. The combined efforts of these researchers provide a solid basis for future developments in the field of sustainable and creative approaches to managing food waste, suggesting a bright future for the creation of strategies that both reduce food waste and advance sustainability. These academics' combined efforts from a range of disciplines and backgrounds have the potential to revolutionise how food waste is managed, which will ultimately lead to a more resource-conscious and sustainable future.

*What are the type of document by subject of research?*

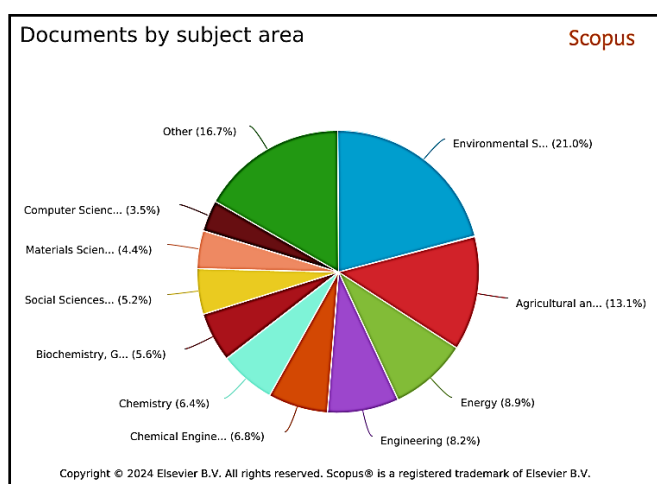


Figure 3. Distribution of Research Documents by Subject Area in Sustainable and Innovative Food Waste Management

The pie chart illustrates the distribution of research documents across various subject areas related to sustainable and innovative solutions for food waste management.



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- Environmental Science (21.0%) emerges as the most prominent subject area, indicating a strong focus on environmental aspects of food waste management solutions. This could encompass research on topics such as the environmental impact of food waste, sustainable waste treatment methods, and the development of eco-friendly technologies for food waste valorization.
- Agricultural and Biological Sciences (13.1%) occupy the second position, highlighting the importance of agricultural practices and biological processes in addressing food waste challenges. Studies in this area might explore topics like post-harvest food loss prevention, bio-based waste conversion techniques, and the development of sustainable agricultural systems to minimize waste generation.
- Energy (8.9%) and Engineering (8.2%) are also well-represented, suggesting research efforts aimed at developing energy-efficient and innovative engineering solutions for food waste management. This could involve studies on waste-to-energy technologies, process optimization, and the design of sustainable waste management infrastructure.
- Chemical Engineering (6.8%) and Chemistry (6.4%) contribute to the body of knowledge by investigating chemical processes and techniques for food waste treatment, valorization, and conversion into valuable products or biofuels.
- Biochemistry, Genetics, and Molecular Biology (5.6%) and Social Sciences (5.2%) play a role as well, potentially exploring topics such as the biochemical and genetic aspects of food waste valorization, as well as the social, economic, and policy implications of food waste management strategies.
- Materials Science (4.4%) and Computer Science (3.5%) are also represented, indicating research efforts focused on developing novel materials and computational approaches for sustainable food waste management solutions.
- The remaining slice, "Other" (16.7%), encompasses a diverse range of subject areas that have contributed to this multidisciplinary field of research.

The fact that research is being conducted in a variety of fields highlights how complex creative and sustainable approaches to managing food waste are. It draws attention to the necessity of an interdisciplinary and collaborative approach that incorporates knowledge from the social sciences, engineering, chemistry, environmental sciences, and other relevant domains. Researchers may have a thorough grasp of the difficulties and potential solutions in this field by examining the contributions from these various topic areas. This will ultimately aid in the creation of more efficient and long-lasting methods for managing food waste.

Table 5. Breakdown of Subject Areas Contributing to Sustainable and Innovative Food Waste Management Research

Subjects area	No. of publications	Percentages (%)
Environmental Science	528	20,99
Agricultural and Biological Science	330	13,12
Energy	225	8,95
Engineering	205	8,15
Chemical Engineering	172	6,84
Chemistry	162	6,44



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Biochemistry, genetics and Molecular Biology	142	5,65
Social Sciences	131	5,21
Material Sciences	110	4,37
Computer Sciences	89	3,54
Medicine	69	2,74
Immunology and Microbiology	68	2,70
Business, Management and Accounting	56	2,23
Physics and Astronomy	38	1,51
Health Professions	32	1,27
Pharmacology, Toxicology and Pharmaceutics	32	1,27
Economics, Econometrics and Finance	31	1,23
Nursing	19	0,76
Mathematics	18	0,72
Multidisciplinary	16	0,64
Earth and Planetary Sciences	13	0,52
Decision Sciences	12	0,48
Veterinary	10	0,40
Arts and Mumanities	2	0,08
Neuroscience	2	0,08
Psychology	2	0,08
Dentistry	1	0,04

The data shows publication numbers and percentages across 24 subject areas for research on artificial intelligence in teaching and learning.

### Key Observations:

- Environmental Science has the highest number of publications at 814 (19.17% of total). This suggests that research on sustainable and innovative solutions for food waste management is most prevalent in fields related to environmental studies and ecological conservation.
- Agricultural and Biological Sciences follows closely with 787 publications (18.53% of total). This reflects the significant role of agricultural practices, biological processes, and related disciplines in addressing food waste issues and developing sustainable management solutions.
- Engineering has a sizable number of publications at 451 (10.62% of total). Engineering principles, technologies, and innovative design approaches are being applied to develop efficient systems and infrastructure for food waste management.
- Computer Science (405 publications, 9.54%) and Chemistry (344 publications, 8.10%) also have notable publication outputs. This indicates the application of computational methods, data analytics, and chemical processes in analyzing and treating food waste, as well as developing innovative solutions.
- Subject areas like Social Sciences (210 publications, 4.94%), Materials Science (192 publications, 4.52%), and Chemical Engineering (162 publications, 3.81%) have moderate



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levels of publication output, suggesting interdisciplinary approaches to food waste management involving social, material, and chemical engineering aspects.

- Subject areas such as Mathematics (18 publications, 0.42%), Astronomy (15 publications, 0.35%), and Neuroimedicine (9 publications, 0.21%) have relatively low publication numbers, indicating potential gaps or opportunities for further research in applying mathematical models, astronomical data, or neuroscience principles to food waste management solutions.

Overall, the table offers a thorough overview of how research papers are distributed over a range of topic areas, making it possible to identify both areas with a large output of research and those that have room for expansion and additional investigation.

*Who is the top 10 authors based on citation by research?*

Table 6: Top 10 Most Cited Articles in Sustainable and Innovative Food Waste Management Research

Authors	Title	Year	Source title	Cited by
Yang M.; Chen L.; Wang J.; Msigwa G.; Osman A.I.; Fawzy S.; Rooney D.W.; Yap P.-S.	Circular economy strategies for combating climate change and other environmental issues	2023	Environmental Chemistry Letters	138
Hassoun A.; Aït-Kaddour A.; Abu-Mahfouz A.M.; Rathod N.B.; Bader F.; Barba F.J.; Biancolillo A.; Cropotova J.; Galanakis C.M.; Jambrak A.R.; Lorenzo J.M.; Måge I.; Ozogul F.; Regenstein J.	The fourth industrial revolution in the food industry—Part I: Industry 4.0 technologies	2023	Critical Reviews in Food Science and Nutrition	89
Hoang A.T.; Sirohi R.; Pandey A.; Nižetić S.; Lam S.S.; Chen W.-H.; Luque R.; Thomas S.; Arıcı M.; Pham V.V.	Biofuel production from microalgae: challenges and chances	2023	Phytochemistry Reviews	79
Rifna E.J.; Misra N.N.; Dwivedi M.	Recent advances in extraction technologies for recovery of bioactive compounds derived from fruit and vegetable waste peels: A review	2023	Critical Reviews in Food Science and Nutrition	74
Peng X.; Jiang Y.; Chen Z.; Osman A.I.; Farghali M.; Rooney D.W.; Yap P.-S.	Recycling municipal, agricultural and industrial waste into energy, fertilizers, food and construction materials, and economic feasibility: a review	2023	Environmental Chemistry Letters	69
Hegab H.; Khanna N.; Monib N.; Salem A.	Design for sustainable additive manufacturing: A review	2023	Sustainable Materials and Technologies	67



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Sharma J.K.; Kumar N.; Singh N.P.; Santal A.R.	Phytoremediation technologies and their mechanism for removal of heavy metal from contaminated soil: An approach for a sustainable environment	2023	Frontiers in Plant Science	66
Peydayesh M.; Bagnani M.; Soon W.L.; Mezzenga R.	Turning Food Protein Waste into Sustainable Technologies	2023	Chemical Reviews	63
Versino F.; Ortega F.; Monroy Y.; Rivero S.; López O.V.; García M.A.	Sustainable and Bio-Based Food Packaging: A Review on Past and Current Design Innovations	2023	Foods	63
Jung H.; Shin G.; Kwak H.; Hao L.T.; Jegal J.; Kim H.J.; Jeon H.; Park J.; Oh D.X.	Review of polymer technologies for improving the recycling and upcycling efficiency of plastic waste	2023	Chemosphere	62

*What are the popular keywords related to the study?*

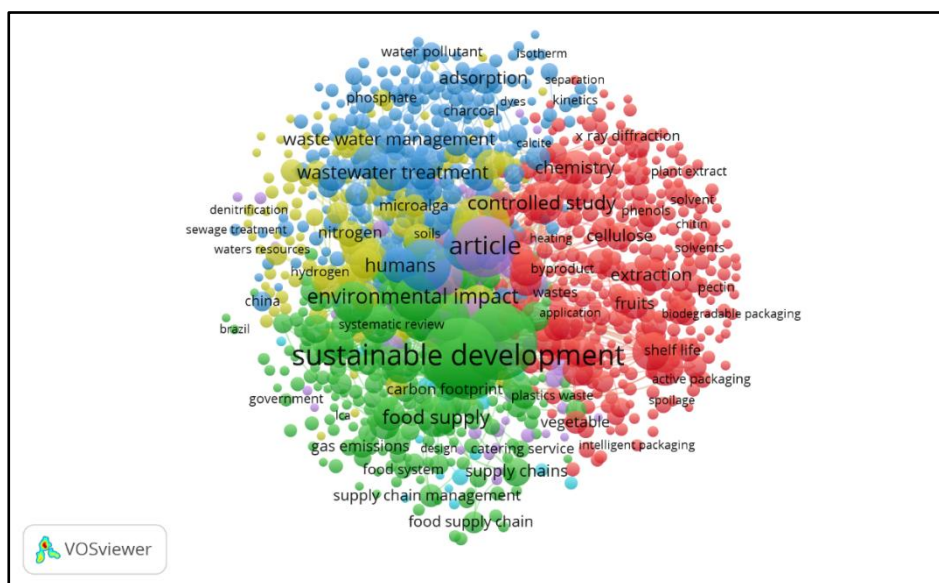


Figure 4. Network visualization map of keywords' co-occurrence

The analysis of popular keywords related to sustainable and innovative solutions for food waste management reveals several notable trends. "Wastewater treatment" and "waste water management" emerge as the most frequently occurring keywords, with substantial total link strengths, indicating their centrality in the discourse. This suggests a significant interest and focus on managing and treating wastewater generated from various sources, including food waste. Within the wastewater treatment domain, "adsorption" stands out with a high occurrence and considerable link strength, reflecting the growing interest in adsorption techniques for removing pollutants and contaminants from wastewater. Additionally, terms such as "dyes," "charcoal," "kinetics," and "isotherm" demonstrate a keen interest in exploring various adsorbents and their kinetic behavior in wastewater treatment applications.

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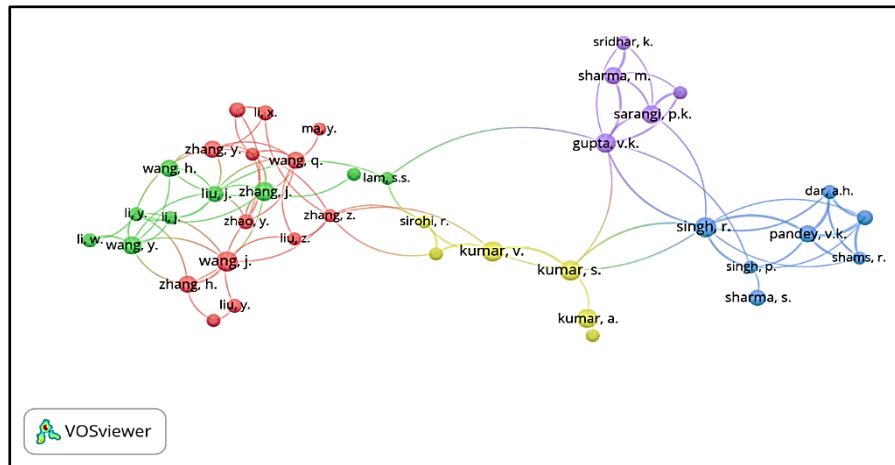


Figure 5. Co-citation Network Analysis of Authors in Sustainable and Innovative Food Waste Management Research

Furthermore, the keyword "phosphate" exhibits a strong link with "wastewater treatment," highlighting research efforts in removing phosphate compounds, which can contribute to eutrophication in water bodies. The presence of the keyword "controlled study" underscores the importance of conducting systematic experiments and investigations to evaluate the effectiveness of different wastewater treatment methods and technologies. Notably, while traditional waste management concepts like "sewage treatment" and "denitrification" are present, they exhibit relatively lower link strengths compared to wastewater treatment-related terms, indicating a shift towards a stronger focus on wastewater management and treatment in the context of food waste. Moreover, the analysis highlights the intersection of food waste management with various themes and challenges. "Plant extract," "pectin," and "chitosan" emerge as prominent keywords, emphasizing the growing interest in exploring natural and bio-based materials for wastewater treatment and other sustainable solutions. The terms "solvents," "extraction," and "byproduct" underscore the importance of solvent-based extraction processes for valorizing byproducts or waste streams, contributing to the development of innovative and sustainable solutions.

Additionally, the keyword "biodegradable packaging" is closely linked to terms like "fruits," "vegetables," and "shelf life," reflecting research efforts in developing sustainable packaging solutions to reduce food waste and extend the shelf life of fresh produce. Furthermore, the presence of keywords such as "sustainable development," "carbon footprint," "food system," and "supply chains" highlights a broader consideration of sustainability principles, environmental impact assessments, and the integration of innovative solutions into food supply chain management.

Overall, the analysis underscores the multifaceted nature of sustainable and innovative solutions for food waste management, encompassing wastewater treatment and management, exploration of natural materials and extraction processes, development of sustainable packaging, and integration into food systems and supply chains, all while addressing environmental impacts and promoting sustainable development.

### *Network mapping based on co-citation by authorship?*

The co-citation analysis by authorship provides valuable insights into the scholarly landscape of sustainable and innovative solutions for food waste management. Notably, certain authors exhibit significant link strengths, reflecting their influential contributions to the field. Authors like "lam, s.s."



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and "kumar, v." stand out with dense interconnections, indicating widespread acknowledgment and citation of their work within the academic community. These authors likely have made substantial contributions to advancing research and practices related to food waste management solutions. Moreover, the presence of authors with diverse surnames, such as "zhang," "wang," "li," and "kumar," underscores the international and multicultural nature of research in this domain, drawing from expertise across various regions and backgrounds.

Additionally, the analysis reveals clusters of closely connected authors, suggesting collaborative research efforts or research groups working on related topics. For instance, the cluster around "zhang, y." and "wang, q." indicates a potential research team or collaboration network focusing on specific aspects of food waste management solutions. Similarly, the cluster around "kumar, s." and "singh, r." may represent another research group or collaboration network contributing to this field. These clusters highlight the importance of interdisciplinary collaboration and the formation of research teams to address complex challenges related to food waste management. Furthermore, the analysis shows authors with varying degrees of connectivity, suggesting different levels of collaboration and citation patterns. Authors like "li, x." and "ma, y." have fewer connections, indicating potential opportunities for increased collaboration or recognition within the scholarly community. On the other hand, authors like "gupta, v.k." and "sarangi, p.k." exhibit stronger connections, suggesting their work has been more widely cited and acknowledged.

Overall, the co-citation analysis highlights the contributions of key authors, the collaborative nature of research in sustainable and innovative solutions for food waste management, and the diversity of perspectives and expertise involved in this field. This analysis underscores the importance of interdisciplinary collaboration, international collaboration, and the formation of research teams to drive progress and innovation in addressing the global challenge of food waste.

### *What are co-authorship countries' collaboration?*

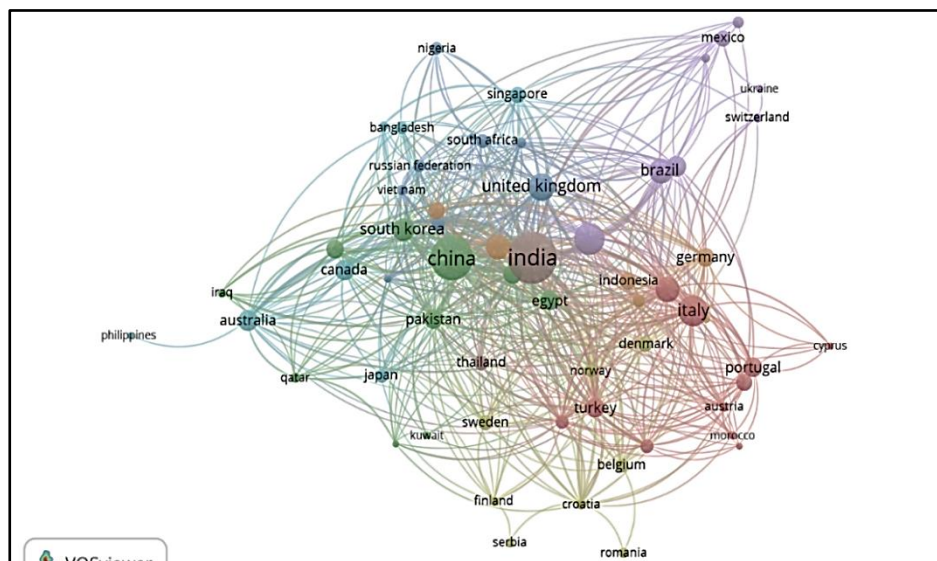


Figure 6. Global Collaboration Network in Sustainable and Innovative Food Waste Management Research



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The analysis of co-authorship countries' collaboration in the field of sustainable and innovative solutions for food waste management reveals several key insights. Notably, countries such as China, India, and the United Kingdom emerge as prominent contributors, with high numbers of documents, citations, and substantial total link strength. China stands out with a dense network of connections, suggesting a significant level of research output and collaboration in this domain. This indicates a strong research ecosystem and active engagement in exploring sustainable and innovative solutions for food waste management. Similarly, India exhibits a notable presence, with a considerable number of connections, highlighting its growing influence and contributions to this field. Additionally, countries like the United Kingdom, Germany, and Italy demonstrate significant collaboration and engagement in research endeavors related to food waste management solutions, as evidenced by their respective network connections and link strengths. This collaborative landscape underscores the global interest and effort in addressing the challenge of food waste through innovative and sustainable approaches.

Furthermore, the analysis reveals disparities in research output and collaboration across different countries. While some countries, like China and India, show strong research activity and collaboration networks, others exhibit relatively fewer connections and lower levels of engagement in this field. For instance, countries like Nigeria, Bangladesh, and Iraq have fewer links, reflecting less involvement or perhaps nascent research endeavors in sustainable and innovative solutions for food waste management. This indicates potential opportunities for these countries to strengthen their engagement and collaboration in research initiatives related to this domain, potentially through partnerships with more established research hubs. Overall, the analysis highlights both the collaborative nature of research in this field and the varying levels of engagement and collaboration among different countries, signaling avenues for further exploration and cooperation to advance sustainable and innovative solutions for food waste management on a global scale.

## DISCUSSION AND CONCLUSIONS

The present bibliometric analysis provides a comprehensive overview of the research landscape in sustainable and innovative solutions for food waste management. By employing the Scopus database and the VOSviewer software, this study offers valuable insights into various aspects of this multidisciplinary field, including publication trends, influential authors, prominent institutions, recurring keywords, co-authorship patterns, and co-citation networks. The analysis reveals a significant growth in research activities related to sustainable and innovative solutions for food waste management, with a notable surge in publications in recent years. This surge can be attributed to the increasing awareness of the environmental, economic, and social implications of food waste, as well as the advancements in technology and innovation that facilitate the development of sustainable solutions.

One of the key findings of this study is the interdisciplinary nature of the field, as evidenced by the diverse range of subject areas contributing to the body of knowledge. Environmental Science, Agricultural and Biological Sciences, Engineering, Computer Science, and Chemistry emerge as the most prominent subject areas, indicating the multifaceted approach required to address the complex challenge of food waste management. This interdisciplinary collaboration is essential for fostering innovative solutions that integrate environmental, agricultural, technological, and scientific perspectives. The analysis of highly cited authors and their institutional affiliations highlights the influential contributors and research hotspots driving advancements in this field. The identification of these key players and institutions can facilitate future collaborations, knowledge exchange, and the dissemination of best practices.





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The keyword analysis provides valuable insights into the evolving research topics and areas of focus within the field of sustainable and innovative solutions for food waste management. Keywords such as "wastewater treatment," "adsorption," "biodegradable packaging," and "supply chains" indicate a strong emphasis on developing sustainable waste management techniques, exploring natural and bio-based materials, and integrating innovative solutions into food supply chain management. Additionally, the presence of keywords related to sustainability principles, environmental impact assessments, and food systems underscores the holistic approach adopted by researchers in addressing this multifaceted challenge.

Furthermore, the co-authorship network analysis reveals the global collaborations and partnerships that have influenced the field, highlighting both the well-established research hubs and the emerging contributors. The identification of these collaborative networks can foster future international collaborations, knowledge sharing, and the exchange of best practices, ultimately accelerating the development of sustainable and innovative solutions for food waste management. The co-citation analysis by authorship provides insights into the intellectual structure of the field, identifying potential research communities and influential works that have shaped the discourse. This analysis can serve as a valuable resource for researchers to navigate the existing literature, identify relevant citations, and build upon the collective knowledge within the field.

In conclusion, this bibliometric analysis presents a comprehensive and data-driven understanding of the research landscape in sustainable and innovative solutions for food waste management. By synthesizing various aspects, including publication trends, author contributions, subject areas, keyword occurrences, co-authorship patterns, and co-citation networks, this study offers a holistic perspective on the current state and future directions of this crucial field. The findings highlight the multidisciplinary nature of the research, the influential contributors, and the global collaborations driving advancements in sustainable and innovative approaches to food waste management. This analysis serves as a valuable resource for researchers, policymakers, and stakeholders in the food industry, providing a solid foundation for shaping future research agendas, fostering collaborations, and addressing the global challenge of food waste through sustainable and innovative solutions.

## REFERENCES

- [1] Rios-Campos, C. et al. (2023). Artificial Intelligence and Education. *South Florida Journal of Development*, 4(2), 641-655.
- [2] Ouyang, F., Jiao, P. (2021). Artificial intelligence in education: The three paradigms. *Computers and Education: Artificial Intelligence*, 2, 100020.
- [3] Chen, L., Chen, p., Lin, Z. (2020). Artificial Intelligence in Education: A Review. *IEEE Access*.
- [4] Sanusi, I.T., Olaleye, S.A., Agbo, F.J., Chiu, T.K.F. (2022). The role of learners' competencies in artificial intelligence education. *Computers and Education: Artificial Intelligence*, 3(1), 100098.
- [5] Pillai, P., Sivathanu, B., Metri, B., Kaushik, N. (2024). Students' adoption of AI-based teacher-bots (T-bots) for learning in higher education. *Information Technology & People*, 37(1), 328–355.
- [6] Hang, Y., Khan, S., Alharbi, A., Nazir, S. (2022). Assessing English teaching linguistic and artificial intelligence for efficient learning using analytical hierarchy process and Technique for Order of Preference by Similarity to Ideal Solution. *Journal of Software: Evolution and Process*, 36(8).



## Conference Proceedings

- [7] Van Eck, N. J., Waltman, L. (2017). Citation-based clustering of publications using CitNetExplorer and VOSviewer. *Scientometrics*, 111(2), 1053–1070.
- [8] Van Eck, N. J., Waltman, L. (2010). Software survey: VOSviewer, a computer program for bibliometric mapping. *Scientometrics*, 84(2), 523–538.
- [9] Appio, F.P., Cesaroni, F., Di Minin, A. (2014). Visualizing the structure and bridges of the intellectual property management and strategy literature: a document co-citation analysis. *Scientometrics*, 101(1), 623–661.
- [10] Van Eck, N.J., Waltman, L. (2007). Bibliometric mapping of the computational intelligence field. In: *Int. Journal of Uncertainty, Fuzziness and Knowledge-Based Systems*, 15(5), 625–645.
- [11] Dwivedi, Y. K. et al. (2023). So what if ChatGPT wrote it? Multidisciplinary perspectives on opportunities, challenges and implications of generative conversational AI for research, practice and policy. *International Journal of Information Management*, 71, 102642.
- [12] Rudolph, J., Tan, S., Tan, S. (2023). ChatGPT: Bullshit spewer or the end of traditional assessments in higher education? *Journal of Applied Learning & Teaching*, 6(1), 342–363.
- [13] Khan, R.A., Jawaid, M., Khan, A.R., Sajjad, m. (2023). ChatGPT-Reshaping medical education and clinical management. *Pakistan Journal of Medical Sciences*, 39(2), 605–607.
- [14] Cooper, G. (2023). Examining Science Education in ChatGPT: An Exploratory Study of Generative Artificial Intelligence. *Journal of Science Education and Technology*, 32(3), 444–452.
- [15] Rudolph, J., Tan, S., Tan, S. (2023). War of the chatbots: Bard, Bing Chat, ChatGPT, Ernie and beyond. The new AI gold rush and its impact on higher education. *Journal of Applied Learning & Teaching*. 6(1), 364–389.
- [16] Perkins, m. (2023). Academic Integrity considerations of AI Large Language Models in the post-pandemic era: ChatGPT and beyond. *Journal of University Teaching and Learning Practice*, 20(2), 7-24.
- [17] Crawford, J. Cowling, M., Allen, K.-A. (2023). Leadership is needed for ethical ChatGPT: Character, assessment, and learning using artificial intelligence (AI). *Journal of University Teaching and Learning Practice*, 20(3), 1-21.
- [18] Seberini, A. (2020). Economic, Social and Environmental World Impacts of Food Waste on Society and Zero Waste as a Global Approach to Their Elimination. *SHS web of conferences*, 74:03010.
- [19] Sridhar, A., Kapoor, A., Kumar, P. S., Ponnuchamy, M., Balasubramanian, S., Prabhakar, S. J. F. (2021). Conversion of food waste to energy: A focus on sustainability and life cycle assessment. *Fuel*, 302, 121069.
- [20] Ma, Y., Liu, Y. J. B. (2019). Turning food waste to energy and resources towards a great environmental and economic sustainability: An innovative integrated biological approach. *Biotechnology advances*, 37(7), 107414.
- [21] Tonini, D., Albizzati, P. F., Astrup, T. F. J. W. M. (2018). Environmental impacts of food waste: Learnings and challenges from a case study on UK. *Waste management*, 76, 744-766.
- [22] Hussein, M., Yoneda, K., Mohd-Zaki, Z., Amir, A., Othman, N. J. C. (2021). Heavy metals in leachate, impacted soils and natural soils of different landfills in Malaysia: An alarming threat. *Chemosphere*, 267, 128874.



## Conference Proceedings

- [23] Selvam, A., Xu, S. Y., Gu, X. Y., Wong, J. W. J. B. (2010). Food waste decomposition in leachbed reactor: role of neutralizing solutions on the leachate quality. *Bioresource Technology*, 101(6), 1707-1714.
- [24] He, Z., Lin, H., Hao, J., Kong, X., Tian, K., Bei, Z., Tian, X. J. B. t. (2018). Impact of vermiculite on ammonia emissions and organic matter decomposition of food waste during composting. *Bioresource Technology*, 263, 548-554.
- [25] Hartikainen, H., Mogensen, L., Svanes, E., Franke, U. J. W. M. (2018). Food waste quantification in primary production—the Nordic countries as a case study. *Waste management*, 71(3), 502-511.
- [26] Teigiserova, D. A., Hamelin, L., Thomsen, M. J. S. (2020). Towards transparent valorization of food surplus, waste and loss: Clarifying definitions, food waste hierarchy, and role in the circular economy. *The Science of the Total Environment*, 706: 136033.
- [27] Dongyu, Q. J. (2019). Moving forward on reducing food loss and waste. <https://www.pas.va/en/publications/scripta-varia/sv147pas/qu.html>
- [28] FAO (2014). Food wastage footprint full-cost accounting: final report. Rome.
- [29] iPES FOOD (2019). Towards a Common Food Policy for the European Union: The policy reform and realignment that is required to build sustainable food systems in Europe. Brussels.
- [30] Trabold, T., Babbitt, C. W. (2018). Sustainable food waste-to-energy systems. Academic Press, Cambridge.
- [31] Scherhauer, S., Moates, G., Hartikainen, H., Waldron, K., Obersteiner, G.J.W. (2018). Environmental impacts of food waste in Europe. 77:98-113.
- [32] Gunders, D., Bloom, J. (2017). Wasted: How America is losing up to 40 percent of its food from farm to fork to landfill. NRDC, New York.
- [33] Li, J., Li, W., Wang, L., Jin, B. J. E. (2021). Environmental and cost impacts of food waste in university canteen from a life cycle perspective. *Energies*, 14(18), 5907.
- [34] Kaur, P., Dhir, A., Talwar, S., Alrasheedy, M. J. (2021). Systematic literature review of food waste in educational institutions: setting the research agenda. *International Journal of Contemporary Hospitality Management*, 33(4), 1160-1193.
- [35] Zhao, H., Themelis, N., Bourtsalas, A. J., McGillis, W.R. (2019). Methane emissions from landfills. Columbia University, New York.
- [36] Pachauri, R. K., Allen, M. R., Barros, V. R., Broome, J., Cramer, W., Christ, R., Dasgupta, P. (2014). Climate change 2014: synthesis report. Contribution of Working Groups I, II and III to the fifth assessment report of the Intergovernmental Panel on Climate Change.
- [37] Paritosh, K., Kushwaha, S. K., Yadav, M., Pareek, N., Chawade, A., Vivekanand, V. J. B. (2017). Food waste to energy: an overview of sustainable approaches for food waste management and nutrient recycling. *BioMed Research International*, 2,1-19.
- [38] Siddiqua, A., Hahladakis, J. N., Al-Attiya, W. A. K. J. E. S., Research, P. (2022). An overview of the environmental pollution and health effects associated with waste landfilling and open dumping. *Environmental Science and Pollution Research*, 29(39), 58514-58536.
- [39] Saqib, N. U., Sharma, H. B., Baroutian, S., Dubey, B., Sarmah, A. K. J. (2019). Valorisation of food waste via hydrothermal carbonisation and techno-economic feasibility assessment. *The Science of The Total Environment*, 690, 261-276.



## Conference Proceedings

- [40] Di Maria, F., Micale, C. J. (2015). Life cycle analysis of incineration compared to anaerobic digestion followed by composting for managing organic waste: the influence of system components for an Italian district. *The International Journal of Life Cycle Assessment*, 20, 377-388.
- [41] Slorach, P. C., Jeswani, H. K., Cuéllar-Franca, R., Azapagic, A. J. (2019). Environmental and economic implications of recovering resources from food waste in a circular economy. *Science of The Total Environment*, 693, 133516.
- [42] Alnouss, A., McKay, G., Al-Ansari, T. J. (2019). A techno-economic-environmental study evaluating the potential of oxygen-steam biomass gasification for the generation of value-added products. *Energy Conversion and Management*, 196, 664-676.
- [43] Liu, M., Ogunmoroti, A., Liu, W., Li, M., Bi, M., Liu, W., Cui, Z. J. (2022). Assessment and projection of environmental impacts of food waste treatment in China from life cycle perspectives. *The Science of The Total Environment*, 807(1), 150751.
- [44] Zhao, S., Yan, K., Wang, Z., Gao, Y., Li, K., Peng, J. J. R. (2023). Does anaerobic digestion improve environmental and economic benefits of sludge incineration in China? Insight from life-cycle perspective. *Resources Conservation and Recycling*, 188(15), 106688.
- [45] O'Connor, J., Hoang, S. A., Bradney, L., Dutta, S., Xiong, X., Tsang, D. C., Bolan, N. S. (2021). A review on the valorisation of food waste as a nutrient source and soil amendment. *Environmental Pollution*, 272, 115985.
- [46] Rajkumar, R., Kurinjimalar, C. J. (2021). Food wastes/residues: Valuable source of energy in circular economy. *Handbook of Biofuels*, 7: 147-163.
- [47] Singh, P. K., Mohanty, P., Mishra, S., Adhya, T. K. (2022). Food waste valorisation for biogas-based bioenergy production in circular bioeconomy: Opportunities, challenges, and future developments. *Frontiers in Energy Research*, 10, 903775.
- [48] Elkhalfifa, S., Al-Ansari, T., Mackey, H. R., McKay, G. J. R. (2019). Food waste to biochars through pyrolysis: A review. *Resources Conservation and Recycling*, 144, 310-320.
- [49] Al-Rumaihi, A., McKay, G., Mackey, H. R., Al-Ansari, T. J. S. (2020). Environmental impact assessment of food waste management using two composting techniques. *Sustainability*, 12(4), 1595.
- [50] Al-Obadi, M., Ayad, H., Pokharel, S., Ayari, M. A. (2022). Perspectives on food waste management: Prevention and social innovations. *Sustainable Production and Consumption*, 31(3), 190-208.



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# BRIDGING THE GAP – UNDERSTANDING DEMOGRAPHIC DISPARITIES IN CONSUMER CREDIT ADOPTION: THE CASE FOR BUY NOW PAY LATER

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DOI: 10.5937/EEE24047S  
JEL: D11, D12, J11  
Original Scientific Paper

### ABSTRACT

*Financial institutions like banks have a significant role in lending credit to their consumers based on the different criteria that must be considered before issuing the loan. This study investigates the influence of demographic variables on the usage and adoption of financial services. The primary objective of this study was to identify how age, gender, income, education, occupation, and credit score levels impact consumer behavior and their preferences in the “Buy Now and Pay Later” financial services. Using a quantitative approach, an online survey was conducted with 350 valid responses forming the basis of this study. Findings reveal that gender and income significantly influence CIBIL scores, borrowing intention strongly predicts BNPL actual borrowing, and the overall relationships between these variables and financial behavior are generally weak. This indicates that other uninvestigated elements could exist that significantly influence the formation of financial behaviors. The results underscore the necessity for expanded inquiry to incorporate supplementary variables, including psychological factors or access to financial education, to enhance understanding of the determinants of financial behaviour. These differences, according to what has been found in the financial services utilization across different demographic segments, point to a very important need for greater inclusivity in tailoring personalized financial services toward enhancing financial well-being. These findings are very instrumental to financial institutions seeking to reduce demographic disparities and foster a much more inclusive financial ecosystem.*

### KEYWORDS

*demographic disparity, credit adoption, consumer behaviour, financial services, preferences*

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# INTRODUCTION

The rapid expansion of the buy now, pay later (BNPL) industry has gained significant attention in recent times, as these innovative financial tools are increasingly favored by consumers seeking enhanced flexibility in payment. The BNPL industry is expected to reach a market value of \$349.4 billion in 2023, the sector has experienced extraordinary growth caused by evolving consumer behaviors, technological advancements, and the increasing e-commerce landscape. Between 2023 and 2028, it is projected that the market will expand at a compound annual growth rate (CAGR) exceeding 19%, with over 2 billion BNPL transactions expected in 2028 (Global Data, 2024). With the seamless integration of these BNPL solutions into the broader e-commerce framework in addition to the proliferation of smartphones and mobile applications, such a service has become not only very practical but also more attractive, facilitating penetration into new domains such as home improvement, healthcare, travel, and education (Vishwakarma, 2024).

Notable factors that could influence digital financial service adoption have been demonstrated through several theoretical frameworks, such as the Technology Acceptance Model, the Theory of Planned Behavior, and the Unified Theory of Acceptance and Use of Technology, among others (Ooi, Tan, 2016; Sharma et al., 2020; Zhou et al., 2010). These models revolve around constructs such as perceived usefulness, ease of use, and trust in digital platforms, among other variables assessing perceptions and attitudes (Bailey et al., 2017; Chuang et al., 2020). They often overlook the effect of demographic variables. Some studies have outlined that issues such as age, gender, and previous experience with other digital payment systems shape the adoption and long-term use of digital payment systems (Napis, Daud, 2023). As the adoption of digital finance systems keeps rising, it is of great pertinence to understand the demographic factors influencing their usage. Demographic factors including age, gender, educational background, occupation, credit score, and income, have not been much explored within the framework of financial decision-making in BNPL. Consequently, this research will investigate these demographic variables' influence on financial behaviour. By elucidating their impact, we can learn informative causes of the barriers and enablers to financial service use across different demographic segments. This understanding is critical for businesses and companies aiming to create products that help with financial inclusion.

Overall, digitally-based lending platforms appeal to borrowers underserved by traditional banks, such as small enterprises and individuals with limited credit histories, due to their streamlined application procedures, faster approval process times, and more transparent fee structures. Although interest rates may occasionally be higher, the flexibility and possibility of loan customization are highly desirable (Lieberman et al., 2019). On the supply side, these platforms apply sophisticated algorithms and alternative data sources to assess creditworthiness, potentially broadening access to financial resources. Reduced operational costs facilitate competitive interest rates and terms, while substantial capital inflow from institutional investors and the expansion of peer-to-peer lending further strengthen the online lending market (Basha et al., 2021; Pang et al., 2022). Ensuring clarity in loan terms and the implementation of responsible lending practices are essential for sustainable market growth (Basha et al., 2021). Additionally, the efficacy of online lending platforms is significantly affected by macroeconomic variables such as fluctuations in interest rates and recessions, thereby rendering expert credit risk assessment and management essential, particularly in times of economic volatility (Canhoto, Dibb, 2016).

This research to the current literature in a couple of ways: It provides an understanding of the influence of demographic factors on the adoption of new innovative digital financial services. Overall, it underlines the importance of studying differences in individual risk attitudes in relation to financial behavior. It helps to understand better the clients of various stakeholders who work in this specific lending industry.



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The remaining sections of this paper are organized in the following manner: initial literature review, followed by hypothesis development, research methodology, consequent data analysis, and the conclusion containing recommendations for future research endeavors.

## LITERATURE REVIEW

Previous studies on scholarly literature have consistently highlighted the influence of demographic factors in shaping the uptake of financial services. Age constitutes one of the frequently scrutinized demographic variables, constantly proved that younger cohorts are more likely to use digital financial products compared with older segments. This observed phenomenon is primarily attributed to superior technological acumen and an elevated comfort level with digital interfaces among younger cohorts (Huang, 2018; Lee, & Teo, 2019). Furthermore, gender disparities also show in financial behaviors and the adoption of services. Empirical studies have documented that women frequently display more conservative financial tendencies and are less inclined to engage with intricate financial products in comparison to men (Fisher & Yao, 2017). These observed differences could be based on the varying levels of financial literacy and risk tolerance across genders (Lusardi & Mitchell, 2014).

The interaction between income and educational significantly linked to demand for financial services. Individuals with higher income brackets tend to have access to the largest possible sets of financial products and services, attributable a phenomenon explained by increased financial capacity and improved levels of financial literacy (Van Rooij et al., 2011). Correspondingly, individuals possessing higher educational qualifications generally demonstrate superior financial knowledge (Radović-Marković, et al., 2013), which serves to facilitate the adoption of financial services (Klapper et al., 2013). The credit score is a numerical representation that evaluates an individual's creditworthiness and the likelihood of fulfilling loan and debt obligations, typically derived from an analysis of the individual's credit report (Arya et al., 2013). This research conceptualizes credit score as a measure of financial risk and creditworthiness, which can significantly influence borrowing intentions and actual borrowing behaviors. A high credit score indicates responsible financial conduct. In contrast, a low score reflects a high-risk appetite, contrasting with the implications of a low-risk appetite associated with a low credit score. Notably, income and age exhibit a strong correlation; however, gender does not exert a significant influence on credit score.

Different occupations may exhibit different borrowing behaviour as well as risk appetites

Borrowing intention derived from behavioral intention refers to

### Research Objective:

- To examine how demographic factors (age, gender, occupation, education, income), influence credit scores, borrowing intention, and actual borrowing behavior.
- To examine how credit score influences borrowing intention
- To examine how much behavioral intention influences borrowing behaviour.

### Hypotheses Formulation

Gender differences may influence financial behavior and access to credit. Different age groups may exhibit varying borrowing behaviors and intentions. Occupation: Job type and stability can impact financial stability and borrowing behavior. Higher education levels may correlate with better financial literacy and borrowing decisions. Income: Income levels can influence credit scores and the ability to



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borrow. CIBIL is a measure of financial risk and creditworthiness, which can impact borrowing intentions and actual borrowing behavior. The individual's intention or plan to borrow money within a certain period. The actual behavior of borrowing money, including the amount and frequency.

- H1a:** Age is positively related to credit score (older individuals may have better credit scores due to longer credit history).
- H1b:** Age is positively correlated with borrowing intention
- H1c:** Age is positively related to actual borrowing
- H2a:** Gender influences credit score (e.g., women may have different credit behaviors than men).
- H2b:** There is a significant difference in borrowing intention between different genders
- H2c:** There is a significant difference in actual borrowing between different genders
- H3a:** Higher income positively relates to credit score (more financial resources lead to better credit management).
- H3b:** There is a significant difference between different income groups and their borrowing intention
- H3c:** There is a significant difference between different income groups and their actual borrowing
- H4a:** There is a significant difference in the credit scores of people from different occupations
- H4b:** There is a significant difference in the borrowing intention of people from different occupations
- H5a:** Higher education levels are positively related to credit score (better financial literacy).
- H5b:** Higher education levels are positively related to borrowing intention
- H5c:** Higher education levels are positively related to actual borrowing
- H6a:** Higher credit scores are positively related to borrowing intention (individuals with higher credit scores are more confident in obtaining credit).
- H6b:** Higher credit scores are positively related to actual borrowing behavior (those with higher scores are more likely to be approved for loans).
- H7:** Borrowing intention is positively related to actual borrowing (intentions translate into actual behavior).

## RESEARCH METHODS

Responses were solicited through an online platform [www.clickworker.com](http://www.clickworker.com), from a diverse population all across India due to lack of a sampling frame. We used a non-probabilistic sampling approach to conduct a cross-sectional online survey of Indian customers. In order to ensure a broad participant pool, participants were recruited using Clickworkers.com, a reliable crowdsourcing site that has been extensively utilized in prior research (Ettinger et al., 2021; Rauschendorfer et al., 2022). Since online surveys are so accessible, we were able to reach a bigger and more varied sample of individuals across the nation of India.

The following data is coded in SPSS:





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Variable	Category	REP	No.	%	Variable	Category	REP	No.	%
<b>Gender</b>	Male	1	228	65	<b>Occupation</b>	Student	1	56	16
	Female	2	121	35		Public sector Employee	2	18	5
<b>Age</b>	18-29 years	2	186	53	Private sector Employee	3	134	38	
	30-39 years	3	115	33	Business person	4	12	3	
	40-49 years	4	39	11	Retired	5	3	1	
	50-59 years	5	6	2	Self-employed	6	96	27	
	Above 60 years	6	4	1	Unemployed	7	31	9	
	<b>Income</b>	Below Rs.50,000	1	248	71	<b>Education</b>	Less than 12 <sup>th</sup> standard	1	2
Rs.50,001 -100,000		2	73	21	12th Class graduate		2	37	11
100,000-150,000		3	15	4	Diploma/ Certificate		3	20	6
Above 150,000		4	14	4	Bachelors		4	193	55
<b>CIBIL</b>	Below 550	1	70	20	Masters	5	93	27	
	550-650	2	67	19	PhD and Above	7	5	1	
	650-750	3	123	35					
	Above 750	4	90	26					

$$\text{CreditScore}_i = \beta_0 + \beta_1 \text{Age}_i + \beta_2 \text{Gender}_i + \beta_3 \text{Occupation}_i + \beta_4 \text{Education}_i + \beta_5 \text{Income}_i + \epsilon_i$$

Descriptive statistics and correlation

Variables	Mean	Std. Deviation	1	2	3	4	5	6	7	8
1. Gender	1.35	.477	1	.143**	-.052	.077	.114*	-.159**	.040	-.008
2. Age	2.65	.832	.143**	1	.068	.209**	.139**	.042	.036	-.009
3. Income	1.41	.755	-.052	.068	1	.024	.219**	.236**	.122*	.030
4. Occupation	3.86	1.980	.077	.209**	.024	1	.107*	-.088	-.053	.003
5. Education	4.02	.963	.114*	.139**	.219**	.107*	1	.055	-.007	-.079
6. CIBIL	2.67	1.068	-.159**	.042	.236**	-.088	.055	1	.124*	.029
7. BI	3.3657	.93168	.040	.036	.122*	-.053	-.007	.124*	1	.271**
8. Use	2.1486	.49575	-.008	-.009	.030	.003	-.079	.029	.271**	1

The data reveals several significant yet generally weak correlations among the variables. Gender shows a weak positive correlation with Age and a weak negative correlation with CIBIL scores, suggesting the presence of some influence of gender on these factors. Income is positively correlated with both CIBIL scores and Education, indicating that higher education levels and income are linked to better creditworthiness. Behavioral Intention (BI) shows a moderate positive correlation with Use, implying that stronger intentions lead to higher usage. Occupation is also positively correlated with Age,

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indicating that occupation type may vary with age. Overall, most correlations fall within the weak to moderate range, reflecting limited but notable relationships between these variables.

Variable	Unstandardized Coefficient (B)	Standard Error	Standardized Coefficient (Beta)	t-value	p-value	Collinearity (VIF)
(Constant)	2.552	0.308	-	8.275	<0.001	-
Gender	-0.340	0.117	-0.152	-2.894	0.004	1.040
Age	0.084	0.069	0.065	1.220	0.223	1.079
Income	0.312	0.075	0.221	4.168	<0.001	1.060
Occupation	-0.053	0.028	-0.098	-1.849	0.065	1.054
Education	0.028	0.059	0.025	0.466	0.642	1.087

Model Summary	Value
R <sup>2</sup>	0.089
Adjusted R <sup>2</sup>	0.076
F-value	6.714
p-value (Model)	<0.001
Standard Error	1.027

The regression analysis reveals that the model, which includes predictors such as Education, Occupation, Gender, Income, and Age, significantly predicts CIBIL scores ( $F = 6.714$ ,  $p < 0.001$ ), though the explained variance is modest ( $R^2 = 0.089$ ). Notably, Gender ( $B = -0.340$ ,  $p = 0.004$ ) and Income ( $B = 0.312$ ,  $p < 0.001$ ) are significant predictors, with males potentially having lower CIBIL scores and higher income associated with better CIBIL scores. However, Age, Occupation, and Education do not significantly predict CIBIL scores. The model suggests a weak relationship between these factors and CIBIL scores, indicating that other variables might be necessary to explain the variance better. Multicollinearity is not a concern, as indicated by VIF values close to 1.

Statistic	Value	Dimension	Eigenvalue
R-Square	0.033	1	6.327
Adjusted R-Square	0.016	2	0.231
F-Statistic	1.968	3	0.162
Significance of F (p-value)	0.070	4	0.127
Sample Size (N)	350	5	0.076
Standard Error of Estimate	0.92402	6	0.056

#### Coefficients for Predictors:

Predictor	Unstandardized Coefficient (B)	Standardized Coefficient (Beta)	t-value	p-value	VIF
Constant	2.926	-	9.625	<0.001	-
Gender	0.129	0.066	1.210	0.227	1.065
Age	0.036	0.032	0.576	0.565	1.084
Income	0.135	0.109	1.951	0.052	1.113
Occupation	-0.025	-0.054	-0.982	0.327	1.065
Education	-0.041	-0.043	-0.774	0.439	1.088
CIBIL	0.092	0.105	1.887	0.060	1.098



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The regression analysis conducted to examine the relationship between Borrowing Intention (BI) and the predictors (Gender, Age, Income, Occupation, Education, and CIBIL score) yielded an R-Square of 0.033, indicating that the model explains only 3.3% of the variance in Borrowing Intention. The F-statistic was 1.968 with a p-value of 0.070, suggesting that the overall model is not statistically significant at the 0.05 level. Among the predictors, the coefficients for Income ( $B = 0.135$ ,  $p = 0.052$ ) and CIBIL score ( $B = 0.092$ ,  $p = 0.060$ ) were the closest to significance, but neither reached the conventional threshold. The other predictors (Gender, Age, Occupation, Education) did not show significant relationships with Borrowing Intention, as all p-values were above 0.05. Additionally, the collinearity diagnostics showed that multicollinearity was not a concern, with VIF values close to 1 for all predictors.

Variable	Unstandardized Coefficient (B)	Standardized Coefficient (Beta)	t-value	p-value	VIF
<b>(Constant)</b>	1.824	-	10.245	<0.001	-
<b>Gender</b>	-0.009	-0.009	-0.168	0.867	1.070
<b>Age</b>	-0.008	-0.013	-0.235	0.815	1.085
<b>Income</b>	0.010	0.015	0.275	0.784	1.126
<b>Occupation</b>	0.007	0.029	0.532	0.595	1.068
<b>Education</b>	-0.042	-0.081	-1.491	0.137	1.090
<b>CIBIL</b>	-0.001	-0.002	-0.036	0.971	1.109
<b>BI</b>	0.144	0.271	5.132	<0.001	1.034

The regression analysis, which examined the relationship between "Use" (dependent variable) and seven predictors (BI, Education, Occupation, Gender, CIBIL, Age, and Income) based on a sample size of 350, reveals that the model explains 8% of the variance in "Use" ( $R^2 = 0.080$ ). The F-statistic indicates that the overall model is statistically significant ( $F(7, 342) = 4.264$ ,  $p < 0.001$ ). However, among the predictors, only Borrowing Intention (BI) shows a significant positive effect on "Use" ( $\beta = 0.271$ ,  $p < 0.001$ ). Other variables, including Gender, Age, Income, Occupation, Education, and CIBIL, do not have a statistically significant impact on "Use" in this model. Collinearity diagnostics suggest that multicollinearity is within acceptable limits, as indicated by variance inflation factors (VIFs) below 10.

The regression analysis exploring the relationship between Borrowing Intention (BI) and various predictors, including Gender, Age, Income, Occupation, Education, and CIBIL score, shows that the model explains 3.3% of the variance in BI ( $R\text{-Square} = 0.033$ ). The model itself is not statistically significant ( $F = 1.968$ ,  $p = 0.070$ ). Among the predictors, Income ( $B = 0.135$ ,  $p = 0.052$ ) and CIBIL score ( $B = 0.092$ ,  $p = 0.060$ ) were the most closely associated with Borrowing Intention, though they did not reach statistical significance. Other predictors (Gender, Age, Occupation, Education) had p-values well above 0.05, indicating no significant impact on Borrowing Intention. The Variance Inflation Factor (VIF) values were all close to 1, suggesting that multicollinearity was not an issue in this model.

### Gender

Dependent variable	F-Value	p-Value	Significant?	Eta-squared	Interpretation
<b>CIBIL</b>	8.989	0.003	Yes	0.025	Small but significant effect
<b>BI</b>	0.545	0.461	No	0.002	No significant effect
<b>Use</b>	0.020	0.888	No	0.000	No significant effect



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### Income

Variable	Between Groups Sum of Squares	df	Mean Square	F	Sig.	Eta-squared	Post Hoc Test (Tukey HSD) Results
<b>CIBIL</b>	24.631	3	8.210	7.611	<.001	0.062	Significant differences: Below 50,000 vs. 50,000-100,000 (p = 0.002) Below 50,000 vs. Above 150,000 (p = 0.031)
<b>BI</b>	6.206	3	2.069	2.412	0.067	0.020	No significant differences among income groups.
<b>Use</b>	3.142	3	1.047	4.386	0.005	0.037	Significant differences: 100,000-150,000 vs. Below 50,000 (p = 0.021) 100,000-150,000 vs. Above 150,000 (p = 0.005)

The Oneway ANOVA results reveal significant differences in CIBIL and Use scores across different income groups. For CIBIL, there are notable differences between individuals with incomes below 50,000 and those earning between 50,000-100,000 or above 150,000. For Use, significant variations are observed between those with incomes of 100,000-150,000 compared to those with incomes below 50,000 or above 150,000. The effect sizes indicate medium effects for CIBIL and small to medium effects for Use. In contrast, no significant differences in BI scores are found across income groups.

### Age

Variable	Between Groups Sum of Squares	df	Mean Square	F	Sig.	Eta-squared	Post Hoc Test (Tukey HSD) Results
<b>CIBIL</b>	3.038	4	0.760	0.664	0.618	0.008	No significant differences among age groups.
<b>BI</b>	6.234	4	1.558	1.812	0.126	0.021	No significant differences among age groups.
<b>Use</b>	0.267	4	0.067	0.269	0.898	0.003	No significant differences among age groups.

The SPSS Oneway ANOVA output assesses the impact of age on three variables: CIBIL, BI, and Use. For CIBIL, no significant differences are found between age groups ( $F = 0.664$ ,  $p = 0.618$ ), and effect sizes are very small, indicating minimal influence of age on CIBIL. Similarly, BI shows no significant age differences ( $F = 1.812$ ,  $p = 0.126$ ), with small to negligible effect sizes. The Use variable also reveals no significant differences across age groups ( $F = 0.269$ ,  $p = 0.898$ ), with similarly minimal effect sizes. Post hoc tests using Tukey's HSD were conducted but did not identify significant differences between age groups for any of the variables.



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### Occupation

Variable	Between Groups p-value	Eta-squared	Significant Differences (Post Hoc)
<b>CIBIL</b>	0.105	0.030	None
<b>BI</b>	0.009	0.049	Significant: Private sector employee vs. Student
<b>Use</b>	0.179	0.025	None

The One-Way ANOVA analysis examines differences in CIBIL, BI, and Use scores among various occupational groups. For **CIBIL** scores, the test reveals no significant differences between groups ( $p = 0.105$ ), with small effect sizes (eta-squared = 0.030). The Tukey HSD post hoc test indicates no significant pairwise differences between specific occupations. In contrast, **BI** scores show significant differences among groups ( $p = 0.009$ ), with moderate effect sizes (eta-squared = 0.049). Post hoc comparisons reveal significant differences specifically between private sector employees and students. Lastly, for **Use** scores, there are no significant differences between groups ( $p = 0.179$ ), and the effect sizes are small (eta-squared = 0.025). The Tukey HSD post hoc test similarly shows no significant pairwise differences.

The regression analysis between CIBIL and Gender shows there is significant effect where men.

### Education

Variable	Between Groups Sum of Squares	df	Mean Square	F-Value	p-value	Significant Differences in Tukey HSD
<b>CIBIL</b>	7.870	5	1.574	1.388	0.228	No significant differences among education levels
<b>BI</b>	2.589	5	0.518	0.593	0.705	No significant differences among education levels
<b>Use</b>	3.866	5	0.773	3.247	0.007	Significant differences noted, especially between certain groups (e.g., "7" vs. "Bachelors")

A one-way ANOVA was conducted to evaluate the impact of education level on three variables: CIBIL scores, Borrowing Intention (BI), and Use of financial products. The results show that there were no significant differences among education levels for CIBIL scores ( $F = 1.388$ ,  $p = 0.228$ ) and Borrowing Intention ( $F = 0.593$ ,  $p = 0.705$ ). However, for the Use of financial products, significant differences were observed ( $F = 3.247$ ,  $p = 0.007$ ). Tukey HSD post-hoc tests revealed that some education groups, such as those labeled "Ph.D and above" and "Bachelors," differed significantly in their usage patterns. Despite this, no other variable exhibited significant differences across the education levels.



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### DISCUSSION

The results of the analysis reveal several important insights into the relationships between demographic and socioeconomic variables and their influence on financial behavior, particularly in terms of creditworthiness, borrowing intention, and usage of financial products. Although the correlations observed among the variables are generally weak, they provide meaningful indications of underlying patterns.

Gender and Age show a weak positive correlation, suggesting a potential age-related trend in gender distribution. Similarly, the observed weak negative correlation between gender and CIBIL scores suggests a potential trend indicating that males may, on average, possess lower credit scores (high risk appetite), a supposition that is proven by regression analysis which gender was statistically found to be a very significant negative predictor of CIBIL scores. This outcome aligns with prior empirical studies demonstrating differences in financial behaviors and credit outcomes across genders, possibly due to different income levels, risk aversion, or access to financial resources (Bover et al., 2019, Croson, Gneezy, 2009).

In fact, the positive impact of being high on income on CIBIL scores, following educational levels, does give a statistical handle to the assertion that along with increases in income and education levels, creditworthiness also enhances. This association is valid in concept, since individuals with higher income and education tend to have better financial literacy and more stable economic conditions, which foster credit practices that are more cautious and less risky (Brown, Taylor, 2008, Jappelli, Padula, 2013, Klapper et al., 2013). In this context, too, income emerges as a significant predictor of CIBIL scores when it comes to explaining variance, although only to a moderate degree on the results from the regression analysis. This means that income is one factor but other variables not included in the model could play a significant role in deciding credit scores.

The correlation between Behavioral Intention (BI) and Use warrants particular attention. The moderate correlation, which is positive between the two constructs, means those respondents who have a higher intention of borrowing have a higher tendency of using financial services. The consistency of the finding is in alignment with the theory of planned behavior, stating that intention is considered to be an excellent predictor of actual behavior (Ajzen, 1991). This is further supported by regression analysis – the identification of BI as the only significant predictor derived from the approach for prediction of Use clearly underlines the importance of intention within the frame of the decision process in finances.

The positive correlation between occupation and age calls for little more than indicating that there might be more diversity in the type of occupation with increasing age, probably indicating a progression of change like the career with the advancing years but is nevertheless irrelevant to the announcement outcome, since occupation did not predict membership in any of the four groups in the regression analyses. This fact suggests that the nature of the influences of occupation is too complex and could be carried out by factors not directly represented in this research.

The ANOVA results yield additional insights regarding the influence of education, occupation, and income on financial behavior. Although education has no significant effect on CIBIL scores or BI, it does carry some influence in using financial product usage, and there are some distinguishably different differences in the usage of such products among different educational cohorts. This says that a possible level of education could indicate a certain way through which individuals interact with financial products. The reason could be the level of financial literacy or financial resources at their disposal. Occupation and income levels have similar different effects on financial behaviors, though it presented great differences across BI and Use scores by different income categories. This underlines the



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importance of socioeconomic status, though with effect sizes generally small and moderate, in the influence of financial behavior. They mean that these variables do not operate singly.

## CONCLUSION

In conclusion, although a number of demographic and socioeconomic variables prove to have statistically significant correlations with financial behaviors, most of these correlations are rather weak. They might, therefore, reflect the role of other unobserved factors. Gender and income emerge as slightly vital predictors of CIBIL scores, with males potentially showing lower scores, while higher income correlates with enhanced creditworthiness. Borrowing intention is a robust predictor of actual borrowing, highlighting the importance of intention within financial decision-making.

The modest R-squared values for the regression models suggest that these factors alone cannot account for all variations in financial behavior. This necessitates further research to investigate additional variables, such as psychological factors, access to financial education, and social influences, which will explain the determinants of financial behavior in relation to the use of BNPL schemes. Inequalities in this area are also found to exist along education, occupation, and income groups in financial behaviors, making the use of targeted financial education or any other policy interventions beneficial in improving credit outcomes and enabling financial inclusion across different demographic segments

Overall, this study improves the understanding of how these complex demographic and socioeconomic factors interact with financial behaviors, offering valuable insights for policymakers, financial institutions, and researchers dedicated to the promotion of responsible financial behavior and advancement of financial literacy in diverse populations.

## REFERENCES

- Ajzen, I. (1991). The Theory of Planned Behavior. *Organizational Behavior and Human Decision Processes*, 50(2), 179–211.
- Arya, S., Eckel, C., Wichman, C. (2013). Anatomy of the credit score. *Journal of Economic Behavior and Organization*, 95, 175–185.
- Bailey, A.A., Pentina, I., Mishra, A.S., Ben Mimoun, M.S. (2017). Mobile payments adoption by US consumers: an extended TAM. *International Journal of Retail and Distribution Management*, 45(6), 626–640.
- Basha, A. Shabeen, Elgammal, M.M., Abuzayed, B.M. (2021). Online peer-to-peer lending: A review of the literature. *Electronic Commerce Research and Applications*, 48, 101069.
- Canhoto, A.I., Dibb, S. (2016). Unpacking the interplay between organisational factors and the economic environment in the creation of consumer vulnerability. *Journal of Marketing Management*, Routledge, 32(3-4), 335–356.
- Chuang, L.-W., Chiu, S.-P., Wang, L.-S., Tian, W. (2020), Continuance Intention of Mobile Payment in Smart Service. In: *IEEE Eurasia Conference on IOT, Communication and Engineering*, Yunlin, Proceedings, pp. 203–204.



## Conference Proceedings

- Ettinger, J., Walton, P., Painter, J., DiBlasi, T. (2021). Climate of hope or doom and gloom? Testing the climate change hope vs. fear communications debate through online videos. *Climatic Change*, 164(1), 1-19.
- Fisher, P.J., Yao, R. (2017). Gender differences in financial risk tolerance. *Journal of Economic Psychology*, 61(Issue C), 191–202.
- Klapper, L., Lusardi, A., Panos, G.A. (2013). Financial literacy and its consequences: Evidence from Russia during the financial crisis. *Journal of Banking and Finance*, 37(10), 3904–3923.
- Lipman, B.J., Wiersch, A.M. (2019). Uncertain Terms: What Small Business Borrowers Find When Browsing Online Lender Websites. Board of Governors of the Federal Reserve System Washington, DC.
- Lusardi, A., Mitchell, O.S. (2014). The economic importance of financial literacy: Theory and evidence. *Journal of Economic Literature*, 52(1), 5–44.
- Napis, N.M., Daud, N. (2023). Factors Influencing Adoption of E-Wallet Among Malaysian Young. *International Journal of Academic Research in Business and Social Sciences*, 13(2), 338-355.
- Ooi, K.B., Tan, G.W.H. (2016). Mobile technology acceptance model: An investigation using mobile users to explore smartphone credit card. *Expert Systems with Applications*, 59, 33–46.
- Pang, S., Deng, C., Chen, S. (2022). System Dynamics Models of Online Lending Platform Based on Vensim Simulation Technology and Analysis of Interest Rate Evolution Trend. *Computational Intelligence and Neuroscience*, 776138, 1-21.
- Radović–Marković, M., Kočović, J., Grozdanić, R. (eds). (2013). *Entrepreneurship, finance and education in the digital age*. Lap Lambert Academic Publishing, Saarbrücken.
- Rauschendorfer, N., Prügler, R., Lude, M. (2022). Love is in the air. Consumers' perception of products from firms signaling their family nature. *Psychology and Marketing*, 39(1), 239–249.
- Van Rooij, M.C.J., Lusardi, A., Alessie, R.J.M. (2011). Financial literacy and retirement planning in the Netherlands. *Journal of Economic Psychology*, 32(4), 593–608.
- Sharma, R., Singh, G., Sharma, S. (2020). Modelling internet banking adoption in Fiji: A developing country perspective. *International Journal of Information Management*, 53, 102116
- Zhou, T., Lu, Y., Wang, B. (2010). Integrating TTF and UTAUT to explain mobile banking user adoption. *Computers in Human Behavior*, 26(4), 760–767.





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# THE SOCIAL RIGHTS OF WORKERS IN SOCIAL EUROPE WITH A REVIEW IN NORTH MACEDONIA

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DOI: 10.5937/EEE24048R

JEL: J83, K22, K31, K38

Review Scientific Paper

### ABSTRACT

*The historical efforts of workers for the recognition of various economic, social and cultural rights are primarily focused on the rights related to their work and status. Before the constitution of the United Nations and the Universal Declaration of Human Rights, the International Labor Organization developed and implemented a wide range of standards relating to work. As a result of decades of international and national efforts, labor initiatives in many countries, human rights standards have experienced tremendous progress. The achievements of the EU in the domain of social law and justice are particularly impressive. Regardless of the fact that there is no universally accepted and mandatory corpus of social security, EU countries are obliged to respect minimum social rights arising from EU directives. This text provides a brief summary of the international standards relating to the right to work and labor rights, the regulation of these rights in the EU, as well as a brief overview of the situation in this domain in North Macedonia.*

### KEYWORDS

*labor rights, European social law, European Union, collective agreement, North Macedonia*

## INTRODUCTION

The right to work is the primary right among other specific rights recognized by the International Covenant on Economic, Social and Cultural Rights (ICESCR, multilateral international treaty, 1966..)<sup>2</sup>. Introduction The right to work is the primary right among other specific rights recognized by the International Covenant on Economic, Social and Cultural Rights (ICESCR). Part II of the Covenant sets out the nature of States' obligations. Section III elaborates on the right to work (Art. 6). The right to work exclusively treats access to work, as well as persons who do not have access to work. are the subject of the main attention. the right to work is only poorly detailed. EU law, in many respects, is the original source of labor rights. If the European Union's primary goal is to create a vast common market for employment, services and capital, it also pursues social goals. It is within this framework that the rules for the protection of workers have been developed, which organize and facilitate their mobility within the EU. This particularly concerns the freedom of movement that allows workers to move freely within the territory of another member state in order to get a job and stay there. The social corpus of the EU, which contains numerous other social rights, is a platform for the mandatory implementation of minimum requirements in certain areas.

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<sup>2</sup> The International Covenant on Economic, Social and Cultural Rights (ICESCR)



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Although each member state has specific national legislation in the field of social security, they are obliged to accept minimum social rules that enable harmonization of national laws on labor relations within the EU. This particularly concerns the domain of health and safety at work. EU law protects workers' basic social rights such as the right to action and collective bargaining. For this reason, EU law is the most important corpus of international standards in the social field. Unlike other rules derived from sources of international and European law, those derived from the European Union aim to directly create rights and obligations for individuals. Labor rights and valuing the labor of the worker are a priority and responsibility in numerous countries and their institutions. Such a strategy is particularly significant for EU membership candidate countries such as North Macedonia and the rest of the Western Balkans. In that direction, the states strive to implement the European directives in the domain of the European labor legislation, and to stimulate the social partners to conclude collective agreements.

## REGIONAL AND INTERNATIONAL STANDARDS FOR THE RIGHT TO WORK

Article 23 of the Universal Declaration of Human Rights guarantees that everyone has the right to work, to free choice of work, to fair and satisfactory working conditions and to protection against unemployment. In Article 6 (1), the ICESCR specifies "the right of everyone to gain opportunities through work, also stating in Article 6(2) that "the full realization of this right must include technical and vocational guidance". and training, and program development." Article 1(2) of ILO Convention 122 specifies that each member must ensure that "there shall be work for all those who are available and seeking work" (The ILO Conventions cover a wide area of social and labour issues..1919..).

Article 1 of The European Social Charter recommends (ESC,1961/1996, ), "...In order to ensure the effective realization of the right to work, the contracting parties undertake 1. to recognize as one of their main goals and responsibilities the achievement and maintenance of the highest and most stable level of employment in order to achieve full employment; 2. to effectively protect the employee's right to earn a living through freely undertaken work; 3. to establish or maintain free employment services for all workers; 4. to provide or promote appropriate professional orientation, training and rehabilitation.

## CREATION OF SOCIAL EUROPE

The roots of European social responsibility can be found at the beginning of the 17th century with the adoption of the Poor Laws (1601) in the United Kingdom. Then follows the legitimization of the protection of workers through the imperial message to the Reichstag of November 17, 1881, with the decision of Otto Von Bismarck establishing the principle of professional solidarity in social insurance in Prussia. Finally, with the project "three U" (universality, uniformity, unity) of Lord Beveridge in 1945, the United Kingdom and Europe, are offered a systemic solution to the social protection of employees. (Ruzin, (2006). In this way, the Welfare State enters Europe through a big door, which will start the creation of the welfare society.

The construction of social Europe implies the existence of various global, and especially European, legal instruments in the social area. In that direction, the International Labor Organization (ILO) has developed numerous conventions and recommendations that refer to all labor relations: freedom of



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association and protection of the right to organize. In addition, under the auspices of the Council of Europe, whose main mission is the promotion of human rights, with several texts they contributed to the advancement of the social rights of workers.

The law of the European Union first focused on the regulation of situations with the mobility of workers. In the Treaty of Rome of 1957 (EEC Treaty, 1957..) this is the central theme of the European project. Article 48 of the EEC Treaty, refers to the right to free mobility. All nationals of the Member States of the European Union have the right to move freely within the European Union and to enter and reside in any EU Member State. This right to freedom of movement is guaranteed by Article 21 of the Treaty on the Functioning of the EU (TFEU, ). Numerous rules encourage and regulate the right of workers as part of building a Social Europe in view of the creation of the vast common market for goods, people, services and capital. (EEC, 1957, Art.48.)

### Mobility

According to Article 45 of the Treaty on the Functioning of the European Union (TFUE, Maastricht. 1992), the free movement of people, initially recognized for the sole benefit of workers, must enable the creation of a common employment market. This right implies the abolition of any discrimination based on the nationality of workers from member states in terms of employment, remuneration and other working conditions. This includes the right to respond to jobs offered in another Member State, the right to free movement and residence in the territory of another Member State.( EU, Regulation, 2011..)

Mobility of workers, encouraged by EU law, is regulated by the implementation of techniques from international private law intended to resolve possible conflicts. The legal rules make it possible to determine the competent judge who will act on a possible dispute, as well as the law that will have to be applied. These provisions are specific according to the employment contract and the protection of the weaker party (the worker) resulting from the European regulation.( Regulation EU),1215/2012) In addition, other instruments are provided that allow to determine the applicability of social insurance law in the case of mobility. In view of this issue, there is no question of standardizing the social security legislation of the member states, especially since social law in general hardly works in this form of action by the EU, since the states have retained their competence in this area. It is not about harmonizing the social security legislation of the different member states either, but simply about the coordination of the social security systems. It is not about harmonizing the social security legislation of the different member states either, but simply about the coordination of the social security systems. Mandatory Minimum Labor Rights for EU Member States (Regulation 883/2004/EC)

### Mandatory Minimum labor rights for EU member states

In addition to encouraging and regulating the mobility of workers, the social law of the EU is aimed at establishing a certain number of minimum rules that the member states are obliged to transpose in their national legislation. With the Single European Act of 1986 ( SEA, 1986/1986) , the EU acquired competence to suggest to the members the adoption of directives that set minimum requirements for the member states.

In Article 118 of the SEA, which derives from the Rome Treaty of 1957, it is confirmed that "Member States shall endeavor to promote the improvement of the working environment, protection, safety and health of workers. They set themselves the goal of harmonizing the rules, by improving the conditions that exist in this area. These directives are also suggested to the candidate countries for EU membership, such as the countries



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of the Western Balkans. Social rules are intended to protect workers. The social policies of the EU are listed in Article 153 of the TFEU,(1992, Maastricht) and elaborated more specifically.

These are the following social directions: improving the working environment, protecting the health and safety of workers; working conditions; social insurance and social protection of workers; protection of workers in case of termination of the employment contract; information and consultation with workers; the representation and collective defense of the interests of workers and employers; conditions for employment of citizens of third countries legally residing in the territory of the Union; integration of persons excluded from the labor market; equality between men and women in terms of their opportunities in the labor market and treatment at work; the fight against social exclusion; the modernization of social protection systems. In each of these domains, the EU is competent to supplement the activities of the member states through directives. The aim is to harmonize national laws by imposing minimum requirements applicable in labor relations. Harmonization within social policies through directives is a vector of social progress; it is one of the driving forces of social Europe. Therefore, member states are required to make progress in certain social areas for the development of their social legislation and compliance with the minimum rules established by the directives. It is known that the EU does not have a single system of social protection that is mandatory for every member of the union. In the last fifteen years, EU action in favor of the protection of workers has developed in the domain of fundamental rights.

Already, in 1989, the Charter of Fundamental Social Rights of the Community, , made it possible to establish the main principles of the European model of labor law. (EU, Strasbourg, 1989) The Charter of Fundamental Social Rights of the Community...: "It is pointed out that social aspects should be given the same importance as economic aspects and (...), therefore, they must be developed in a balanced way. (Préambule de la Charte communautaire des droits sociaux..1989)

The Charter of Basic Social Rights of the Community, although it does not have a binding character, still remained a strong act in the affirmation of the authentic logic of social progress within the framework of the law of the European Union. In essence, it was about affirming the "social dimension of the EU in the domains of improving living and working conditions. During the promulgation of the Charter of Fundamental Rights of the EU, the European Council of the EU, in Nice in 2000, a turning point was reached.

The Charter of Fundamental Rights of the EU became part of the Treaty of Lisbon ( Treaty of Lisbon 2007). In Article 6.1. al. 1st of the Lisbon Treaty stands out:.... Endowed with binding force, the text proclaims all the civil, political, economic and social rights of EU citizens.( Article 6.1. para. 1 of the Treaty of Lisbon,2007)

Regarding labor relations specifically, the chapter dedicated to "Solidarity" confirms the existence of the right to information and consultation with workers in the company. Article 27 of the Charter of Fundamental Rights of the Union highlights the right to negotiation and collective action.( Article 27) Article 28 of the Charter of Fundamental Rights of the Union outlines the right of access to accommodation services. Article 29 of the Charter of Fundamental Rights of the Union highlights the right to protection in case of unjustified dismissal. Finally, Article 30 of the Charter highlights the right to fair working conditions. The recognition and implementation of these basic rights for the benefit of workers undoubtedly contributes to the construction of a social Europe, built progressively and in successive layers.

## The future of Social Europe

The future of social Europe is a current topic of debate and political competition. This topic is present in the EU institutions. Various alternatives are being considered, limiting the social dimension of free movement, or giving the states the opportunity to do more in the social field, deepening social rights individually or at the EU



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level. In the ambitions for a better Social Europe, the EU Commission presented the "*European Pillar of Social Rights*" which was the subject of an inter-institutional proclamation in April 2017 before being adopted on 17 November 2017 during Sweden's EU Presidency in Gothenburg.

This *European pillar of social rights* contains 20 principles and rights that are divided, in an ambitious program, around three global themes: a) equal opportunities and access to the labor market, b) fair working conditions, c) social protection and integration. In this way, rights such as the right to lifelong learning were confirmed in order to retain and acquire skills that enable full participation in life in society and successful management of transitions in the labor market.

In Chapter 1.1., equal treatment and equal opportunities between women and men in all areas, including in terms of participation in the labor market, employment conditions, career advancement and especially remuneration, are highlighted. Chapter 1.2: on the balance between professional and private life, chapter 2.9., on the right to a fair wage that enables a decent standard of living, could also be cited here. In chapter 2.6. the right to secure and flexible employment is emphasized.

The ambitions of the European Pillar of Social Rights were to become an instrument for the renewal of Social Europe. (Garnier, 2018/19) It is necessary to point out that legal social content by itself has no binding force. The use of the soft law process is intended not to create blockages by certain states on social issues that can cause conflicts and misunderstandings. For this reason, the European Pillar of Social Rights has been criticized for its lack of ambition and non-binding obligations for states which has generated some scepticism (Robin-Olivier, 2016b). According to experts, this social pillar should not remain declarative, but serve as a driving force for the adoption of texts capable of effectively renewing the process of social Europe (Ruzin, 2004).

## EU-states with the best system of social coverage for workers

As previously stated, there is no single European social security system. Each EU member state possesses a certain sovereignty and its own specific national system. European legislation simply coordinates these national systems to protect free movement and free trade. Although harmonization is not imposed, the EU still sets, in many areas, minimum requirements to improve working conditions in its territory. From a global perspective, European social protection systems have a good reputation.

Two studies, conducted by Glassdoor and Deloitte, compared social security systems across Europe. (Compare/Deloitte,2023) In most European countries, all social rights are guaranteed, but there are significant differences from one country to another in the application of these rights. Overall, Denmark, France and Spain are considered the countries with the most favorable social allocations, while Iceland, the United Kingdom (before and after Brexit) and Switzerland belong to countries with more limited social allocations. We will look at the differences in several domains of social coverage: *Maternity leave; The right to paternity leave; Parental leave; Paid leave; Unemployment benefit; Minimum guaranteed wage and wage inequalities; Quality of life of employees.*

*Maternity leave* The EU guarantees a minimum maternity leave of 14 weeks. However, the compensation and maximum duration of this leave can vary significantly. In this category, the UK (pre- and post-Brexit) is generous with 52 weeks of holiday, of which 39 are paid at 90% of salary for the first six weeks (then capped at €160 per week thereafter). Ireland follows with 42 weeks, of which 26 are paid at a flat rate of €188 per week. Germany, Spain, the Netherlands, France, Austria and Denmark offer more or less the statutory 14 weeks with 100% compensation.



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*The right to paternity leave:* This right is not regulated in the EU. There are big differences between countries with, on the one hand, Finland offering 45 days of leave to new fathers, Spain (15), France (11) and 10 days for Belgium, Denmark, Norway, Sweden. On the other hand, the Netherlands and Italy which give only 2 days and Austria, Germany, Ireland and Switzerland which do not offer this right at all.

*Parental leave:* The EU guarantees every parent the right to take leave to care for their children until they turn 8 for a minimum of 4 months. However, the amount paid during this leave is not specified. France and Germany grant up to 156 weeks of leave, compensation of 600 euros per month for 6 months or for 3 years if parents have more children. In contrast, Switzerland does not provide parental leave, and Belgium, the United Kingdom (pre- and post-Brexit) and Ireland only offer 17 weeks of leave, which is not always compensated. The amount paid during parental leave is not specified by the European Union.

*Paid leave :* The European Union provides the right to paid leave of at least 4 weeks per year, excluding public holidays. The amount of paid leave is highest in Sweden, France and Denmark (5 weeks). Furthermore, the number of public holidays varies from country to country. The Spanish calendar contains 14 public holidays, followed by Austria (13), Italy (12), Sweden, Finland and Greece (11), France (10), and even Switzerland, which plans only 4. Sick pay/Sickness allowances in EU countries, which are not regulated, vary widely. They are highest in the Netherlands, where workers can be absent for 104 weeks (2 years) and receive 70% of their salary. In contrast, compensation is only guaranteed for 28 weeks in the UK (around €100/week) and 26 weeks in France (at 50%).

*Unemployment benefit:* In EU countries, the amount of unemployment benefits and the period covered by this assistance may differ. Allocations are the highest in the most developed EU countries. Compensation in Denmark reaches 90% of salary up to 104 weeks, followed by Belgium with 65% of salary in the first thirteen weeks. France guarantees 60% of salary for 16 to 52 weeks. The least protected employees are those in the United Kingdom (pre- and post-Brexit) and Ireland, who benefit from a package of around €100 a week for 30 weeks.

*Minimum guaranteed wage and wage inequalities :* Wage inequality is the main problem facing the EU since the financial crisis. This significant gap is particularly visible in Portugal, Romania and Italy. Thus, only in six European countries (France, Germany, Benelux and the British Isles) does the monthly minimum wage exceed 1,000 euros. It is in Luxembourg where it is the highest, with 1,999 euros, and in Bulgaria, where it is the lowest at 235 euros. Inequalities between men and women. Although these inequalities tend to decrease in Europe, significant differences remain. The ratio of women and men with higher education qualifications in Europe is a relevant indicator. According to a 2022 Eurostat study, it averaged 29.9% for women compared to 25.9% for men, a gap of 4%. This difference varies considerably from one country to another: 11% in Bulgaria, 4.7% in France to 2.1% in Luxembourg. Retirement Most EU countries have raised the minimum retirement age to 65. Currently, only Latvia remains on the margins with a minimum age of 62. The gross monthly pension amount ranges from a maximum of €7,991.36 in Luxembourg to a minimum of €431.21 in Malta. Spain, Greece, Belgium and Switzerland pay their citizens a pension of almost 2,000 euros gross. In France, pensioner benefits amount to 833.20 euros gross per month. The gross monthly pension amount ranges from a maximum of €7,991.36 in Luxembourg to a minimum of €431.21 in Malta.

*Quality of life of employees:* According to a study The Work Force View in Europe 2023, carried out annually by ADP, almost one in five respondents (18%) say they suffer from stress every day and three in ten (30%) feel so stressed that they are considering a change at the workplaces. The prize for the most stressed country goes to Poland, where more than a quarter (27%) of employees say they suffer from stress on a daily basis, closely followed by the French and the British (pre- and post-Brexit) (20%). The Netherlands is the most conservative, with only one employee in ten (10%). However, this year, all



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countries in the survey are experiencing economic growth and falling unemployment. Good news, across the continent, 79% of those surveyed say they are optimistic. Again, Dutch employees are the most optimistic (85%), while French employees remain in last place (74%). Almost one in five (18%) respondents say they suffer from stress every day and three in ten (30%) feel so stressed that they are considering changing jobs.

## **SOCIAL LABOR RIGHTS IN NORTH MACEDONIA**

The Constitution of the Republic of North Macedonia guarantees the rights to work, social and health insurance, organization in trade unions, the right to sign a collective agreement, the right to salary, etc. Other social rights of employees are determined by the Law on Labor Relations (Zakon za rabotni odnosi: 2016/2023). Workers are protected by the Law on Labor Relations, the Law and the collective agreement, the Law on Social Protection and other social laws and measures.

The Manual on Labor Rights interprets issues that are often unknown to the wider circle of workers, such as: what should be contained in the Employment Agreement, job description, risks, duration of the employment relationship, salary amount, the right to annual leave, general Acts of the employer, seal, signature, archive number, employer's duty, overtime pay supplements, seniority allowance, work during holidays, etc. (Workers' Rights Handbook, 2021).

The minimum amounts of salary supplements for a certain percentage amount calculated according to hours are determined according to the general collective agreements: - for overtime work - 35%; - for night work - 35%; - for work in three shifts - 5%; for work on a day of weekly rest - 50%; for work on holidays and non-working days established by law... Salary allowances follow: When you are absent from work in cases determined by law (absence from work due to use of annual leave, paid overtime rest, further education, holidays and days off), as well as in cases when you do not work for reasons on the part of the employer; In cases of incapacity for work due to illness or injury up to 30 days, and over 30 days it is paid at the expense of the health insurance; If an illness or injury occurs due to the failure of the employer to provide the measures established by the regulations in the field of safety and health at work, then the employer can continue to pay you sick leave on this basis even after the expiration of 30 days, but after a previous inspection by the State Labor Inspectorate; In cases where the work process is interrupted for business reasons, on the basis of which the employer is obliged to issue a decision and pay 70% of the salary for a period of up to three months in the current year and If you cannot perform the work due to force majeure, you have the right on half of the salary, to which they would otherwise be entitled, if they were working. In addition to salary compensation, the employee has the right to other work-related expenses compensation, namely: business trip, field allowance, use of a private car for business trips, life separated from the family, death of the employee or a member of his family, right to severance pay upon retirement, as well as jubilee awards. The employer can reimburse the costs of food during work and the costs of transportation, that is, he can organize transportation to and from the workplace at his own expense (Workers' Right Handbook, 2021).

The General Collective Agreements provide for other reimbursements of work-related expenses. An employee has the right to annual leave compensation of at least 40% of the base. This right is regulated by the general collective agreement and it is a mandatory obligation of the employer. If he respects that right, the employee can turn to the union representative, the State Labor Inspectorate or initiate court proceedings. In terms of working time, there are several types: Full-time working time, which must not be longer than 40 hours per week (during one working week), nor shorter than 36 hours per week. As a rule, the working week lasts five working days. Part-time work is shorter than full-time, that is, shorter



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than 40 hours per week. If the reason for working part-time is because you are doing work that is particularly difficult, demanding and harmful to health, then the right to salary and other rights from employment are equal to full-time work.

### **Rights arising from the employment relationship**

Female and male workers who use maternity leave and are employed for 6 (six) months with the same employer have the right to annual leave. Overtime - in exceptional cases, defined by law, the employer may ask you to work full-time. For overtime work and hours for overtime work, the employer is obliged to keep separate records and specify them separately in the employee's monthly salary calculation. The law specifies the cases and categories of workers for whom the employer may not require work longer than full-time. Night work is considered working at night and between 10:00 PM and 6:00 AM the following day. The employer, who regularly uses workers for night work, is obliged to notify the labor inspection, and to provide the workers with a longer rest and adequate food or reimbursement of food costs. Workers who perform night work should have a medical examination beforehand. Before introducing night work, the employer is obliged to consult with the employer's trade union at least once a year if night work is regularly performed with workers who work at night. According to the Law on Labor Relations and the EU directives, the issue of safety and health at work is regulated as well as other rights arising from the combined European directives.

### **Failure to respect workers' guaranteed rights**

The analyzes show that the legal regulation is not the main and biggest problem in the Republic of North Macedonia. This does not mean that it is ideal and that further reforms should not be made, such as improving the safeguards that are broken down in various laws. However, the practice is the biggest problem: what is insisted on by the EU directives are the drafting of precise collective agreements, in different areas. The lack of information of the workers is problematic, as well as the request of the institutions themselves for excessive regulation. Also, inspectorates always act reactively, rather than proactively. There is a whole system of discouraging workers from reporting irregularities and violations of their rights. Unions are also not doing their job, but they are not trained to represent workers properly. Research shows that workers have the least confidence in unions. A new trade union law is needed which will lead to some form of pluralism (Helsinki Committee, 2023).

The workers are also disappointed by the dysfunctionality of the State Labor Inspectorate. He faces insufficient resources, and a lack of state inspectors. There is also great dissatisfaction with the Employers' Associations that do not respect the social rights of the workers, as well as with the corruption and procrastination of court decisions by the basic and appellate courts. Workers feel the greatest trust in non-governmental organizations. The main problem in North Macedonia is that the workers do not enjoy the guaranteed rights. In many cases, the practice does not follow international standards, while the protection does not correspond to international regulations and national legislation. On an average year, between 4000 and 5000 workers reported some kind of violation, mostly from the textile, leather and shoe industries. The Free Legal Aid Act is quite restrictive, preventing many employees from obtaining this type of protection. Due to the high costs, judicial justice is still inaccessible to most of the workers.





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# CONCLUSION

From the appearance of the first trade unions and syndicalism in Europe in 1830, through the affirmation of the social models of Chancellor Bismarck in Germany and Lord Beveridge in the United Kingdom, the constitution of the International Labor Organization, the UN Charter, the signing of the Founding Act of the EEC, the European Social charter of the Council of Europe, to the numerous conventions and declarations of the EU for the preparation of Social Europe, the road was difficult in the construction of the mechanisms of the social protection of workers, the extension of social insurance and social law. In the past decades, the EU made a huge leap in these domains, although it failed to build a single system for the protection of workers, it still managed to win directives that provide for minimum implementation by the member states, given that national social legislation is the sovereign authority of the member states.

Social rights for the protection of employees are not identical in all EU member states. The most developed systems are located in Northern Europe, while the lowest allocations are received by employees in Eastern Europe. According to the Eurobarometer survey, conducted in April 2023 among 27,601 citizens of EU countries, 60% of the respondents believe that their country's membership in the EU is a good thing, and 32% believe that the social protection system must be at the center of the programs of the political parties. The European social model is gradually being integrated into the EU. Regardless of such a social mosaic, a culture of respect and implementation of social legislation regarding the protection of workers has developed in the EU, and the body of rules is constantly being updated. Among them, we single out the following then fundamental rights that protect employees:

- ***Right to fair and non-discriminatory treatment***, i.e. legal provisions against discrimination According to the *Labor Law*, no employee may be sanctioned, fired or subject to a discriminatory measure, direct or indirect, especially in relation to remuneration, in relation to their origin, their gender, her morality, her sexual orientation or identity, her age, her marital situation, her pregnancy, her genetic characteristics, the part of her name, her membership or non-membership, real or perceived, of an ethnic group, nation or race, of his political opinions, his trade union or mutual activities, his religious beliefs, his physical appearance, his surname or, unless declared unfit for work by a doctor.
- ***Basic rights to health and safety at work are safety obligations of the employer.*** The primary obligation of the employer is to ensure the safety and protect the physical and mental health of its employees. This obligation, is expressed by measures such as: Actions to prevent occupational risks This especially includes the risks of accidents at work or occupational diseases. In general, a prior risk assessment is necessary to define the appropriate preventive actions. Organization and adequate resources are necessary on the part of the employer who must ensure that the work is adapted to the person in order to preserve his health.
- ***Fundamental rights to privacy: Restrictions on surveillance in the workplace.*** The surveillance of employees by the employer is regulated by law to guarantee respect for the right to private life, legitimacy and proportionality of surveillance devices. According to the case law of the Court of Cassation, any surveillance device must have a legitimate purpose (security, protection of equipment, etc.) and be proportionate to the requested purpose. Employees must be informed about any monitoring system, the Law on Labor Relations. Protection of personal data Protection of personal data is a fundamental right recognized by every individual. Basic rights related to respect for working time and rest



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- ***The right to respect for working time and rest*** is one of the foundations of European labor law, which makes it possible to guarantee a balance between the professional and personal life of the employee.
- ***Right to fair compensation***: The salary is equivalent to the work provided by the employee. It is necessary to ensure its accuracy and fairness. In order to provide minimum protection for the lowest paid employees, EU law establishes a cross-occupational minimum wage (SMIC). This salary is revised at least once a year and guarantees a minimum compensation for all workers.
- ***Right to professional training***. Professional development is essential for every employee in the context of a constantly changing labor market. European law recognizes the importance of continuous professional training to guarantee each worker the ability to adapt their skills throughout their career. Continuing education: rights and obligations Continuing professional training is regulated by the Law on Labor Relations. Its main objective is to ensure continuous employment and career advancement of employees.
- ***Right to freedom of association and representation***. Democracy at work is a basic principle of European labor law. It guarantees the participation of employees in the life of the company, as well as respect for their trade union rights. Freedom of trade union membership and the right to strike Freedom of association is enshrined in all European constitutions and reinforced by various international conventions.
- ***Right to information about rights and duties***. Being informed and knowing the rights of each employee is a basic assumption for the favorable individual and collective position of each employee. Each employee, regardless of his position, seniority or sector of activity, is protected by a set of legal provisions, which aim to guarantee respect for his dignity, physical integrity and psychological well-being. It is crucial that every worker is fully informed of these rights and ensures that they are respected. In case of doubt, question or dispute, consultation with a specialized professional, such as an employment lawyer, is recommended. These experts, thanks to their deep knowledge of legislation and case law, can offer informed advice and relevant assistance in case of conflict. Stay informed, know your rights and don't hesitate to call a specialist: these are the key words for every employee who wants to progress in his professional life while maintaining personal balance.
- ***Right to protection against unfair dismissal***: Every employee has the right to job security. If the employer can terminate the employment contract, this termination must be justified and respect a certain formality, otherwise it can be considered abusive. Legitimate reasons for dismissal The dismissal of an employee must always be based on a genuine and serious reason.
- ***The right to work-life balance***. A harmonious work-life balance is essential for individual fulfillment and general well-being. French legislation, through various texts, recognizes this need for balance and offers employees specific rights to maintain it. Right to leave A break is a human need, both for physical rest and for mental recharge.
- ***In North Macedonia***: regardless of the normative acts and laws for the protection of workers, in practice their rights are not respected in North Macedonia. Workers do not enjoy guaranteed rights. In many cases, the practice does not follow international standards, while the protection does not correspond to international regulations and national legislation. Because of the complex and expensive court procedures, the workers are discouraged from



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the protective role of the judiciary, from the functioning of the Trade Union, from the State Inspectorate for Labor Relations, as well as from the conceit of the employers' associations.

## REFERENCES

The International Covenant on Economic, Social and Cultural Rights (1966). United Nations, New York.

The ILO Conventions (1919, 2000). Geneva.

The European Social Charter (1961). Strasbourg.

Treaty establishing the European Economic Community (1957). Rome.

The Treaty on European Union (1957), and The Treaty of Maastricht (1992).

Regulation, EU 492/2011 of the European Parliament and of the Council of 5 April 2011 on freedom of movement for workers within the Union.

Regulation (EU) 1215/2012 of 12 December 2012 known as... and the Rome I Regulation; Regulation 593/2008/EC of 17 June 2008 known as "Rome I" for the law...

Regulation 883/2004/EC (Basic Regulation) of the European Parliament and of the Council (2004).

The Single European Act (1957). Rome.

Treaty on the Functioning of the European Union-(1992). Maastricht

The Community Charter of the Fundamental Social Rights of Workers (1989).

Préambule de la Charte communautaire des droits sociaux fondamentaux des travailleurs (1989).

Treaty of Lisbon (2007). Lisbon.

Article 6.1. para. 1 of the Treaty of Lisbon: "The Union recognises the rights, freedoms and principles set out in the Charter of Fundamental Rights of the European Union of 7 December 2000. Strasbourg.

Garnier, S. (2018). La Revue de l'Ires, pp. 85-101.

Robin-Olivier, S. Available at: <https://rm.coe.int/le-socle-europeen-des-droits-sociaux-et-le-role-de-la-charte-sociale-e/168096614a>

Ruzin, N. (2006). Современи системи на социјална заштита. Comparative systems of social protection, Skorje: Филозофски факултет-УКИМ

[https://www.glassdoor.com/Compare/Deloitte-vs-European-Commission-EI\\_IE2763-E147109.htm](https://www.glassdoor.com/Compare/Deloitte-vs-European-Commission-EI_IE2763-E147109.htm)

[https://mtsp.gov.mk/content/pdf/trud\\_2017/pravilnici/16.11-1%D0%B8.pdf](https://mtsp.gov.mk/content/pdf/trud_2017/pravilnici/16.11-1%D0%B8.pdf), Zakon Za Rabotni odnosi- „Службен весник на Република Македонија“ бр. 134/2016

Конфедерација на слободни синдикати на Северна Македонија-<https://kss.mk/wp-content/uploads/2021/05/Priracnik-za-rabotnicki-prava.pdf> -

Helsinki Committee: Workers do not believe that unions can protect them- <https://arhiva.telma.com.mk/helsinshki-komitet-rabotnitsite-ne-veruvaat-deka-sindikaitite-mozhat-da-gi-zashtitat/>



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**DETERMINANTS OF THE SAVING HABITS OF WOMEN  
EMPLOYEES IN ETHIOPIA: A CASE OF THE WOLAITA  
ZONE, SOUTHERN REGION**

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DOI: 10.5937/EEE24049N

JEL: J20, J21

Original Scientific Paper

**ABSTRACT**

*This study aims to identify the determinants of saving habits of women employees in Ethiopia: A Case Study of the Southern region of the Wolaita Zone. To achieve general and specific objectives, the study identified socio-demographic, socio-economic, and institutional factors that affect the saving habits of women employees in the study area. This study used a descriptive research design and a quantitative research approach. The primary data sources were collected from women employees in the Wolaita Zonal Office. However, the sample size used for this study is 113 employees of the Wolaita Zone Office. For data analysis, descriptive statistics and multiple regression models were used. To increase the saving habits of women employees in the study area, this study suggested that government bodies, formal financial institutions, and non-government organizations should encourage the saving habits of women employees by facilitating training for employees to develop knowledge and awareness about saving money and other financial resource utilization to improve the wealth and living standards of women employees.*

**KEYWORDS**

*saving habits, woman employees, socio-demographic, economic factors, institutional factors*

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# INTRODUCTION

## Background of the Study

Women suffer more constraints on their choices and opportunities than men worldwide, but sustainable development requires both men and women to participate (Leach, 2016, Kroom, True, 2012, Bayeh, 2016, Metcalfe, 2011). However, increasing research suggests that gender equality helps reduce poverty and long-term growth (United Nations Development Programme, 2001). Women's more significant education and labor force participation has enhanced economic success. International experience and in-depth research studies have demonstrated that women can be a significant entrepreneurial force, positively impacting local, national, and global economies (Choudhry, Elhorst 2018, Haque, Zulfiqar, 2016).

Women's Empowerment refers to the process through which both individually and collectively become engaged, informed, and goal-oriented agents who support measures to eliminate gender inequities. According to Brody et al. (2015), Self-Help Groups in India have emerged as a viable technique for improving the socio-economic situations of rural families while incurring low administrative costs. According to Nichols (2021), many SHGs recently founded in India are self-sufficient and independent. Despite primarily being from low-income and disadvantaged groups, they are superior savers, borrowers, and investors. Again, the SHGs mobilized their funds, converting them into loans to members and reinvesting the interest revenue.

Saving is a crucial variable in increasing the economy of one counter; Saving is the loss of present consumption to increase home living standards and meet daily demands for the future life span of individual households. Savings are essential for a household's well-being in developing nations. On the other hand, households cannot afford unplanned income changes unless they save. Furthermore, personal and household funds provide security for future calamities. On the other hand, national savings provide the finances required for all of society's riches (Ribaj, Mexhuani, 2021).

According to Mohamed et al. (2021), savings and investment are critical drivers of increases in capital creation in numerous emerging economies, especially in Africa. Furthermore, it has been argued that saving is the foundation for economic development and capital production; saving plays an essential role in the growth of households and the state economy. As a result, developing country governments, international organizations, and economists have highlighted that increasing urban households' savings and deposit mobilization is vital to achieving long-term economic growth and development.

Unpredictable events will occur throughout the life cycle of homes, according to Kubás et al. (2022). To ensure this event, savings must fill the household's financial deficit. Household funds should be used to cover household expenses. On the other hand, the seasonality of cash flows, work culture, and wage level have curtailed urban residents' savings practices to ensure seasonal and irregular savings. Increasing saving habits is also essential for the well-being of a household; this indicates that saving habits increase at the individual level. It helps families by smoothing their consumption and assuring financial productivity and the company's investment capacity.

According to Morgan et al. (2001), various variables influence salaried employees' saving habits, including access to saving institutions, financial education, proper incentives, and methods for enabling saving, influencing household saving behavior. According to Daud (2015), the study results demonstrated that income tax, job experience, education, family size, and social group participation impacted workers' savings attitudes. On the other hand, findings suggest that when household income and net assets rise, so do household savings in Uganda (Namanya, 2011). The survey also discovered a



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consistent savings rate among Ugandan urban and rural families. Finally, demographic and social factors such as the sex and literacy of the head of the household and the location of the household also significantly influence the behavior of saving in the home in Uganda.

Nyambura (2019) researched the factors of the culture of investing and saving among Kenyan County employees; in a Wells Fargo Limited case study. The findings revealed that certain micro-characteristics (financial knowledge, amount of income, risk (nature) of work, and family size) considerably affected employee savings and investment levels. On the other hand, religion did not affect their savings and investments.

Timerga et al. (2011) are empirical studies on savings in Ethiopia; age, education, number of dependent family members, transportation services, work satisfaction in the sector, cost of expenditure, and inflation all substantial impact employees' savings habits. Furthermore, as a member of a savings society, the cost of recreation and housing is substantially tied to the employees' savings habits. Additionally, monthly wages, distance from home to work, and financial assistance for others were essential predictors of savings practices. Furthermore, education, the number of dependent family members, the cost of expenses, and monthly compensation are the main factors influencing employees' saving habits.

Mirach, Hailu (2014) found that 54.1 percent of the sample families saved, while the remaining did not; the most prevalent reasons for households not to save include low income, inflation, low-interest rates, cultural background, education, social affairs, and unemployment. Furthermore, the spending and planning habits of most respondents were limited. Additionally, economic studies show that income, age, gender, marital status, type of savings institution, and frequency of receiving money are the main predictors of household savings in the research region.

According to Leto (2016), financial institutions have a good effect on savings, but consumers have a knowledge gap. People's mean savings grew as their educational attainment increased, but as the number of family sizes increased, the number of savings fell. In addition, unmarried or single people save more money than married couples. As a result, unforeseen expenditures consume more people's savings than planned expenditures. Similarly, Teshome et al. (2013) discovered that nine variables, including household head, education level, access to credit services, livestock holdings, income, investment, training, participation, contact with extension contacts, forms of savings, and savings motives, had a significant impact on household savings.

According to the issue, saving habits in a particular community would influence the accumulation of capital resources, the socio-economic growth of a country in general, and the financial well-being of people and households. Countries with higher savings rates have reduced their foreign debt burden, and domestic investments will be funded by domestic savings (Zhang et al., 2021). As a result, it is critical to conduct the present study on the factors of saving habits of salaried employees in the Wolaota Zone, Sodo City.

## Objectives of the Study

The general objective of this study is to identify the determinants of Women workers' Saving habits in the Wolaita Zone, SNNP Regional State, Ethiopia.

The following specific objectives were addressed below

1. Assess the impacts of socio-demographic factors on the saving habits of women employees.
2. Examine the impact of socio-economic factors on the saving habits of woman employees.
3. Assess the impact of institutional factors on the saving habits of woman employees.



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### Hypotheses of the Study

To answer the questions of the research, the following hypothesis was developed.

**H1:** There is a positive and statistically significant impact of age on the saving habits of women employees in the Wolaita Zone.

**H2:** There is a statistically positive or significant impact of family size on the savings habits of women employees in the Wolaita Zone.

**H3:** There is a statistically positive or significant impact of the educational level on the saving habits of women employees in the Wolaita Zone.

**H4:** There is a statistically positive or significant impact of income level on the saving habits of women employees in the Wolaita Zone.

**H5:** There is a statistically positive or significant impact of expenditure on the saving habits of women employees in the Wolaita Zone.

**H6:** There is a statistically positive or significant impact of access to saving institutions on the saving habits of women employees in the Wolaita Zone.

**H7:** There is a statistically positive or significant impact of incentives on the saving habits of women employees in the Wolaita Zone.

## EMPIRICAL EVIDENCE

Several factors influence saving behavior. The researcher focuses on the Determinants of Women Employees' Saving Habits in Ethiopia. A case study of the Wolaita zone. However, the variables that received the most attention and were included in this thesis were socio-demographic factors such as (age, family size, and educational level), as well as socio-economic factors such as (income level, inflation) and institutional elements such as (access to savings institutions and incentives). As a result of the preceding debates, various research on the saving habits of household and salaried employees was done in cross-country Africa and Ethiopia. Thus, to the best of our knowledge, there are still a limited number of types of literature in Ethiopian specifically in the study area; previous literature made by them; Temel Naln's (2013) study investigated the determinants of Turkish households' saving and portfolio choice behavior from 2002 to 2006. The findings demonstrate that household income, education level, employment, site of residence (rural/urban), automobile ownership, and household size explain variance in savings and portfolio choice behavior.

Lidi et al. (2017) researched the factors influencing household savings of rural agro-based company workers in Nigeria's south-south area. The findings found that income tax, job experience, education, family size, and social group participation affected workers' savings attitudes. Namanya (2011) and Nagawa et al. 2020 researched the factors influencing household savings in Uganda. In addition, the findings reveal that demographic and social characteristics such as gender and literacy of the family head and home location substantially impact household saving behavior in Uganda.

Nyambura (2019) researched the factors of the culture of investing and saving among Nairobi County employees; in a case study of Wells Fargo Limited. The findings revealed that certain micro-characteristics (financial knowledge, amount of income, risk (nature) of work, and family size)



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considerably affected employee savings and investment levels. On the other hand, religion did not affect their savings and investments. Furthermore, according to Timerga (2011), age, education, number of dependent family members, transportation services, work satisfaction in the industry, cost of expenditure, and inflation substantially impact employees' saving habits. Furthermore, as a member of a savings society, the cost of recreation and housing is substantially tied to saving habits.

Furthermore, monthly wages, distance from home to work, and financial assistance for others were essential predictors of savings practices. Furthermore, education, the number of dependent family members, the cost of expenses, and monthly compensation are the main factors that influence employees' savings habits. According to Meher (2017), 54.1% of the sample families were saved. Low income, low-interest rates, cultural background, education, social affairs, and unemployment are all prevalent reasons why households do not save. Most respondents' control, planning, and expense habits were also low. Furthermore, economic studies show that income, age, sex, marital status, type of savings institutions, and frequency of receiving money are all significant determinants of household savings in the location studied.

The findings of Leto (2016) demonstrate that the presence of financial institutions has a favorable effect on savings, although there is an information gap. People's mean savings grew as their educational attainment increased, but as the number of family sizes increased, the number of savings fell. In addition, unmarried or single people save more money than married couples. As a result, unforeseen expenditures tend to consume the majority of people's savings rather than planned expenditures.

Bekata (2016) conducted research that found that the age of the household, the head, education, training, participation in cooperatives, the farm and off-farm income, and the size of the farm and the livestock were important and positively affected the savings of rural families. On the other hand, the size of the spending family and the distance from the savings associations were significant factors that negatively affected the saving behavior of rural families. According to Fenta et al. (2017), the elements influencing the choice to save are educational level, the society's work position, relationship with the head of the family, the influence of weather conditions, and current living situation. According to Hando et al. 2022, age and inactive family members were substantially and adversely connected with household savings at a 5% significant level. This means that as one of these factors increases, household savings fall. Household income, total land holdings, and saving interest, on the other hand, were significantly and positively linked to household savings at a significant level of 5%.

According to Lusardi and Mitchell (2014), the primary causes of incapacity to save are inflation, low-interest rates, and inadequate income. In addition, married, female, family income, multiple earning status, family size, peer influence, self-control, financial literacy, and parental specialty were positively related to saving and investing in the teacher's community.

According to Moges et al. (2021), the variables positively connected to the chance of saving include household education, marital status, gender, yearly spending, interest rate, credit, and annual income. On the other hand, family size, age, distance from the financial institution, distance from the market, and transaction cost adversely connect with the likelihood of saving.

This makes the study more pertinent. By looking at the factors influencing salaried employees' saving behaviors in Ethiopia, it seeks to fill these gaps in the literature; the study revealed a problem with the independent variable that needs to be investigated in other countries, including Ethiopia. To identify the knowledge gap, socio-demographic factors such as age, sex, marital status, family size, and educational attainment were just as crucial as socio-economic factors such as income level and expenditure and institutional factors such as access to savings institutions and incentives. Finally, the current study tried to pinpoint the crucial factors that affect the saving habits of Ethiopian women workers, particularly in the Wolaita zone of the southern region.





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**CONCEPTUAL FRAMEWORK**

Following an extensive review of the literature that includes pertinent theories and several empirical studies on the factors that influence the saving practices of Ethiopian women employees, we present a case study of the Wolaita Zone in the southern region. A conceptual framework was created for the research's implications or flow. This demonstrates how the dependent and independent variables are related. The saving behaviors of female employees served as the study's dependent variable, and socio-demographic factors like age, family size, educational attainment, socio-economic factors like income level and expenditure, and institutional factors like (access to savings institutions and incentives).

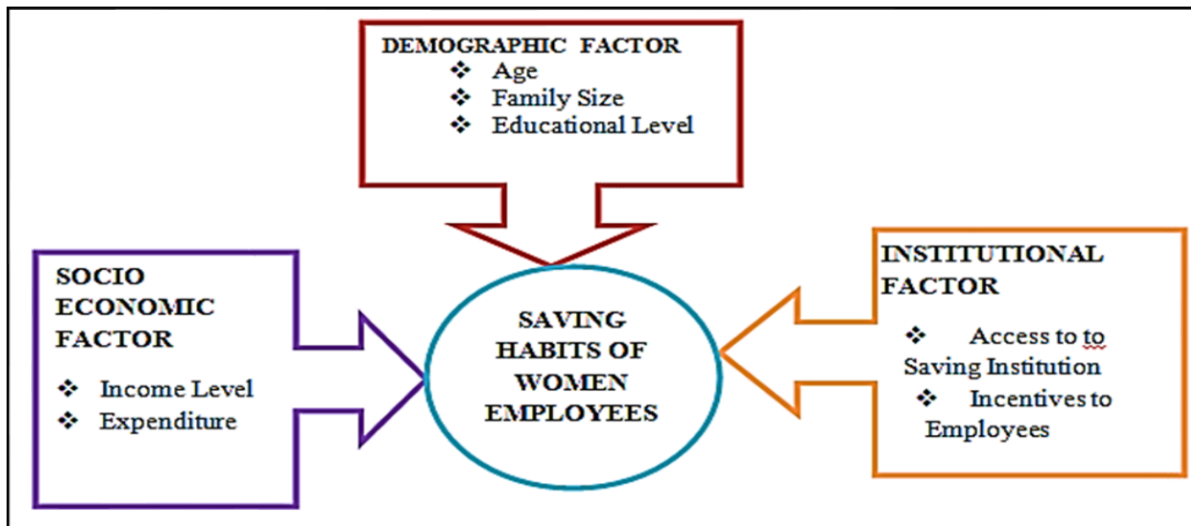


Figure 1: Conceptual Framework  
 Source: Developed by the researcher based on the various available works of literature

**RESEARCH METHODOLOGY**

**Research Design**

A descriptive research design and a quantitative research strategy were used to accomplish the study's objective. The study's target population was 158 female employees of the Zonal Office. Because the sample was chosen from various strata working in NGOs and public offices, the sampling technique used for this study is the stratified sampling technique. Therefore, 113 female employees were the sample size for this study. The following formula from Yamane (1967) was used to calculate the sample size:

$$n = \frac{N}{1 + N(e)^2} \dots\dots\dots 1$$

where “n” is the sample size, “N” is the population size, and “e” is the level of precision,

$$\frac{158}{1 + 158(0.05)^2} = 113.$$



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Table 1. Sample size distribution

Sectors	Total population	Population ratio	Sample size
Public Office	120	113(120/158)	86
NGO's	38	113(38/158)	27
<b>Total</b>	<b>158</b>	<b>113(158/158)</b>	<b>113</b>

Source: Secondary data, 2022

## Method of Data Analysis

Descriptive statistics were the tools used for the analysis of quantitative data. We used percentages, frequencies, means, and standard deviations for the demographic variables of Objective 1. The differences between the saving behaviors of female employees and the continuous independent variables were examined using the t-test. Additionally, binary logistic regression analysis was used to find significant variables influencing how much women save. Savings behaviors were examined using descriptive statistics and econometric models, two different types of data analysis. When the dependent variable had a binary outcome, binary logistic regression was used to identify saving behaviors after computing the descriptive statistics. The STATA 11 statistical program was used for data analysis.

Specifications for the binary logit model by estimating the probability of events, logistic regression analysis examines various factors on a dichotomous result. The logit model was applied when the dependent variable is binary (Dummy), taking either 0 or 1. The output (predicted value) of this non-linear regression model is constrained to either 0 or 1. Instead of using movement estimation, as is done with the Ordinary Least Squares Regression technique, the parameters of this model were estimated using the maximum likelihood estimation method. As a result, the logit method provides consistent and asymptotically efficient parameter estimates. The logit approach yields statistically sound results (Gujarati, 2004). Typically, the logit model comes in two shapes. It can be stated in terms of event probability or logit. When described in logit form, the model is specified as follows; the equation is of the form:

$$Y_i = \alpha + \beta_1 x_1 + \beta_2 x_2 + \beta_k x_k + \varepsilon \dots \dots \dots 2$$

Where:

$y_i$  = probability of saving habits of woman employees,

$\alpha$  = intercept (constant) term

$\beta_k$  = coefficient of the explanatory variable

$x_k$  = explanatory variables

$\varepsilon$  = disturbance (stochastic) term.

The probability of the dependent variable is 1 ( $y=1$ ) and is estimated using the logit model. This is the probability that an event will occur. Typically, the logit model comes in two shapes. First, it can be stated in terms of event probability or logit.



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### Description of the variables used in the binary logit model and their hypothesis

**Dependent Variable:** Practice of women workers to save money. The dichotomous dependent variable measures women's savings behavior in informal and formal financial institutions. This is done to set apart or make a distinction between savers and non-savers in the study area.

**The explanatory variables are the following.** In addition, the following independent variables were defined and hypothesized for the study: Age of women employees (AG), Family size (FS), Income level (INL), Educational level (EDL), Expenditure (EX), Access to Savings Institutions (ASI), and Incentives (IN).

**Age:** Its definition as the age of the head of the household in the study, expressed in years, makes it a continuous variable. For example, Dahiya and Chaudhary (2016) discovered that the saving rate of salaried workers in the study area is positively and significantly influenced by age. On the other hand, age was significantly and negatively associated with household savings at a level of significance, which is in line with (Athukorala, Tsai, 2003) of 5%. This suggests that households' ability to save money decreases as one of these factors increases. The findings of Bekata (2016) ultimately showed that the age of the household had a significant and positive influence on the savings of rural households. On the other hand, age was identified by Hailesellasié et al. (2013) as a significant and detrimental factor affecting households' saving behavior, with older households saving less.

Yu's (2012) research also showed that age composition had no discernible impact on saving. However, Faridi and Bashir et al. (2010) discovered a positive correlation between age and household savings; As households age, their savings status declines.

**H1: Age has a statistically significant or positive impact on saving habits in the study area**

#### Family size

The total number of family members of salaried employees is represented by this continuous variable, quantified by numbers. A family with many dependents has less money saved up. Bekata's (2016) findings ultimately showed that family size was a significant factor that adversely affected rural households' saving behavior.

Leto (2016) found that savings decreased as the household size increased. According to Moges et al. (2021), family size has a detrimental effect on household savings. As families grew by one unit, the odds ratio favoring household savings would decrease. Family size significantly and adversely affects household savings, according to Faridi and Bashir (2010). The family's size impacts both the tendency to save and consume; As the family grows, there will be a greater need for food, clothing, and other necessities of life, increasing the tendency to consume (Benti et al., 2022). The expected impact of family size on salaried workers' saving behaviors was negative for households with large families.

**H2: Family size has a statistically significant or positive impact on saving habits in the study area**

#### Educational Level

The higher education level of households may be the cause, which improves their ability to use technology. As a result, it may be helpful to employ better inputs for its methods of generating revenue, and at the same time, as income rises, so do people's savings. As a result, schooling impacts the household's possibilities for saving and asset accumulation, which impacts saving performance.



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According to Hailesellasiye et al. (2013), households' saving habits and educational attainment are positively correlated. However, Feng et al. (2011) discovered that education guarantees employment and income stability as a kind of human wealth. Therefore, it could have a detrimental effect on savings.

According to Uttley and Fotios (2017), a person's degree of schooling had little impact on how much they saved. However, according to (Jung 2016), education is seen as a stand-in for human development, which focuses on improving human potential and productivity regarding individual income and savings. As a result, it indirectly positively influences schooling by increasing money. On the other hand, according to Morgan and Long (2020), education has a detrimental effect on savings. Saving grows as a result of increased financial literacy. People know the challenges in obtaining financial items and the returns and risks associated with various financial commodities.

Additionally, some researchers concluded that those with less education are more inclined to save for their financial objectives. According to Ponce et al. (2019), education is a human wealth that encourages household savings. Furthermore, household education level is statistically significant and positively correlated with the savings rate, according to Moges et al. (2021).

### **H3: Educational level has a statistically significant or positive impact on saving habits in the study area**

#### **Income Level**

Income is a crucial factor in household savings and plays a vital role in it. Several ideas, including life cycle, relative, and permanent income, influence savings behavior. The total income hypothesis, proposed by Aghion et al. (2016), shows a positive relationship between total income and savings and is consistent with the idea that as income exceeds consumption, savings increase. Therefore, households should save for retirement, take out loans when they are middle-aged, stop saving when they are retired, and earn more money.

According to Malkina's (2019) idea, temporary revenue is preserved while permanent income is devoured. The results of this idea are conflicting, with some people accepting permanent income changes and others rejecting them. According to research by Hailesellasiye et al. (2013), household saving habits are significantly influenced by income level. The study found that when income levels rise, the savings rate increases by a certain percentage. Similarly, Ma et al. (2021) pointed out savings increase revenue for underdeveloped and impoverished nations. The association between income and savings is neither strong nor consistent in industrialized nations. It is a continuous variable that can be operationalized as the total yearly income a family receives from selling agricultural goods and other sources such as off-farm work and non-farm activities. However, the income level indicates that the saving rate will increase somewhat when family income levels increase. According to Moges et al. (2021), 's research, a household's annual income is favorably correlated with its savings level. This is so because people save more money as their income grows.

### **H4: Income level has a statistically significant or positive impact on saving habits in the study area**

#### **Expenditure**

Savings decrease as household spending increases. According to Faridi and Bashir (2010), spending has an enormous negative impact on household savings. The results indicate that the cost of expenses has had a negative and considerable impact on employees' saving behavior, according to Timerga et al. (2011). According to Moges et al. (2021), a household's yearly spending has a statistically significant negative impact on the likelihood of saving. Bekata (2016) discovered that the cost of living was a key



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factor that adversely affected rural households' tendency to save money. Leto (2016) found that unforeseen expenses often consume most people's savings compared to budgeted expenses.

### **H5: Expenditure has a statistically significant or positive impact on saving habits in the study area**

#### **Access to Savings Institutions**

Fisher (2010) notes that sometimes people assume they are managing their money correctly, even if their money-saving habits jeopardize the safety of their investments. A budget and regular savings deposits will create a sumptuous cushion in case you run into financial trouble, but doing these things also can make a significant hole in that safety net. The financial institutions in the area help people save money by offering short-term, medium-term, and long-term accounts. Short-term savings are applied daily, monthly, and quarterly, while medium-term savings are applied on a half-yearly, annual, and more than one-year basis. Long-term savings are applied on a two-year, five-year, and more than five-year basis.

### **H6: Access to savings institutions has a statistically significant or positive impact on saving habits in the study area**

#### **Incentives**

Szepanski (2022) claims that certain banks provide a contractual savings plan by which the saver must consistently deposit a set amount of money, even little amounts, in exchange for an interest payment or, ideally, the ability to use specific financial services (credit and insurance). Contractual savers may be given loans, subject to specific requirements, for a variety of purposes, including building their own home, financing the purchase of specific farm inputs, paying for their children's education, and covering unforeseen costs like funerals and medical care, among others Anigbogu et al. (2014).

To Davies and Thate (2017), under certain circumstances, savers may benefit from a social service fund, which should assist members in getting out of tricky situations brought on by unforeseeable catastrophes not covered by the insurance service. Furthermore, MitGhamr conducted a successful savings incentive study in Egypt. Finally, if savers have problems with their household's economic activities or budget management, they can consult the bank for financial and technical guidance. This conclusion is consistent with (Egbide 2020; Donkor and Anane 2016). According to these writers, the institutional saving model contends that institutional elements significantly influence people's ability to save. Therefore, institutional structures such as incentives and subsidies encourage people to save and continue to build their wealth. For example, this study supports the idea that people use retirement pension schemes because they are convenient and attractive (Poster and Rosenfeld, 2013).

### **H7: Incentives have a statistically significant or positive impact on saving habits in the study area**

Table 2. Variable Measurement

Types of Variable	Description of Variables	Measurements	Hypothesized Sign
<b>Dependent Variable</b>			
SHW	Saving Habits	Continuous (1-10%=1, 11-20%=2, 21-30%=3 and >30%=4)	
<b>Independent Variables</b>			
AG	Age of women employees	Continuous variable measured in years	+



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<b>FSZ</b>	Family size of woman employees	Continuous variable measured in the number	+
<b>IL</b>	Income Level	Continuous measured in Bir	+
<b>EDU</b>	education status of woman employees	Continuous variable measured in years of schooling	+
<b>EX</b>	Expenditure	Continuous measured in Birr	+
<b>ACSI</b>	Access to saving institutions	Discrete (Formal=1, Informal=2)	+
<b>INC</b>	Incentive to employees	Discrete (Having Incentive=1, not Having Incentive=2)	+

## RESULTS AND DISCUSSION

This section discusses the descriptive statistics and logit regression results on the determinants of female employees' saving behaviors. The analysis was carried out in light of the objectives of the study.

### Descriptive Results

Table 3. Socio-demographic factors affect the saving habits of women employees

<b>Items</b>		<b>Frequency</b>	<b>Percentage</b>
Age	20-30	40	0.35
	31-40	38	0.33
	41-50	25	0.22
	Above 50 years	11	0.10
	<b>Total</b>	<b>113</b>	<b>100</b>
Family Size	1-3	44	0.39
	4-6	33	0.29
	7-9	22	0.19
	Above 10	14	0.13
	<b>Total</b>	<b>113</b>	<b>100</b>
Educational level	< 12 Grade	6	0.05
	Certificate	10	0.09
	Diploma	14	0.12
	First Degree	65	0.58
	Masters And Above	18	0.16
	<b>Total</b>	<b>113</b>	<b>100</b>

#### Age of the respondents

According to Table 3, 40(35%) of the respondents were between the ages of 20 and 30; 38(33%) of the respondents were between the ages of 31 and 40; 25(22%) of the respondents were between the ages of 41 and 50, and 11(10%) of the respondents were older than 50 years. According to the statistics, the



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female employees were in the economically active age group. Therefore, it also advocates saving and investing in the older age group since this demographic segment can successfully and efficiently implement. On the other hand, employees' savings status declines as they age. This finding supports the claim that younger women save more and older women save less. Furthermore, this conclusion is consistent with (Faridi, Bashir, 2010), which discovered that age benefits household savings. On the contrary, as a woman's age grows, so does her ability to save.

### Family size of the respondents

One element that influences the savings habits of paid employees in the research region is family size. According to Table 3. above, 44 (39%) of the respondents had a family size of 1 to 3, 33 (29%) had a family size of 4 to 6, 22 (19%) had a family size of 7 to 9, and the rest 14 (13%) had family size more than 10. According to statistics, women employees with smaller family sizes save more than women with larger family sizes. As a result of this study, feeding a large family size to one household head is difficult for large family sizes. As a result, their spending exceeds their savings. Large family size often has a significant association with reduced savings as household size increases; the need for household spending increases, but savings fall. Leto (2016) conducted an empirical study that found that as the number of family sizes grew, the amount of savings declined. Moges et al. (2021) discovered that when the size of the home family grows by one unit, the odds ratio in favor of household savings decreases. (Faridi, Bashir, 2010) discovered that the size of the family influences the inclination to save and spend; As the family size grows, so does the propensity to consume due to an increase in the need for food, clothes, and other necessities of life (Nkomoki et al. 2019).

### Educational level of the respondents

Education has a considerable impact on the saving habits of female employees. According to Table 4, 6 (5%) of the respondents were less than grade 12, 10 (9%) were certificate holders, 14 (12%) were diploma holders, and 65 (58%) of the respondents were first-degree holders. The remaining 18 (16%) were master holders and above. According to statistics, most female employees have a high degree of education. This means that when the education level of female employees increases, so will their saving habits. A survey by Jayaraman confirmed the results of the current study, and Jambunathan (2018) said that as education levels improved, families' knowledge of savings also increased. Several studies in Africa indicated a similar trend in which highly educated people have more vital saving habits (Matemane 2018), and Timerga reached a similar result in India (2011). According to DeMille et al. (2018), education is a proxy for human development, which is the topic for increasing human potential and productivity in personal income and savings. On the contrary, a study from Nigeria found that educational degrees are not a determinant of savings practices.

Table 4. Socio-Economic factors affect the Saving habits of Women employees

Items		Frequency	Percent
Income Level	Below 2,500 ETB	24	0.22
	2,501-5,000.00 ETB	45	0.40
	5,001-10,000.00 ETB	31	0.27
	Over 10,000 ETB	13	0.11
	<b>Total</b>	<b>113</b>	<b>100</b>
Expenditure	Monthly food expenditure from 1000-5000 ETB	69	0.61
	Monthly non-food expenditure from 5000-15000 ETB	44	0.39
	<b>Total</b>	<b>113</b>	<b>100</b>



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### Income level of the respondents

The savings habits of women employees are heavily influenced by their income level. According to Table 4., 24(22%) of the respondents earned a monthly income of less than 2,500 ETB, 45(40%) had a monthly income of 2,501-5000 ETB, 31(27%) earned a monthly income of 5001-10,000 ETB, and the rest 13 (11% earned a monthly income of more than 10,000 ETB. The data suggest that the income level of female employees influences their saving habits because when monthly income is increased, female employees' saving habits improve. The current study's findings complement the findings of Haileseilasie et al. (2013), who discovered that when family income levels rise, so does their savings rate by a certain percentage. Similarly, Chamon et al. (2013) demonstrate that as families' income levels rise, so does their savings rate. Finally, Moges et al. (2021) demonstrate that a household's yearly income is positively associated with household savings since people's savings grow as their income grows.

### Expenditure

Expenditure has a considerable impact on the saving habits of female employees. According to Table 4, 69(61%) respondents used food consumption ranging from 1000 to 5000 ETB per month, while 44 (39%) used expenditure for non-food goods ranging from 5000 to 15000 ETB. According to the findings, most female employees used their expenses for food consumption. This spending is determined by the degree of income; As the household consumption rate increases, so make female employees' saving habits. The current study's findings corroborated the findings of (Faridi and Bashir 2010), who discovered that expenditure had a significant and inverse influence on household savings. Households save less as they spend more. Timerga et al. (2011) indicate that the expenditure cost has significantly impacted employees' savings habits. According to Leto (2016), unanticipated expenses consume the majority of people's savings rather than planned expenditures. As a result, the predicted impact of spending on urban household savings was negative.

Table 5. Institutional factors affect the Saving habits of Women employees

Items		Frequency	Percent
Access to Savings Institutions	Formal	92	0.82
	Informal	21	0.18
	<b>Total</b>	<b>113</b>	<b>100</b>
Incentives to Employees	Having incentive	74	0.65
	No incentive	39	0.35
<b>Total</b>		<b>113</b>	<b>100</b>

### Access to Saving Institution

Access to savings institutions significantly influences female employees' saving habits. According to Table 4, 92 (82%) of the respondents used official savings organizations, while 21 (18%) used informal savings institutions (such as Equib, Idir, and other traditional savings). Consequently, the statistics indicate that most women employed had access to formal savings institutions, primarily commercial banks, in Ethiopia. In addition, the government paid the employees' wages via bank transfers, which influenced the employees' savings habits. Leto (2016) supported The findings of the current study's findings, finding that 66.67% of depositors and non-depositors saved in various banks and microfinance institutions, and 33.33% were willing to save traditional savings styles like Equib, and they put money in their homes and terms of a different asset.





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### Incentives

Incentives have a substantial impact on the savings habits of female employees. According to Table 5, 74 (65%) respondents have incentives, while 39 (35%) have none). The findings demonstrate that most female employees like having incentives; this suggests that the organization has provided incentives and subsidies to encourage female employees to save and build assets. According to Constantine (2017), the institutional saving model implies that institutional variables significantly impact an individual's savings ability. As a result, institutional structures such as incentives and subsidies encourage people to save and build assets. People, for example, join retirement pension schemes because it is simple and appealing.

Table 6. The current status of the respondents decided on saving habits

Items		Frequency	Percent
Do you deliberately save part of what you earn?	Yes	98	86.7%
	No	15	13.3%
	<b>Total</b>	<b>113</b>	<b>100</b>
If your answer is yes, how many presents of the monthly saving rate of salary do you usually save?	1-10%	52	46.02%
	11-20%	30	26.55%
	21-30 %	26	23.01%
	>30%	5	4.42%
	<b>Total</b>	<b>113</b>	<b>100</b>

According to Table 6, of the 113 respondents, 15 (13.3%) said they did not save from their monthly income, while 98 (86.7%) said they did. According to the various explanations for these data, most female employees save money. However, a large number of respondents, 46.02 percent, were simply saving 1 - 10% of their monthly income. The remaining 26.55 percent, on the other hand, saved 11 – 10% of their monthly gross income, 23.01 percent saved 21 - 21-30%, and 4.42 percent saved more than 30%. Respondents who were not saving money from their monthly income because it was too expensive to buy the commodity from the market, economic inflation and large family size, employees earning a lower monthly salary, and a lack of institutional incentives and reinforcements were the significant factors that employees had on saving money from their monthly income.

## ECONOMETRIC ANALYSIS

### Model Specification

The researcher performed the model specification test before model regression. Model specification mistakes might result when neglected important or irrelevant variables are incorporated. It can have a significant impact on the estimation of regression coefficients. A logistic regression model and basic descriptive statistics were used to uncover characteristics influencing household savings in the research region. The variables in the model were examined for the presence of multi co-linearity. The contingency coefficient and the variance inflation factor were utilized for the multicollinearity test of discrete and continuous variables. The value of the contingency coefficient ranges from 0 to 1. A variable with a contingency coefficient less than 0.75 suggests a weak link, whereas a value greater than 0.75 indicates a significant correlation of variables. The contingency coefficient for the discrete





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The factors positively connected to the chance of female employees' saving habits in logistic regression analyses are education level, income level, access to savings institutions, and incentives. Age, family size, and expenditure are characteristics that negatively correlate with the probability of saving behaviors. Four of the seven explanatory factors shown in the table above are education level, income level, access to savings institutions, and incentives that substantially impact female employees' saving habits at 5% and 10% significance levels. Age, family size, and expenditure are explanatory factors with negative values in the table above, indicating that as the units in the independent variable change, the chance of saving habits decreases.

When age (AG), family size (FS), educational level (EDL), income level (INL), expenses (EX), access to savings institution (ASI), and incentives (IN) are all zero in the equation as mentioned above, the significant level of savings habits is 58%, indicating that other factors have influenced the savings habits of salaried employees in the study area. Testing hypotheses based on the output of the regression model is addressed in more detail below.

### **H1: Age and Saving Habits**

In this finding, the female employees' age was negative, and the coefficient is statistically different from zero at a 5% significance level. With all other variables fixed at their mean values, the age of female employees was projected to increase by one unit. Instead, the likelihood of developing good saving habits decreased by 0.628. This conclusion might be explained by the fact that as a woman's age grows, so does her ability to save. The findings of this investigation were congruent with those of Singh et al. (2018). They discovered that age was significantly and adversely related to household savings at a level of 5%. This means that as one of these factors increases, household savings fall. In their study, Hailesellasiye et al. (2013) discovered that age is a significant and negative determinant of family saving behavior, with older families saving less. However, the findings contradict those of Prime et al. (2020), who discovered that age positively and substantially influenced the savings rate of paid employees in the research region. According to Bekata (2016), the data indicated that the household's age significantly influenced rural households' savings. Yao et al. (2011) discovered a favorable connection between age and household savings. When the age of a household grows, so does its savings status. In line with the previous study, the regression findings of the present study demonstrate that the age of a paid employee is statistically significant and is adversely related to saving habits at a level of 5% since the P-value was 0.084, which is larger than 5%.

**As a result, the null hypotheses were rejected, and the alternative hypotheses (H1) offered were accepted.**

### **H2: Family Size and Saving Habits**

In this research, the family size of the woman employee negatively affected her savings habits, and the coefficient is statistically different from zero at a 5% significance level. The family size of the employees was projected to increase by one unit if all other variables remained constant at their mean levels. Instead, the likelihood of women's saving habits falls by a factor of 0.62. This means that when the family size is large, there are fewer employment prospects and poor work habits, and family members become unemployed and have a low payment rate. As a result, an extra family member shares the family's limited resources, causing the family to save less. The findings of this research agreed with those of Bekata (2016), who discovered that family size was a critical variable that negatively affected the saving behavior of rural families in the study region. Leto (2016) discovered that when the household size increased, so did the degree of savings. Moges et al. (2021) discovered that family size negatively influenced household savings. It was projected that if the size of the household family increased by one unit, the chance ratio favoring household savings would drop. Rikwentishe et al. show that the family's size also affects the propensity to save and consume; as family size grows, so does the propensity to



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consume owing to the increased need for food, clothes, and other necessities. In line with the previous study, the regression results of the present study demonstrate that employee family sizes are negatively related to saving habits statistically level at 5% since the P-value was 0.094, which is more than 5%.

**As a result, the null hypotheses were accepted, but the alternative hypotheses (H4) provided were rejected.**

### **H3: Educational Level and Saving Habits**

According to the regression results, even at a level of 10%, education has a largely positive and statistically significant influence on saving behavior. The value of 0.583 suggests that considering additional independent factors is constant. A one-unit or grade improvement in educational level correlates with a 1.791 increase in saving behavior. One possible explanation is that women's education levels improve their ability to capture technology. It may assist in utilizing better inputs for its revenue creation procedures, and as income increases, employee savings rise as well.

The results of this study were consistent with the findings of Hailesellasi et al. (2013), who discovered a favorable association between educational level and household saving behavior. According to Frew et al. (2021), household education level is statistically significant and positively related to the savings rate. According to Bag et al. (2021), education is a proxy for human development, which is the theme for increasing human potential and productivity in personal income and savings. Twumasi et al., on the other hand, was not satisfied with the outcome (2020). He discovered that the level of education had little effect on saving. According to Gobena (2018), schooling has a detrimental impact on savings. In line with the previous study, the regression findings of the present study reveal that educational levels are positive and statistically significant at 10% since the P-value was 0.000, which is less than 10%.

**As a result, the null hypotheses were rejected, and the alternative hypotheses (H5) offered were accepted.**

### **H4: Income Level and Saving Habits**

According to the regression results, income level has a favourable and statistically significant influence on saving behavior, even at a 5% significance level. Furthermore, the coefficient of 0.673 indicates that taking other independent factors into account is constant. As a result, a one-unit increase in income boosts saving habits by a ratio of 1.96. According to Hutchings et al. (2012), one possible reason for this finding is that when monthly pay increases, women employees' saving habits increase. Hailesellasi et al. (2013) showed that income significantly affects households' saving behavior. The study revealed that the saving rate increases by some percent when income increases. Similarly, Frew et al. (2021) found that a household's annual income was positively related to household savings. In line with the previous study, the regression results of the current study show that income levels are positive and statistically significant at 5% because the P-value was 0.000, which is less than 5%.

**Therefore, the null hypotheses were rejected, and the alternative hypotheses proposed (H6) were accepted.**

### **H5: Expenditure and Saving Habits**

According to the regression results, spending negatively and statistically significantly influences saving habits, even at a 10% level. Considering other independent variables, the coefficient of -0.542 indicates the relationship is constant. Therefore, when a one-unit increase in spending leads to a 0.581 decline in saving habits, the inference is that an increase in monthly food expenditure and non-food consumption per family will influence the saving habits of female employees. The findings of this study were consistent with those of (Faridi, Bashir, 2010), demonstrating that expenditure has a significant and negative impact on household savings. According to Timerga et al. (2011), the findings indicate that the



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cost of expenditure has had a negative and significant impact on employees' saving habits. Frew et al. (2021) discovered that a household's yearly spending had a statistically negative influence on the likelihood of savings. Bekata (2016) discovered that the expenditure cost was the critical variable that adversely affected the saving behavior of rural families in the research region. According to Leto (2016), unanticipated expenditures consume more people's savings than planned expenditures. In line with the previous study, the regression results of the present study demonstrate that the expenditure is negative and statistically significant at 10% since the P-value was 0.130, which is more than 10%.

**Therefore, the null hypotheses were accepted, and the alternative hypotheses proposed (H7) were rejected.**

### **H6: Access to Saving Institutions and Saving Habit**

According to the regression results, even at a significance level of 5%, access to saving institutions has a favorable and statistically significant influence on saving behaviors. The value of 0.612 suggests that considering additional independent factors is constant. A one-unit increase in access to saving institutions boosts saving habits by a ratio of 1.844. The likely explanation for this finding is that the ease of access to formal and informal savings institutions encourages employees to save their resources in a conveniently available institution, which supports the finding (Metcalf 2008). This shows that access to savings institutions is important in the saving habits of female employees in the research region. This study's findings agreed with those of Leto (2016), who discovered that access to savings institutions had a positive and statistically significant influence on household savings rates. Furthermore, in line with the previous study, the regression results demonstrate that access to saving institutions is advantageous and statistically significant at 5% since the P-value was 0.006, less than 5%.

**Therefore, the null hypotheses were rejected, and the alternative hypotheses proposed (H8) were accepted.**

### **H7: Incentives and Saving Habits**

According to the regression results, rewards benefit and statistically significantly influence saving habits even at a 5% level. The coefficient of 0.436 suggests that considering additional independent factors is constant. A one-unit increase in rewards increases the likelihood of saving behavior by 1.546. The institution might explain this outcome by providing incentives and subsidies to encourage employees to save and acquire assets. The findings of this study were consistent with those of (Hoang and Harrington 2020); the conclusion indicates that incentives have an enormous and beneficial impact on household savings rates. It is also said that the institutional saving model implies that institutional variables significantly impact an individual's ability to save. As a result, institutional structures such as incentives and subsidies encourage people to save and build assets. In line with the previous study, the regression results of the present study reveal that the incentives are positive and statistically significant at 5% since the P-value was 0.010, which is less than 5%.

**Therefore, the null hypotheses were rejected, and the proposed alternative hypotheses (H9) were accepted.**

## **CONCLUSION AND RECOMENDATIONS**

The study was carried out to determine the factors that affect the saving practices of women employees in Ethiopia, with a focus on the Wolaita zone in the southern area. Data for the study were gathered from 113 women who worked in the Wolaita Zone Office. According to the findings, 103 (35%) of the respondents were between 20 and 30, while 101 (34%) were between the ages of 31 and 40. This shows that most of the responses were between 20 and 40. Consequently, women employees in the



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economically active and productive age group can correctly save and invest scarce resources. On the other hand, when employees' ages grow, their ability to save declines.

Regarding family size, female employees with fewer children save more than male employees with more prominent families. The consequence of this study is that feeding a large family size of one household head is difficult for a large family size. Depending on the level of education, most women have a high degree of education. This means that when the education level of female employees increases, so will their saving habits. Regarding the income level, the income level of female employees influenced their saving habits because when the monthly income increased, the saving habits of the employees increased by the same units. According to the expenditure findings, most female employees spent their expenditures on food consumption. This spending is determined by the degree of income; as the household consumption rate increases, so do female employees' saving habits. Regarding access to savings institutions, statistics suggest that most female employees have access to formal savings institutions, notably the Ethiopian Commercial Bank. Finally, the results revealed that 262 (88%) of the respondents had incentives, while 35 (12%) did not. According to the findings, the majority of employees who provide feedback have incentives. The organization provided incentives and subsidies to encourage employees to save and build their assets.

The regression findings of this study revealed that age is statistically related to saving behavior at a level of 5% since the P value was 0.084, which was greater than 5%. As a result, the null hypotheses were rejected, and the alternative hypotheses (H1) offered were accepted. Family sizes are statistically related to poor savings practices at 5% since the P value was 0.094, which is more than 5%. Because the P-value was 0.000, less than 10%, the educational level is positive and statistically significant at 10%. The income level is positive and statistically significant at 5% since the P-value was 0.000, less than 5%. The expenditure is negative and statistically significant at the 10% level since the P-value was 0.130, greater than 10%. Because the P value was 0.006, less than 5% access to saving institutions is beneficial and statistically significant at the 5% level. Finally, the incentives are positive and statistically significant at 5%, as the P-value was less than 5%.

Based on the above findings and conclusions of the research, this study has recommended specific points:

1. According to the findings, this study found a factor influencing female employees' saving behaviors. As a result, the study proposed that governments and financial institutions increase the saving habits of female employees by increasing knowledge about how to manage and save money for personal purposes and enabling financial literacy development training.
2. The competent organization should raise awareness in urban and rural regions by providing financial education and training on savings and financing. These initiatives have the potential to change people's attitudes to saving.
3. The research advised that the responsible body adopt compelled savings, stabilize society's regular income, and minimize inflation to achieve a real savings rate.
4. Official financial institutions should encourage and boost savings incentives and offer financial instruments capable of mobilizing funds.
5. It is also necessary to enhance and grow financial institutions such as banks, as well as to strengthen government and private employee social security schemes, as well as to strengthen savings for housing programs and investment equipment schemes.
6. Finally, to increase the saving habits of women employees in the study area, this study recommended that government bodies, formal financial institutions, and nongovernmental organizations facilitate training for employees to develop knowledge and awareness in saving money and other financial resource utilization to improve the wealth and living standards of women employees.



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## REFERENCES

- Aghion, P., Comin, D., Howitt, P., Tecu, I. (2016). When do domestic savings matter for economic growth? *IMF Economic Review*, 64(3), 381-407.
- Anigbogu, T.U., Onugu, C.U., Onyeugbo, B.N., Okoli, M.I. (2014). Determinants of loan repayment among cooperative farmers in Awka North LGA of Anambra State, Nigeria. *European Scientific Journal*, 10(22), 168-190.
- Asare, E., Segarra, E., Gertrude, N., Asiseh, F. (2018). Explaining the saving behavior of households in Ethiopia, Africa. *Applied Economics and Finance*, 5(2), 143-151.
- Athukorala, P.C., Tsai, P.L. (2003). Determinants of household saving in Taiwan: Growth, demography and public policy. *The Journal of Development Studies*, 39(5), 65-88.
- Bag, S., Dhamija, P., Gupta, S., Sivarajah, U. (2021). Examining the role of procurement 4.0 towards remanufacturing operations and circular economy. *Production Planning & Control*, 32(16), 1368-1383.
- Bayeh, E. (2016). The role of empowering women and achieving gender equality in the sustainable development of Ethiopia. *Pacific Science Review B: Humanities and Social Sciences*, 2(1), 37-42.
- Bekata, B.T. (2016). Determinants of savings behavior among rural households in the case of Boricha Woreda, Sidama Zone, Southern Ethiopia (No. 672-2021-1710).
- Benti, D.W., Biru, W.T., Tessema, W.K. (2022). The Effects of Commercial Orientation on (Agro) Pastoralists' Household Food Security: Evidence from (Agro) Pastoral Communities of Afar, Northeastern Ethiopia. *Sustainability*, 14(2), 731.
- Boateng, E., Agbola, F.W., Mahmood, A. (2019). Does the quality of institutions enhance savings? The case of Sub-Saharan Africa. *Applied Economics*, 51(58), 6235-6263.
- Brody, C., De Hoop, T., Vojtkova, M., Warnock, R., Dunbar, M., Murthy, P., Dworkin, S.L. (2015). Economic Self-Help group programs for improving women's Empowerment: a systematic review. *Campbell Systematic Reviews*, 11(1), 1-182.
- Chamon, M., Liu, K., Prasad, E. (2013). Income uncertainty and household savings in China. *Journal of Development Economics*, 105(Issue C), 164-177.
- Choudhry, M.T., Elhorst, P. (2018). Female labour force participation and economic development. *International Journal of Manpower*, 39(7), 896-912.
- Constantine, C. (2017). Economic structures, institutions, and economic performance. *Journal of Economic Structures*, 6(1), 1-18.
- Dahiya, M., Chaudhary, B. (2016). Salaried strata investment behavior towards financial products-review and prospects for future research. *International Research Journal of Management, IT and Social Sciences*, 3(7), 15-26.
- Daud, M.A. (2015). The effect of member demographics on the savings and investment of individuals in Savings and Credit Co-operatives registered by Sacco societies regulatory authority (Doctoral dissertation, University of Nairobi).
- Davies, D.J., Thate, M.J. (2017). *Religion and the Individual: Belief, Practice, and identity*. MDPI, Basel.
- DeMille, S., Tucker, A.R., Gass, M.A., Javorski, S., VanKanegan, C., Talbot, B., Karoff, M. (2018). The effectiveness of outdoor behavioral healthcare with struggling adolescents: A comparison group study a



## Conference Proceedings

- contribution for the special issue: Social innovation in child and youth services. *Children and Youth Services Review*, 88, 241-248.
- Donkor, E., Anane, E. (2016). Saving behavior of citrus farmers in Ghana: implications for rural enterprise development. *Development in Practice*, 26(8), 1037-1046.
- Egbide, B.C. (2020). Rotating and savings credit association (ROSCAs): A veritable tool for enhancing the performance of micro and small enterprises in Nigeria. *Asian Economic and Financial Review*, 10(2), 189-199.
- Faridi, M.Z., Bashir, F. (2010). Households Saving Behaviour in Pakistan: A Case of Multan District. *Pakistan Journal of Social Sciences*, 30(1), 17-29.
- Feng, J., He, L., Sato, H. (2011). Public pension and household saving: Evidence from urban China. *Journal of Comparative Economics*, 39(4), 470-485.
- Fenta, H.M., Dessie, Z.G., Mitku, A.A., Muluneh, E.K. (2017). Saving habits and its determinants in Amhara National Regional State, Ethiopia. *Oman Chapter of Arabian Journal of Business and Management Review*, 34(82), 1-10.
- Fisher, P.J. (2010). Gender differences in personal saving behaviors. *Journal of Financial Counseling and Planning*, 21(1), 14-24.
- Gobena, G.A. (2018). Family socio-economic status affects students' academic achievement at the College of Education and Behavioral Sciences, Haramaya University, Eastern Ethiopia. *Journal of Teacher Education and Educators*, 7(3), 207-222.
- Gujarati, D.N., Porter, D.C. (2004). *Basic econometrics* (ed.) McGraw-Hill, Boston.
- Hailesellasiye, A., Abera, N., Baye, G. (2013). Assessment of saving culture among households in Ethiopia. *Assessment*, 4(15), 1-8.
- Hando, H., Senapathy, M., Bojago, E. (2022). Determinants of Member Participation in Activities of Multipurpose Primary Cooperatives: The Case of Kindo Koysha District, Southern Ethiopia. *Advances in Agriculture*, 569016, 1-21.
- Haque, A., Zulfiqar, M. (2016). Women's Economic Empowerment through financial literacy, attitude, and well-being. *International Journal of Business and Social Science*, 7(3), 78-88.
- Hoang, T., Harrington, J.R. (2020). Tax incentive and household saving strategy: A regression discontinuity approach to catch-up contributions. *The Social Science Journal*, 60 (10), 1-16.
- Hutchings, K., Lirio, P., Metcalfe, B.D. (2012). Gender, globalization, and development: a re-evaluation of the nature of women's global work. *The International Journal of Human Resource Management*, 23(9), 1763-1787.
- Jayaraman, J.D., Jambunathan, S. (2018). Financial literacy among high school students: Evidence from India. *Citizenship, Social and Economics Education*, 17(3), 168-187.
- Jung, W.J. (2016). A Study on the effect of education participation on the total factor of productivity (Doctoral dissertation, KDI School), Sejong.
- Krook, M.L., True, J. (2012). Rethinking the life cycles of international norms: The United Nations and the global promotion of gender equality. *European journal of international relations*, 18(1), 03-127.
- Kubás, J., Bugánová, K., Polorecká, M., Petrlová, K., Stolínová, A. (2022). Citizens' Preparedness to Deal with Emergencies as an Important Component of Civil Protection. *International journal of environmental research and public health*, 19(2), 830.
- Leach, M. (ed.). 2016. *Gender equality and sustainable development*. Routledge, London.





## Conference Proceedings

- Leto, N.M. (2016). Determinants of Saving Behaviour of Working Women Household head in Arbaminch Town, Gamo Gofa Zone, SNNPR (MSc thesis). Arba Minch University.
- Lidi, B.Y., Bedemo, A., Belina, M. (2017). Determinants of Saving Behavior of Farm Households in Rural Ethiopia: The Double Hurdle Approach. *Developing Country Studies*, 7(12), 17-26.
- Lin, L., Wang, W., Gan, C., Nguyen, Q.T. (2019). Credit constraints on farm household welfare in rural China: Evidence from Fujian Province. *Sustainability*, 11(11), 3221.
- Liu, Y., Yang, Y., Li, H., Zhong, K. (2022). Digital economy development, industrial structure upgrading, and green total factor productivity: Empirical evidence from China's cities. *International Journal of Environmental Research and Public Health*, 19(4), 2414.
- Lusardi, A., Mitchell, O.S. (2014). The economic importance of financial literacy: Theory and evidence. *Journal of economic literature*, 52(1), 5-44.
- Ma, J., Zhao, Q., Li, Q., Yang, H. (2021). Financial Constraints, Corporate Savings, and Labor Income Share—Based on China's Economic Transition. *Sustainability*, 14(1), 346.
- Malkina, M. (2019). Determinants of Private Savings in the form of Bank Deposits: A Case Study on Regions of the Russian Federation. *Economies*, 7(2), 63.
- Matemane, M.R. (2018). Saving for tomorrow: does the level of financial literacy in the South African working-class matter? *Southern African Business Review*, 22(1), 1-21.
- Meher, K., 2017. Assessment of Performance of Saving Mobilization between Branches of MFI, Ethiopia. *International Journal of Current Research and Modern Education*, 2(2), 306-317.
- Metcalf, B. D. (2008). Women, management, and globalization in the Middle East. *Journal of Business ethics*, 83(1), 85-100.
- Metcalf, B. D. (2011). Women, empowerment, and development in the Arab Gulf States: a critical appraisal of governance, culture and national human resource development (HRD) frameworks. *Human Resource Development International*, 14(2), 131-148.
- Mirach, T.H., Hailu, Y.M. (2014). Determinants of household saving in Ethiopia: a case of North Gondar zone Amhara regional state. *International Journal of Development and Economic Sustainability*, 2(4), 37-49.
- Moges, F., Senapathy, M., Alves, P. (2021). Determinants of Urban Households Saving: The Case of Wolaita Sodo Town, Southern Ethiopia. *International Journal in Physical and Applied Sciences*, 8(2), 1-17.
- Mohamed, M.M.A., Liu, P., Nie, G. (2021). Are Technological Innovation and Foreign Direct Investment a Way to Boost Economic Growth? An Egyptian Case Study Using the Autoregressive Distributed Lag (ARDL) Model. *Sustainability*, 13(6), 3265.
- Morgan, P.J., Long, T.Q. (2020). Financial literacy, financial inclusion, and savings behavior in Laos. *Journal of Asian Economics*, 68, 101197.
- Morgan, P.J., Trinh, L.Q. (2019). Determinants and impacts of financial literacy in Cambodia and Viet Nam. *Journal of Risk and Financial Management*, 12(1), 1-24.
- Nagawa, V., Wasswa, F., Bbaale, E. (2020). Determinants of gross domestic savings in Uganda: an autoregressive distributed lag (ARDL) approach to cointegration. *Journal of Economic Structures*, 9(1), 1-19.
- Namanya, R.R. (2011). Determinants of Household in Uganda. Doctoral dissertation. University of Nairobi, Kenya.
- Náñez Alonso, S.L., Jorge-Vazquez, J., Reier Forradellas, R.F., Ahijado Dochado, E. (2022). Solutions to Financial Exclusion in Rural and Depopulated Areas: Evidence Based in Castilla y León (Spain). *Land*, 11(1), 1-19.



## Conference Proceedings

- Nichols, C. (2021). Self-help groups as platforms for development: The role of social capital. *World Development*, 146, 105575.
- Nkomoki, W., Bavorová, M., Banout, J. (2019). Factors associated with household food security in Zambia. *Sustainability*, 11(9), 2715.
- Nyambura, W.M. (2019). Determinants of Investment and Saving Culture among Employees in Nairobi County. A Case Study Wells Fargo Limited (Doctoral dissertation, US International University-Africa).
- Ponce, P., Alvarado, R., Ponce, K., Alvarado, R., Granda, D., Yaguana, K. (2019). Green returns of labor income and human capital: Empirical evidence of the environmental behavior of households in developing countries. *Ecological Economics*, 160, 105-113.
- Prime, H., Wade, M., Browne, D.T. (2020). Risk and resilience in family well-being during the COVID-19 pandemic. *American Psychologist*, 75(5), 631-643.
- Psoter, K.J. and Rosenfeld, M., 2013. Opportunities and pitfalls of registry data for clinical research. *Pediatric Respiratory Reviews*, 14(3), 141-145.
- Ribaj, A., Mexhuani, F. (2021). The impact of savings on economic growth in a developing country (the case of Kosovo). *Journal of Innovation and Entrepreneurship*, 10(1), 1-13.
- Rikwentishe, R., Pulka, B.M., Yamta, H.A. (2015). Analysis of socio-economic factors affecting savings habits in Jalingo Taraba State. *IOSR Journal of Business and Management*, 17(8), 1-6.
- Singh, A.K., Jham, J., Kaur, A. (2018). Private Savings: Trend Analysis and Determinants. *LBS Journal of Management & Research*, 16 (1-22), 11-20.
- Szepanski, A. (2022). Private Banks. In *Financial Capital in the 21st Century* (pp. 179-218). Palgrave Macmillan, Cham.
- Nalın, H.T. (2013). Determinants of household saving and portfolio choice behavior in Turkey. *Acta Oeconomica*, 63(3), 309-331.
- Teshome, G., Kassa, B., Emanu, B., Haji, J. (2013). Determinants of rural household savings in Ethiopia: The case of east Hararge Zone, Oromia regional state. *Journal of Economics and Sustainable Development*, 4(3), 66-75.
- Timergu, G., Gotu, B., Alem, Y. (2011). Statistical analysis of saving habits of employees: a case study at Debre Birhan Town in North Shoa, Ethiopia.
- Twumasi, M.A., Jiang, Y., Danquah, F.O., Chandio, A.A., Agbenyo, W. (2020). The role of savings mobilization on access to credit: a case study of smallholder farmers in Ghana. *Agricultural Finance Review*, 80(2), 275-290.
- Uttley, J., Fotios, S. (2017). Using the daylight savings clock change to show ambient light conditions significantly influence active travel. *Journal of Environmental Psychology*, 53, 1-10.
- Yamane, T. (1967). *Statistics: An introductory analysis*. 2nd Edition. Harper and Row, New York.
- Yao, R., Wang, F., Weagley, R.O., Liao, L. (2011). Household saving motives: Comparing American and Chinese consumers. *Family and consumer sciences research journal*, 40(1), 28-44.
- Yu, C.S. (2012). Factors affecting individuals to adopt mobile banking: Empirical evidence from the UTAUT model. *Journal of electronic commerce research*, 13(2), 104-121.
- Zhang, H., Lv, H., Lin, S. (2021). Financial Development, Saving Rates, and International Economic Volatility: A Simple Model. *Mathematics*, 9(16), 1-19.



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# SOCIOECONOMIC STATUS, ETHNIC GAPS AND DISCRIMINATORY BEHAVIOUR IN THE LABOUR MARKET: THE EUROPEAN REGIONS HETEROGENEITY

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DOI: 10.5937/EEE24050N  
JEL: M26, L1  
Original Scientific Paper

### ABSTRACT

*This work examines any ethnic gaps between self-identified ethnic minorities and the majority of the population across Western European regions, taking into consideration the variations within native population and ethnic minorities due to family background (i.e., parents' education and occupation). The analysis shows that self-identified ethnic minorities and national majorities have significantly different socioeconomic levels; the observed ethnic gaps cannot be fully explained by individual educational attainment, family history, or challenges related to migration. Estimates of multilevel models have been made, with the individual outcome in terms of socioeconomic position and education as the dependent variable. Micro data from the European Social Survey are used in this investigation. The findings show that overestimating any ethnic gaps may result from ignoring social origins: parents with high socioeconomic status may better target their children in their decision-making, which may imply further disadvantages for ethnic minorities, particularly for the offspring of migrants who typically have low social origins. The findings also highlight how little intergenerational mobility there is in Europe.*

### KEYWORDS

*migration, human development, labour, well being*

## INTRODUCTION

The ethnic mix of many European countries<sup>3</sup> has rapidly increased due to the migration of people from less developed to more developed countries over the past few decades. As a result, more research is now required to determine whether and to what extent members of ethnic minorities are integrated into the labor market and host society (Alba et al., 2011). In addition to wasting money and creating inefficiencies, discrimination of any kind regarding employment and educational opportunities is a serious public health risk since it weakens social cohesiveness and can lead to social instability.

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<sup>3</sup> A preliminary version of this work is Ethnic minorities' disadvantages in Europe (2021). [https://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=3995458](https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3995458).



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The majority of recent empirical findings show that people of ethnic minorities face considerable, occasionally severe barriers to obtaining higher education and employment opportunities (Hehewisch, Liepmann, 2013, Kim, 2013, Kahanec et al., 2010 summarize the results for European countries). The severity of these drawbacks differs by nation and ethnic group, as is to be expected. The primary characteristic, though, is the variation in the data and approaches employed by the various research to gauge any ethnic prejudice.

Some studies focus solely on comparing the average employment outcomes or socio-economic conditions of immigrants, ethnic minorities, and natives, while others take into account additional factors such as age and education levels (Borjas, 1990, 1995, Adsera, Chiswick, 2007, Cheung, Heath, 2007, Kahanec, Zaiceva, 2009, Kahanec et al., 2010, Kahanec, Zimmerman, 2010). Lefranc (2010) also considers family background in the French labor market to illustrate the various social and economic factors that can contribute to ethnic disadvantages.

In this context, the primary challenge for researchers is defining and measuring "ethnicity." The term "ethnic minority" can include both immigrants and their offspring, as well as indigenous minority groups who have not been absorbed into the larger population. Max Weber (1978, p. 389) defines ethnic groups as those "human groups that entertain a subjective belief in their common descent because of similarities of physical type or of customs or both, or because of memories of colonization and migration" (see also, Heath, Cheung, 2007).

Considering this definition, there are challenges in accurately measuring ethnicity. For instance, using individuals' and parents' birthplaces can be misleading, as children of ex-colonists may be mistaken for indigenous populations (Lefranc, 2010). Additionally, many migrant-sending countries have diverse ethnicities, such as India with its numerous linguistic and ethnic groups. Relying on nationality alone does not distinguish naturalized citizens' ethnic origins. Self-reporting ancestry may also be biased, as some ancestries may be stigmatized and individuals may choose to conceal them (Heath, Cheung, 2007).

The further limitation for researchers in this context is the scarcity of adequate data, particularly in Europe (Kahanec et al., 2010; OECD, 2018).

In contrast to the United States, where diverse ethnic populations have led to the creation of large datasets, European studies often rely on national surveys and various methods to determine minority status. The identification of ethnic minorities poses challenges within individual countries and across Europe due to the varying characteristics of these populations (see also Bauer et al., 2001). Some countries have significant ethnic minorities due to post-colonial migration or labor recruitment policies, while others have indigenous minorities or are experiencing increasing migration flows of asylum seekers and refugees.

This study aims to examine inequalities experienced by ethnic minorities in the labor market across European countries using data from the 8th wave of the European Social Survey. The ESS provides valuable information on individual characteristics, labor market outcomes, family background, and a key variable for this study - whether respondents identify as ethnic minority members. This variable helps distinguish between individuals with immigrant backgrounds and those from indigenous minority groups, with self-identification being the preferred method for identifying an individual's ethnic group (United Nations, 2017, ILO, 1989).

The research examines disparities between self-identified ethnic minorities and the majority population, as well as differences within ethnic minority groups based on their individual characteristics and family backgrounds. By overlooking social origins, there is a risk of exaggerating ethnic gaps, as parents with high socioeconomic status are more likely to guide their children towards successful educational and career paths. This could potentially create further challenges for ethnic minorities, especially the offspring of migrants with lower social origins.



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Multilevel models have been estimated where the dependent variable is the individual outcome in society and the labour market in terms of education, income and occupational status. The intercept and coefficient for ethnicity are allowed to vary across regions (random-intercept, random coefficient models): multilevel models allow to explain any variations in the individual outcomes in the labour market with the individual characteristics (age, education, family background and ethnicity) and region-level variables (i.e., unemployment rate and endowment of social capital) simultaneously, while also allowing for the impact of individual characteristics – i.e. minority membership – on the individual outcome to vary across regions.

The paper is set out as follows. Section 2 reviews current literature, section 3 describes the methodology and data used in the analysis, section 4 displays the results; concluding remarks are reported in section 5.

## LITERATURE REVIEW

According to the basic theory of labor economics, firms that prioritize profits rationally pay employees based on their marginal productivity. This means that in a competitive labor market that functions well, workers with equal skills – typically represented by education and work experience—have an equal chance of finding employment and earning the same salary.

The issue of labor market discrimination based on race, gender, or ethnicity has received a great deal of attention from empirical studies (Altoniji, Blank, 1999, Radović-Marković, et. al, 2021). These studies have highlighted the existence of ethnic penalties; among them are Cheung and Heath (2007), Hegewisch and Liepman (2013), and Kim (2013), Kananec et al. (2010) and Kahanec and Zimmerman (2010) provide a summary of the findings across European countries.

Neoclassical authors (e.g., Abowd, Killingsworth, 1984; Heckman, 1998; Trejo, 1997) assert that racial and ethnic variations in earnings, jobs, and income are determined by the lower levels of education, work experience, and training among ethnic minorities. Neoclassical theory critics point out, however, that even when skill levels are taken into consideration, racial and ethnic minorities still earn less money than equivalent white workers (Cheung, Heath, 2007, Kim, 2007, Smith, 2012).

Minority job seekers are also less likely to be invited for an interview, according to field tests (see Bertrand, Mullainathan, 2004, OECD, 2013, Neumark, 2016, Zschirnt, Ruedin, 2016). Immigrants with ethnic backgrounds are likely to fare worse than natives in the labor market for a variety of reasons.

First of all, immigrants may not speak the language of the host nation well, which could reduce their productivity in a variety of roles. Second, because their native countries have relatively underdeveloped educational institutions, migrants from less developed nations frequently have low competency levels. Additionally, employers in the host nation could not have appreciated the migrants' skills since they were unable to appropriately identify their international qualifications (OECD, 2013). Furthermore, social networks are seen to be crucial sources of knowledge about job opportunities, but immigrants are less likely to be part of them (see Mortensen, 1986, Granovetter, 1973).

When endogenous ethnic minorities or the descendants of immigrants are taken into account, these arguments, however, do not justify barriers to employment or income because the descendants of immigrants were born in the host community and received their education in the same educational system. In other words, ethnic minorities may be impacted by prejudice and discrimination (Burstein, 1994). Research on employment practices also indicates that businesses choose white employees over black Americans who are comparable to them but not "visible ethnic minorities" (Kirschenman,



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Neckerman, 1991). Another argument might be that employers frequently fall back on outdated prejudices as a result of issues with asymmetric information regarding employees' productivity (for more on this, see Pager, Karafin, 2009).

As was previously indicated, the numerous measures of ethnic disadvantage that are frequently employed in empirical works may capture a variety of reasons that contribute to the poorer socioeconomic accomplishment of ethnic minorities, but they do not always imply racial discrimination. For example, Cheung, Heath (2007) and Phalet, Heath (2007) distinguish between two empirical measures of the ethnic gap: on the one hand, differences between the members of the ethnic minority and the majority population evaluated age and education (net disadvantage); on the other hand, differences in the mean outcome between the ethnic minority and the population majority (gross ethnic disadvantage), which may be biased by unobserved differences in the individual characteristics.

## DATA AND METHODOLOGY

Individual data were drawn from the tenth edition of the European Social Survey (ESS8, 2016-2018), carried out in the European regions. The ESS dataset was used for this study due to its wide range of data on household and individual characteristics, as well as a critical variable pertaining to the respondents' self-definition as members of an ethnic minority. This characteristic makes it possible to distinguish between people who are members of autochthonous minority and people with an immigrant background. The most accurate way to determine a person's ethnic group is thought to be by self-identification (see United Nations, 2017, ILO, 1989).

One major limitation of the ESS survey is that, unlike studies that analyze migration issues, ethnic minorities are not over sampled. As a result, the number of observations for working-age members of ethnic minorities is relatively low, making it difficult to make extensive comparisons among different ethnic groups or at the national level. Conversely, studies focusing on certain minority typically don't have a representative sample of the majority population that has the data needed to achieve this goal (OECD, 2019). Considering the constraints of the data, consideration was given to any distinctions that may exist between the majority population and ethnic minorities, as well as whether and to what degree these distinctions are influenced by observable personal and familiar traits.

Multiple linear regression and logit models were estimated, where the dependent variables represent individual performance in the society and labour market; the individual outcome is measured through various indicators. First, individual education is measured in full-time years of schooling. Second, the labour market position is measured distinguishing between employed/self-employed and unemployed people in search of job. In addition, "insecurity in the labour market" is represented by using two distinct questions, defining i) whether the respondents have been unemployed for more than 3 months in the past 5 years and ii) whether they are afraid of losing their job in the following 12 months. Two indicators identify the individual positions in the society, respectively i) individual occupations, coded according to the ISCO classification and ii) a question defining whether respondents live comfortably on their family income.

We take explicitly into account how regional characteristics – in addition to individual factors – may influence individual performances, and that attitudes toward immigrants and immigration policies may vary across regions (Crawley, 2005, Crawley et al., 2013) as a consequence of different cultural and economic characteristics and/or different place-specific immigrant integration policies. Hence, the intercept and coefficient for ethnicity are allowed to vary across regions (random-intercept, random



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coefficient multilevel models). The design weights provided in the ESS data, which correct for country differences in sampling are also applied.

The correlates comprise the following individual characteristics: sex, age, education, place of birth, familial background, and ethnic background. The primary justification for controlling age is that life-cycle factors partially influence individual outcomes; comparing people at different phases of life would yield biased findings. The dummies for sex and the place of birth should highlight any gender gap as well as the effects on individual performances of mobility across countries.

The unemployment rate in each of the European regions included in NUTS-2 and the degree of social capital endowment serve as indicators of the socioeconomic conditions at the regional level. Social capital is widely acknowledged for promoting human contacts and reciprocal action, which facilitates many facets of economic activity. (Colemann, 1988, Putnam, 1993, Knack, Keefer, 1995). Fukuyama (1995) identifies social trust as social capital and underlines its function: "trust acts like a lubricant that makes any group or organization run more efficiently"; some recent works highlight a positive correlation between social trust, social distance and local economic development (Guangyi, 2017).

Thus, the indicators of social trust and social distance available in the ESS survey are included. Social trust is measured through the opinions expressed on the following subjects: "most people can be trusted or you can't be too careful; most people try to take advantage of you, or try to be fair; most of the time people are helpful or they are mostly looking out for themselves". Social distance toward ethnic minorities is proxied by two variables: a first question asked respondents if they would mind having a boss who is an immigrant and belongs to a racial/ethnic minority group; respondents were also asked if they would mind if a close relative married an immigrant who is also member of a racial/ethnic minority. Focusing on social distance is particularly interesting for the aim of this work since it allows to observe whether and to what extent anti-immigrant sentiments vary across European regions. Hence, two exogenous regional indicators of social capital have been drawn from a previous wave of the survey (ESS7).

## DESCRIPTIVE STATISTICS

The focus of the paper is on individual outcomes in the labour market, the sample retains individuals aged between 15 to 64 years old. Ethnic minorities' members born in the country of the interview (see Table 1a-b, columns III and VI) should have performances similar to those observed for national majorities' members (Table 1a, columns I and IV) since they grew up and socialized in the same country, whereas first-generation migrants should bear the cost of migration decisions. The descriptive statistics in Table 1b suggest that overall majority population members have better performances in the labour market than ethnic minorities since they are more likely to be employed, are engaged in jobs that require a plenty of communication (and a lower physical burden), and live more comfortably on their present household income.

The observed ethnic disadvantages seem not due to education since ethnic minorities' members born in the host country also have a higher education level than majority members; as expected, the ethnic disadvantages are higher when first generation migrants are included in the sample.

Table1b. Summary statistics- Our Elaborations on ESS data

Variables	Females – mean (std dev.)			Males – mean (std dev.)		
	I National majorities	II Ethnic minorities	III born minorities	IV National majorities	V Ethnic minorities	VI born minorities



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Age	44.502(0.162)	44.156(0.633)	38.383(1.024)	43.977(0.166)	39.285(0.769)	40.375(1.211)
Own education	13.771(0.048)	13.734(0.256)	13.821(0.395)	13.633(0.049)	13.693(0.279)	13.747(0.382)
Mother's education	2.297 (0.024)	2.355 (0.127)	2.336(0.197)	2.282 (0.025)	2.034(0.119)	1.989 (0.151)
Father's education	2.398 (0.028)	2.416 (0.142)	2.177 (0.201)	2.506 (0.029)	2.338 (0.150)	2.178 (0.197)
Mother's occup.	7.274( 0.040)	7.348(0.186)	7.247 (0.280)	7.325 (0.041)	8.057 (0.180)	7.625(0.285)
Father's occup.	6.072 (0.034)	6.018 (0.173)	6.292 (0.263)	6.021 (0.036)	6.347 (0.180)	6.537 (0.219)
ISCOlevel	3.982(0.035)	4.651(0.198)	4.085 (0.237)	4.562 (0.039)	5.243 (0.185)	4.768 (0.283)
Household income	1.908 (0.010)	2.113 (0.047)	2.140 (0.075)	1.845 (0.010)	2.074(0.056)	2.079(0.079)
Binary Variables	%			%		
Employment	78.63	72.23	71.88	89.53	85.47	87.30
Unemployment. last 5 yrs	34.77	46.27	43.94	34.44	46.55	41.97
Unemployment risk	33.32	44.09	44.08	28.83	41.82	42.53
n. observations	13.785	743	348	12835	739	351
<b>Legend:</b>						
Ethnic minorities: respondents who identified themselves as members of ethnic minorities. born minorities: respondents born in the country of the interview who identified themselves as members of ethnic minorities. Education: years of full time schooling. Mother's/father's occupation when respondent was aged 14: 10=not employed; 9: elementary occupation; 8: plant and machine operators and assemblers; 7: craft and related workers; 6: skilled agricultural and fishery workers; 5: service workers and shop and market sales workers; 4: clerks; 3: technicians and associate professionals; 2: professionals; 1=legislators, senior officials and managers. Mother's/father's education is measured according to ISCED classification. Occupational prestige: 9: elementary occupation; 8: plant and machine operators and assemblers; 7: craft and related workers; 6: skilled agricultural and fishery workers; 5: service workers and shop and market sales workers; 4: clerks; 3: technicians and associate professionals; 2: professionals; 1=legislators, senior officials and managers. Household income: respondent's feeling about household's income on a scale 0-3 (0 if living comfortably/coping on present income, 3 if very difficult). Employment: dummy equal to 1 if employed, 0 otherwise. Unemployment. last 5 yrs: dummy equal to 1 if the respondent experienced at least 3 months of unemployment and work seeking in the 5 years preceding the interview, 0 otherwise. Unemployment risk: dummy equal to 1 if the respondent considers very likely unemployment and work seeking in the next 12 months, 0 otherwise.						

Table 1a. Years of schooling – Linear regression model with random intercepts and random slopes

Variables	Coefficients (std errors)			
	No family origins	Full model	Full model	Full model with region-level variables
ethnic minorities	-0.580**(0.221)	-0.255(0.208)	-0.192 (0.221)	-0.190(0.220)
female	0.153***(0.069)	0.152***(0.064)	0.168**(0.073)	0.167**(0.073)
foreign born	-0.595***(0.197)	-0.513***(0.171)	-0.474**(0.190)	-0.476**(0.189)
mother's education		0.267***(0.024)	0.254***(0.024)	0.254***(0.023)
father's education		0.282***(0.023)	0.269***(0.023)	0.268***(0.023)
mother's occupation		-0.099***(0.012)	-0.099***(0.012)	-0.099***(0.012)
father's occupation		-0.204***(0.020)	-0.120***(0.027)	-0.199***(0.023)
regional indicators	no	no	no	yes
N. observations	26380	26380	24097	24097
n. parameters	27	36	36	39
n. countries	21	21	19	19
LL random intercepts		-68750.405		-59843.09
LL random coefficients	-70843.006	-68678.873	-59777.542	-59773.671
<b>RE parameters</b>				
sd (ethnic )	1.367(0.174)	1.279(0.181)	1.294 (0.181)	1.283(0.179)
sd (constant)	0.559(0.072)	0.442(0.061)	0.452(0.065)	0.427(0.066)
sd (residuals)	3.498(0.088)	3.224(0.080)	3.197(0.088)	3.197(0.089)
<b>Legend</b>				
The dependents variable is full-time years of schooling;LL random intercepts: log-likelihood reported for the model including only random intercepts; LL random coefficients: log-likelihood reported for the model including both random intercepts and random slopes. See also legend in Table 3.1. Notes: robust standard errors; sample weights included.				
Note: Our Elaborations on ESS data				



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## RESULTS

## Education variable

Since education is a strong predictor of socio-economic status, guaranteeing equal access to education, is necessary to pursue equal opportunities in the labour market. It has therefore been analysed whether and to what extent ethnic origins, other than parents' socioeconomic status, affect educational attainment. The dependent variables are individual education in full-time years of schooling. The results obtained on the whole sample are shown in Table 2.

Table 2. Employment probabilities/versus unemployment – Logit estimates with random intercepts

Variables	Coefficients (std errors) [Odds ratios]					
	No own education	No family origins	No education, no family origins	Full model	Full model	Full with region – level variables
Education		0.225***(0.011) [1.253]		0.172 ***(0.012) [1.187]	0.166 ***(0.013) [1.181]	0.166*** (0.013) [1.182]
ethnic minority	-0.329***(0.079) [0.719]	-0.364***(0.079) [0.695]	-0.407***(0.078) [0.665]	-0.328***(0.079) [0.720]	-0.375***(0.093) [0.699]	-0.358***(0.082) [0.699]
female	-0.921***(0.039) [0.398]	-0.965***(0.039) [0.381]	-0.901***(0.039) [0.405]	-0.963***(0.039) [0.382]	-0.940***(0.042) [0.391]	-0.939***(0.042) [0.391]
foreign born	-0.311***(0.059) [0.732]	-0.318***(0.059) [0.728]	-0.305***(0.058) [0.738]	-0.318***(0.059) [0.728]	-0.302***(0.063) [0.739]	-0.302***(0.063) [0.741]
mother's educ.	0.066***(0.015) [1.068]			-0.034***(0.008) [1.041]	0.043***(0.015) [1.044]	0.042***(0.015) [1.043]
father's education	0.618***(0.013) [1.064]			-0.021***(0.009) [1.038]	0.040***(0.013) [1.041]	0.040***(0.013) [1.041]
mother's occup.	-0.042***(0.007) [0.958]			0.040***(0.015) [0.966]	-0.036***(0.008) [0.964]	-0.036***(0.008) [0.964]
father's occup.	-0.038***(0.009) [1.064]			0.040***(0.013) [0.978]	-0.017*(0.009) [0.983]	-0.017***(0.009) [0.982]
Regional indicators	no	no	no	no	no	yes
N. Obs.	23755	23755	23755	23755	21540	22540
n. countries	21	21	21	21	19	19
n. parameters	35	28	27	36	36	38
LL random coeffic.	-9559.905	-9505.9564	-9720.776	-9451.503 -9451.682	-8458.752	-8458.790 -8458.895
LL random intercepts	0.302 (0.037)	0.306 (0.037)	0.316 (0.037)	0.299(0.037)	0.189(0.042)	0.193 (0.042)
<b>RE parameter</b>						
Sd (constant)						
<b>Legend</b>						
The dependent variable is a dummy equal to 1 if employed, 0 otherwise. See also Legend in Table 3.1						
Note: Our Elaborations on ESS data						

A potential problem is that unobserved heterogeneity across the countries could have influenced the results; for this reason country fixed effects have been included in all the specifications of the model and, in the last column, a control for region-level variables (i.e., unemployment rates, social distance and social trust). Dummy variables for foreign born and females also capture any penalties due to recent transition from other countries (emigrants that come back or first-generation immigrants) or to gender discrimination.

Our results can be summarised as follows. When we control for family background, ethnic disadvantages are no longer significant. Parents' education matters on their children's scholastic career, thus highlighting that parents' cultural beliefs and attitudes to education foster children motivation to make effort in school. As expected, there is a statistically significant difference between natives and recent movers to the country of the interview.



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A Likelihood Ratio (LRT) test also suggests that the random coefficient model is appropriate (the log-likelihood functions evaluated for the random coefficient model and for the random intercept are reported only for the full model specification). The main conclusions remain substantially stable when controlling for region level variables in the last column; once again, a Likelihood Ratio (LRT) test suggests that the random coefficient model is appropriate.

### Employment status

This section focuses on individual unemployment probabilities and interprets the differentials in these probabilities between self-identified ethnic minorities and majority population members as measures of integration in the EU-countries. The selected sample includes working-age population, aged 15 to 64, excluding anyone who is disabled, member of the military, a student or retired. The unemployment rate is the proportion of people who are employed (vs unemployed) in the labour force.

Table 2 reports the estimates of employment probabilities; a multilevel logit model with intercept random to account for heterogeneity at region level is the final specification of the model. The results in the third column show that minorities experience probabilities of employment lower than national majorities, particularly if female and foreign born; the coefficient on “ethnic minority” is shared by all the European regions, but regions vary in their intercept.

Both individual education and family background explain part of the observed ethnic penalties (in the fourth column), but the probabilities of being employed are still lower than those observed for the national majority members. Finally, the inclusion among the correlates of region-level variables in the last column does not improve significantly the explicative power of the model.

The observed unemployment probabilities may reflect both a high risk of being unemployed and a low probability of exiting unemployment; even if a micro-econometric analysis of unemployment dynamics is beyond the aim of this study, the probability of having been unemployed for long periods (at least three months) in the previous five years and the probabilities of exiting employment in the following year were also focused on. Both of the last indicators are useful in order to highlight insecurity at work.

When considering the unemployment probabilities in the previous five years in Table 3, the results highlight that the gross ethnic disadvantage shown in the fourth column cannot be entirely explained by differences in individual characteristics even if controlling for own education and family background reduces the ethnic differentials. As expected, first generation migrants/movers from other countries experience higher difficulties of being employed in the previous 5 years (in the host country as well as in another country). The results remain substantially the same when including the region-level (i.e., the regional indicators of social trust and social distance) variables in the last column. A likelihood ratio test suggest that the random intercept model is appropriate.

Table 3. Employment status in the last 5 years – Logit estimates with random intercepts.

Variables	Coefficients (std errors) [Odds ratios]					
	No own education	No family origins	No family origins, no own education	Full model	Full model	Full model with region-level variables



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Education		-0.103***(0.008) [0.902]		-0.069***(0.008) [0.933]	-0.071***(0.008) [0.932]	-0.070***(0.008) [0.932]
ethnic minority	0.379***(0.059) [1.461]	0.415***(0.059) [1.514]	0.414***(0.058) [1.512]	0.364***(0.075) [1.439]	0.414***(0.061) [1.513]	0.417***(0.061) [1.518]
female	0.018(0.026) [1.018]	0.039 (0.026) [1.040]	0.017(0.026) [1.016]	0.032(0.026) [1.032]	0.044*(0.028) [1.045]	0.044( 0.027) [1.045]
foreign born	0.338***(0.045) [1.401]	0.355***(0.045) [1.425]	0.339***(0.044) [1.404]	0.351***(0.045) [1.419]	0.320***(0.046) [1.377]	0.325***(0.047) [1.384]
mother's educ.	-0.032***(0.010) [0.969]			-0.021***(0.010) [0.978]	-0.022***(0.010) [0.978]	-0.022***(0.010) [0.978]
father's education	-0.049***(0.009) [0.952]			-0.040***(0.009) [0.960]	-0.042***(0.009) [0.959]	-0.042*( 0.009) [0.959]
mother's occup.	0.013***(0.005) [1.013]			0.010*(0.005) [1.010]	0.011*(0.006) [1.011]	0.011***(0.006) [1.011]
father's occup.	0.020***(0.006) [1.020]			0.013***(0.006) [1.013]	0.011*(0.007) [1.011]	0.011*(0.007) [1.011]
Regional indicators	no	no	no	no	no	yes
N. Obs.	27105	27105	27105	27105	24717	24717
n. parameters	35	28	27	36	36	38
n. countries	21	21	21	21	19	19
L.L. random interc.	-16385.292	-16839.805	-16947.347	-16781.717 -16780.961	-15315.91	-15311.589 -15311.145
LL. random coeff. RE parameter Sd (constant)	0.241(0.028)	0.238 (0.028)	0.247(0.028)	0.236(0.027)	0.208 (0.028)	0.184(0.027)
<b>Legend</b>						
The dependent variable is a dummy equal to 1 if the respondent experienced at least 3 months of unemployment and work seeking in the 5 years preceding the interview, 0 otherwise. See also legend in Table 3.1						
Note: Our Elaborations on ESS data						

The probability of becoming unemployed in the following year (as declared by the respondents) is analysed in Table 4. Familiar background significantly improves respondents' labour perspectives (the full specification model is reported in the fourth column), but once again there are still unexplained ethnic penalties. First generation migrants experience even higher rates of precariousness whereas lower differences emerge between native males and females. The inclusion of region level variables (social trust and social distance) does not improve the explicative power of the model in the last column; the final estimates rely on a random coefficient model.

Table 4. Fear losing job - logit estimates with random intercepts and random slopes

Variables	Coefficients (std errors) [Odds ratios]					
	No own education	No family origins	No family origins, no own education	Full model	Full model	Full model with region-level variables
Education		-0.185***(0.008) [0.831]		-0.151***(0.009) [0.859]	-0.145***(0.009) [0.865]	-0.145***(0.009) [0.865]
ethnic minority	0.325***(0.088) [1.384]	0.377***(0.087) [1.458]	0.391***(0.087) [1.384]	0.344***(0.088) [1.411]	0.377***(0.091) [1.458]	0.378***(0.091) [1.460]
female	0.229***(0.027) [1.253]	0.266***(0.027) [1.305]	0.225***(0.027) [1.256]	0.259***(0.027) [1.296]	0.245*** (0.028) [1.278]	0.245***(0.029) [1.278]



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foreign born	0.464***(0.046) [1.594] -0.046***(0.010) [0.955]	0.480***(0.046) [1.618]	0.461***(0.046) [1.588]	0.481***(0.046) [1.618] -0.025***(0.010) [0.975]	0.434***(0.049) [1.548] -0.025***(0.011) [0.976]	0.436***(0.049) [1.549] -0.025***(0.011) [0.976]
mother's educ.	-0.040***(0.009) [0.960] 0.015***(0.006) [1.015]			-0.021***(0.009) [1.027] 0.009(0.006) [1.009]	-0.022***(0.009) [0.978] 0.011*(0.006) [1.011]	-0.022***(0.009) [0.978] 0.011*(0.006) [1.011]
father's education	0.040***(0.007) [1.041]			0.027***(0.007) [1.027]	0.027***(0.007) [1.028]	0.027***(0.007) [1.028]
mother's occup.	no	no	no	no	no	yes
father's occup.						
N. Obs.	28873	28873	28873	28873	26304	26304
n. countries	21	21	21	21	19	19
n. parameters	35	28	27	36	36	38
L.L. random	-16353.027	-16234.135	-16505.216	-16188.714	-14774.339	-14773.851
coeff.	0.216(0.026)	0.214 (0.026)	0.23 (0.027)	0.209(0.025)	0.180(0.027)	0.177(0.027)
L.L. random	0.404(0.085)	0.392 (0.085)	0.403(0.087)	0.398(0.085)	0.401(0.088)	0.400(0.088)
interc.						
<b>RE</b>						
<b>parameter</b>						
<b>s</b>						
Sd						
(constant)						
Sd (ethnic)						
<b>Legend</b>						
The dependent variable is a dummy equal to 1 if the respondent considers very likely unemployment and work seeking in the next 12 months, 0 otherwise. See also legend in Table 3.1						
Note: Our Elaborations on ESS data						

Socioeconomic conditions

The analysis of the labour market status provides incomplete information to evaluate the welfare consequences of ethnic differences in the society. Any differences may arise in relation to the type of job (e.g., migrants are more likely to accept jobs that do not correspond to their educational qualification) or because minorities experience lower earnings than majority members. This section focuses on two additional indicators, economic conditions and the ISCO classification of a given job. Likelihood ratio tests suggested to retain both random intercept and random slope in the final specification of the model (as above, the log-likelihood values reported, respectively, for the random intercept model and for the random coefficients model are shown only for the full model specification).

Table 5. focuses on economic conditions: the respondents' during the interview revealed their feelings about the household income on a scale from 1 (living comfortably on present income) to 4 (very difficult). The estimates are based on a linear random intercept model; binary and ordered logit estimates have also been considered in previous estimates. According to the results in the third column, the ethnic gap is lower when controlling for individual education and family background. Family origins explain most of the observed gap between ethnic minorities and national majorities. For immigrants, as expected, the economic conditions are even lower. The estimates remain substantially the same when including the region-level variables.



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Table 5. Economic conditions - linear multilevel model with random intercepts and random slopes

Variable	Coefficients (std errors) [odds ratios]					
	No owneducation	No family origins	No family origins, no own education	Full model	Full model	Full model with region-level variables
education		-0.035***(0.007)		-0.025(0.005)	-0.023***(0.006)	-0.023***(0.006)
ethnic minority	0.239***(0.040)	0.276***(0.041)	0.265***(0.042)	0.232***(0.040)	0.235***(0.042)	0.234***(0.042)
female	0.056***(0.013)	0.060***(0.014)	0.059***(0.014)	0.057***(0.013)	0.062***(0.014)	0.062***(0.014)
born abroad	0.222***(0.029)	0.239***(0.031)	0.238***(0.032)	0.222***(0.029)	0.199***(0.029)	0.199***(0.029)
mother's educ.	-0.030***(0.005)			-0.027***(0.004)	-0.024***(0.004)	-0.024***(0.004)
father's education	-0.034***(0.005)			-0.032***(0.004)	-0.031***(0.004)	-0.030***(0.004)
mother's occup.	0.009***(0.003)			0.009***(0.003)	0.007***(0.003)	0.007***(0.003)
father's occup.	0.031***(0.003)			0.029***(0.004)	0.028***(0.004)	-0.030***(0.004)
regional indicators	no	no	no	no	no	yes
N. Obs.	29436	29436	29436	29436	26801	26801
n. countries	21	21	21	21	19	19
n. parameters	35	28	27	36	36	38
LL random coeff.	-32820.593	-33379.804	-33709.692	-32655.585	-28069.378	-28054.946
LL random interc.				-32721		-28123.237
<b>RE parameters</b>						
Sd(constant)	0.113(0.013)	0.117(0.012)	0.121(0.013)	0.112(0.013)	0.095(0.012)	0.074 (0.010)
Sd(ethnic)	0.304(0.038)	0.301(0.035)	0.316(0.036)	0.292(0.037)	0.299(0.038)	0.299(0.038)
Sd (residual)	0.719(0.011)	0.732(0.012)	0.740(0.012)	0.715(0.011)	0.706(0.011)	0.706(0.011)
<b>Legend</b>						
Dependent variable is respondent's feeling about household's income on a scale 0-3 (0 if living comfortably/coping on present income, 3 if very difficult). See also legend in Table 3.1. Notes: robust standard errors; sample weights included.						
Note: Our Elaborations on ESS data						

Finally, Table 6. focuses on occupational status; relying on the ISCO classification, the considered levels are the following: 9: elementary occupation; 8: plant and machine operators and assemblers; 7: craft and related workers; 6: skilled agricultural and fishery workers; 5: service workers and shop and market sales workers; 4: clerks; 3: technicians and associate professionals; 2: professionals; 1: legislators, senior officials and managers. The results are based on the estimation of a liner random coefficient model, with the slope varying across regions.

Table 6. Occupational-ISCO level – Linear multilevel model random intercepts and random slopes

Variable	Coefficients (std errors)					
	No owneducation	No family origins	No family origins, no own education	Full model	Full model	Full model with region-level vars
education	-	-0.209***(0.054)		-0.163***(0.045)	-0.162***(0.049)	-
ethnic minority	0.163(0.145)	0.418***(0.153)	0.324***(0.137)	0.262*(0.151)	0.306***(0.155)	0.161***(0.050)
female	-0.546***(0.057)	-0.536***(0.063)	0.962***(0.122)	-0.523***(0.058)	-0.503***(0.062)	0.309***(0.155)
born abroad	0.924***(0.0111)	0.970***(0.118)	0.575***(0.062)	0.934***(0.108)	0.846***(0.107)	-
mother's education	-0.129***(0.020)			-0.523***(0.058)	-0.104***(0.021)	0.503***(0.062)
father's education	-0.149***(0.019)			-0.134***(0.020)	-0.134***(0.020)	0.852***(0.108)
mother's occupation	0.051***(0.009)			0.045***(0.009)	0.044***(0.010)	-
father's occupation	0.136***(0.013)			0.114***(0.013)	0.109***(0.013)	0.104***(0.021)
Regional indicators	no	no	no	no	no	-
N. Obs.	19543	19543	19543	19543	17864	17864
n. countries	21	21	21	21	19	19
n. parameters	35	28	27	36	36	38
LL random coeff.	-42544.386	-42916.976	-43660.537	-42056.406	-36904.634	-36898.400
LL random intercept				-42100		-36937.971
<b>RE parameters</b>						
	0.233(0.036)	0.463(0.039)	0.319(0.045)	0.218(0.034)	0.229(0.035)	0.199(0.030)



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Sd (constant)	0.843(0.209)	0.957(0.150)	0.742(0.140)	0.920(0.191)	0.910(0.195)	0.894(0.197)
Sd (ethnic)	2.189(0.023)	2.226(0.036)	2.318(0.027)	2.134(0.029)	2.137(0.032)	2.127(0.032)
Sd(residuals)						
<b>Legend</b>						
Dependent variable Occupation (ISCO level): 9 farm worker; 8=unskilled worker;...2= higher administrator occupation; 1=professional and technical occupation (ISCOclassification). See also legend in Table 3.1. Notes: robust standard errors; sample weights included. Note: Our Elaborations on ESS data						

Ethnic minorities are more likely to be engaged in job characterized by a higher physical burden. Family background explains much of this gap since its omission in the second column increases the ethnic gap. Not surprisingly, the coefficient for individuals born abroad is very high; as mentioned above, migrants may lack fluency in the language of the host country, and this may explain why they are allocated in positions that do not require a plenty of communication. Secondly, migrants coming from less developed countries have often low competencies since the educational systems in their home country is usually quite limited, or more simply, employers in the new country may be unable to properly evaluate their scholastic qualifications (OECD, 2013); however, when immigrants can rely on family support, their disadvantage goes down.

## CONCLUSION

The analysis in the previous sections reveals the presence of sizeable differences in the socio-economic achievement comparing self-identified ethnic minorities and national majorities across European countries. The observed ethnic penalties cannot be entirely attributed to migration difficulties since even native ethnic minorities experience disadvantages in the labour market. One possibility is that the observed “ethnic penalties” may reflect differences in human capital and family socioeconomic conditions. In the reported estimates, own education improves individual probabilities of employment; with respect to education, no significant differences are observed between minority groups and national majorities when family origins are taken into account; with respect to employment probabilities, the observed ethnic disadvantage is slightly lower when controlling for family background. This draws further attention on the low intergenerational mobility in Europe.

Overall, when controlling for own education, family background and place of birth, sizeable ethnic penalties remain. It is possible to admit the presence of discriminatory behaviour in the labour market, varying across the different European regions; much of the heterogeneity across regions is explained by social capital indicators – i.e., social trust and social distance –other than by local unemployment rates. Nonetheless, we are unable to conclusively link prejudice to the noted ethnic disadvantages.

One potential problem is that the observed variables were not a good indicator of the individual's and the family's background. For instance, an individual's education did not fully explain their productivity at work, and parents from similar socioeconomic backgrounds might have different access to social networks. Reports of ethnic gaps may be biased if the unexplained heterogeneity among people was associated with their ethnic origins (and the direction of the bias would not be contested). Secondly, self-identified minorities, such as native ethnic minorities who have not fully assimilated, could make their disadvantage worse. However, it is important noting that the observed ethnic disparities are sizeable, too large to be fully explained only by measurement issues.



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## REFERENCES

- Abowd, J. M., Killingsworth, M. R. (1984). Do minority/white unemployment differences really exist?. *Journal of Business & Economic Statistics*, 2(1), 64-72.
- Adsera, A., Chiswick, B.R. (2007). Are gender and country of origin differences in immigrant labor market outcomes across European destinations?, *Journal of Population Economics*, 20(3), 495-526.
- Alba, R.D., Kasinitz, P., Waters, M.C. (2011). The kids are (mostly) alright: Second generation assimilation. *Social Forces* 89(3), 763-774.
- Altonji, J.G., Blank R.M. (1999). Race and gender in the labor market. Chapter 48 In: *Handbook of Labor Economics*, Volume 3, O. Ashenfelter and D. Card eds.
- Atkinson, A. (1983). The measurement of economic mobility. In Atkinson, A., editor, *Social Justice and Public Policy*. MIT Press, Cambridge.
- Bertrand, M., Mullainathan, S. (2004). Are Emily and Greg More Employable than Lakisha and Jamal? A Field Experiment on Labor Market Discrimination. *The American Economic Review*, 94(4), 991-1013.
- Borjas, G.J. (1990). *Friends or Strangers: The impact of immigrants on the US economy*. Basic Books, New York.
- Borjas, G. J. (1994). Assimilation and changes in cohort quality revisited: what happened to immigrant earnings during the 1980s? *Journal of Labor Economics*, 13(2), 201-245
- Crawley, H. (2005). *Evidence on Attitudes to Asylum and Immigration: What We Know, Don't Know and Need to Know*, Centre on Migration, Policy and Society Working Paper No. 23, University of Oxford.
- Crawley H., Drinkwater, S., Kause, S. (2013). *Regional Variations in Attitudes Towards Refugees: Evidence from Great Britain*. Discussion paper series No 26. Centre for Research and Analysis of Migration, London.
- Coleman, J. S. (1988). Social Capital in the Creation of Human Capital. *The American Journal of Sociology*, 94(1), 95-120.
- Dardanoni, V. (1993). On measuring social mobility. *Journal of Economic Theory*, 61, 372–394.
- ESS Round 7: *European Social Survey Round 7 Data (2014)*. Data file edition 2.2. NSD - Norwegian Centre for Research Data, Norway – Data Archive and distributor of ESS data for ESS ERIC.
- ESS Round 7: *European Social Survey (2018): ESS-7 2014 Documentation Report*. Edition 3.2. Bergen, European Social Survey Data Archive, NSD - Norwegian Centre for Research Data for ESS ERIC.
- ESS Round 8: *European Social Survey Round 8 Data (2016)*. Data file edition 2.2. NSD - Norwegian Centre for Research Data, Norway – Data Archive and distributor of ESS data for ESS ERIC.
- ESS Round 8: *European Social Survey (2020): ESS-8 2016 Documentation Report*. Edition 2.2. Bergen, European Social Survey Data Archive, NSD - Norwegian Centre for Research Data for ESS ERIC.
- Fukuyama, F. (1995). *Trust: The social virtues and the creation of prosperity*. The Free Press, New York.
- Granovetter, M. (1973). The Strength of Weak Ties. *American Journal of Sociology*, 78(6), 1360–1380.
- Guangyi S. (2017). *Essays on Social Capital and Economic Activity*. PhD dissertation, University of Leicester.
- Heath, A., Cheung, S.Y. (2007). The comparative study of ethnic minority disadvantage. Chapter in *Proceedings of the British Academy*, pp. 40.



## Conference Proceedings

- Heckman J.J. (1998). Detecting Discrimination. *The Journal of Economic Perspectives*, 12(2), 101-116.
- Hegewisch, A., Liepmann, H. (2013). Occupational Segregation and the Gender Wage Gap in the US, Chapter 13 in Figart, D. and T. Warnecke (eds.), *Handbook of Research on Gender and Economic Life*, pp. 200-217. Edward Elgar, London.
- Kahanec, M., Zaiceva, A. (2009). Labour market outcomes of immigrants and non-citizens in the EU: An East-West comparison. *International journal of manpower*, 30(1/2), 97-115.
- Kahanec, M., Zaiceva, A., Zimmerman K.F. (2010). Ethnic minorities in the European Union: An overview. *IZA Institute of Labor Economics*, 5397, 1-30.
- Kahanec, M., Zimmerman, K.F. eds, (2010). *EU Labor markets after post-enlargement migration*. Springer Verlag, Berlin.
- Kin, M. (2013). Race and ethnicity in the workplace. Chapter 14 in Figart, D. and T. Warnecke (eds.) *Handbook of Research on Gender and Economic Life*, pp. 218-235. Edward Elgar, London.
- Knack, S., Keefer, P. (1995). Institutions And Economic Performance: Cross-Country Tests Using Alternative Institutional Measures. *Economics and Politics*, 7(3), 207-227.
- Lefranc, A. (2010). Unequal opportunities and ethnic origin : The labor market outcomes of second generation migrants in France. *American Behavioral Scientist*, 53,1851-1882
- Mortensen, D. (1986). Job search and labor market analysis. Chapter 15 in *Handbook of Labor Economics*, 2, 849-919.
- Neckerman, K.M., Kirschenman, J. (1991). Hiring strategies, racial bias, and inner city workers. *Social Problems*, 38(4), 433-447
- Neumark, D. (2016). *Experimental Research on Labor Market Discrimination*, NBER Working Paper No. 22022 OECD, *International migration outlook*, OECD Publishing, Paris.
- Trejo, S. J. (1997). Why Do Mexican Americans Earn Low Wages?, *The Journal of Political Economy* 105(6), 1235-1268.
- Pager, D., Karafin, D. (2009). Bayesian Bigot? Statistical Discrimination, Stereotypes, and Employer Decision Making, 621, 70-93.
- Phalet, K., Heath, A. (2007). From ethnic boundaries to ethnic penalties: urban economies and the Turkish second generation. *Journal of American Behavioral Scientist*, 53(12), 1824-1850.
- Putnam, R., Leonardi, R., & Nonetti, R. Y. (1993). *Making Democracy Work: Civic Traditions in Modern Italy*. Princeton University Press, New Jersey.
- Solon, G. (1999). Intergenerational Mobility in the Labor Market. In Ashenfelter O.C. and D. Card (eds). *Handbook of Labor Economics*, 3(part A), 1761-1800. North-Holland, Amsterdam.
- Radović-Marković, M., Vučković, M., Salamzadeh, A. (2021). Investigating Employment Discrimination and Social Exclusion: Case of Serbia, In: Medani P. Bhandari; (ed.) Shvindina Hanna (ed.). *Social Inequality as a Global Challenge*, pp. 105-117. River Publishers, Aalborg.
- Weber, M. (1978). Ethnic groups. Chapter 5 in Roth G. and C. Wittich (eds), *Economy and Society: an outline of interpretative sociology*, 1, (II), pp. 385-398. Univ. Of California press, Berkeley.
- Zschirnt, E., Ruedin, D. (2016). Ethnic Discrimination in Hiring Decisions: A Meta-Analysis of Correspondence Tests 1990–2015. *Journal of Ethnic and Migration Studies*, 42(7), 1115-1134.





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# SUPPORT FOR ENTREPRENEURIAL PROCESS

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DOI: 10.5937/EEE24051N  
JEL: L26  
Review Scientific Paper

### ABSTRACT

*The entrepreneurial venture is a high-risk endeavor but an effective generator of economic activity that is realized through the entrepreneurial process, whose success depends not only on the abilities and personal commitment of the entrepreneur, but also on the level and adequacy of support provided to them. In this regard, the focus of research in this paper is on supporting the entrepreneurial process. The paper starts from the assumed general Model of Entrepreneurial Process Support, which consists of the entrepreneurial process and support. The entrepreneurial process is represented by its structure (periods, parts, and phases), while support is represented by various forms of financial and non-financial assistance. Thus, the key forms of support are first identified based on the structure of the entrepreneurial process, such as workshops, events, announcements, consulting, mentoring, software systems, incubation, networking, and similar activities, and they are then systematized according to the parts of the entrepreneurial process. The resulting structure of support for the entrepreneurial process can be used to determine the most appropriate forms of support in each specific entrepreneurial process, thereby reducing the risk of entrepreneurial venture failure to a reasonable level.*

### KEYWORDS

*research, entrepreneurship, process, support, forms of support*

## INTRODUCTION

Entrepreneurship, according to (BUJ, 2019), "refers to the process of creating a new venture and dealing with any of its risks, with the aim of making a profit," and it represents "searching for investment and production opportunities, developing and managing a business venture, to establish a production function, allocate inputs such as land, labor, materials, and capital, introduce new techniques and products, identify new sources for the enterprise."

It can be stated that entrepreneurship is a "starter," or initiator, of economic activities within the economic system of a country, and it is undeniable that it holds great significance, reflected in (IOE, 2019): economic growth, creating employment opportunities, innovations, impact on the development of the social community, mitigating the consequences of business failures, political and economic

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integration of disadvantaged social groups, role as a driving force for entrepreneurs, improving living standards, promoting research and development in the economy.

An individual who engages in entrepreneurship, creating and founding a new business (often referred to as a startup company) and accepting the risk for its development and operations, is called an entrepreneur. Entrepreneurial risk, according to (Lapcevic G, Krstic M, 2018), can be categorized as speculative risk, where everything the entrepreneur invests could be lost if the goods or services they offer are not accepted by the market, or it could result in a reward in the form of realized profit.

The entrepreneur practices entrepreneurship through a specific process called the entrepreneurial process.

At the core of the entrepreneurial process lies innovation, or a successfully realized business idea. However, for its successful fruition, this alone is not sufficient. According to (Krstić M, 2014) the practice of innovation management indicates that ideas without support, or if not handled properly, "wither like roses without water." This assertion is confirmed by research results conducted in some EU countries, indicating that only every fifth idea is realized. Considering this factual state, it is necessary to provide all the necessary support to innovations, or the entrepreneurial process.

Support for the entrepreneurial process in the Republic of Serbia is currently being implemented at various levels (national, local) by different institutions, both governmental (Ministries responsible for innovation, National Employment Service, Chambers of Commerce, Agency for SME Development, Business Incubators, Agency for Local Economic Development – LED, Hubs, Technology Parks, etc.) and non-governmental (Investment Funds supporting entrepreneurship development, Independent consultants, etc.).

Support for the entrepreneurial process is present in all its parts and can be of financial or non-financial nature (such as informational, educational, instructional, etc.), and it can vary in type and scope.

Although this support for the entrepreneurial process is significant, it has not yet been consolidated in one place in the entrepreneurial literature from a theoretical perspective.

This paper aims to explore all forms of support for the entrepreneurial process and to systematize them. The paper provides a detailed analysis of forms of support for the entrepreneurial process across all its periods and parts, and within the discussion of results, a systematic process of support is presented.

## RESEARCH METHODOLOGY

Several research methods were used in the realization of this paper, of which the following can be highlighted (WME, 2021 ):

- Analytical method, for breaking down the considered phenomenon (in the specific case of the entrepreneurial process) into its parts in order to be able to see their nature, relationships, causes and consequences.
- Synthetic method, for composing the complex form of the considered phenomenon (in the specific case of the entrepreneurial support process) from its simpler parts.
- Descriptive method, for describing and presenting the considered phenomenon (in the specific case of supporting the entrepreneurial process).
- Comparative method, for comparing different ways of theoretical interpretation of the considered phenomenon in the literature (in the specific case of forms of entrepreneurial support).



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- Empirical method (Rohrer C., 2014) for modeling the entrepreneurial process (in the specific case, the connection of certain parts of the entrepreneurial process with various forms of support).
- Inductive method, for making general conclusions from introduced premises.

## SUPPORT TO THE ENTREPRENEURIAL PROCESS

The entrepreneurial process is a specific process during which an individual engages in entrepreneurship, and the person conducting it is called an entrepreneur. The structure of the entrepreneurial process, based on its key parts and phases, is depicted in Table 1.

Table 1. The structure of the entrepreneurial process

Period	Name of the Entrepreneurial Process	Name of the Phase	Transformation of the Person
Pre-venture Period	Learning about Entrepreneurship	Informing	Person
		Motivating	
Educating			
	Maturation of Entrepreneurial Intent	Entrepreneurial Review	
Venture Period	Conceptualizing Entrepreneurial Opportunity	Entrepreneurial Decision-Making	Potential Entrepreneur
		Identifying Opportunity	
		Creating Ideas	
	Preparing for the Implementation of the Entrepreneurial Opportunity	Developing the Business Plan	
		Presenting the Business Plan	
	Assessing the Entrepreneurial Feasibility	Feasibility Study	
Implementing the Entrepreneurial Venture	Institutionalizing the Business Entity	Securing Conditions	Beginner Entrepreneur
		Starting Operations	
Post-venture Period	Life Cycle of the Business Entity	Startup Phase	Entrepreneur - Manager
		Growth Phase	
		Maturity Phase	

Source: (Krstić M, Lapčević G, 2020)

Support for the entrepreneurial process is necessary in each of its three periods (pre-venture period, venture period, post-venture period). Therefore, the proposed model of support for the entrepreneurial process can be represented as in Figure 1.

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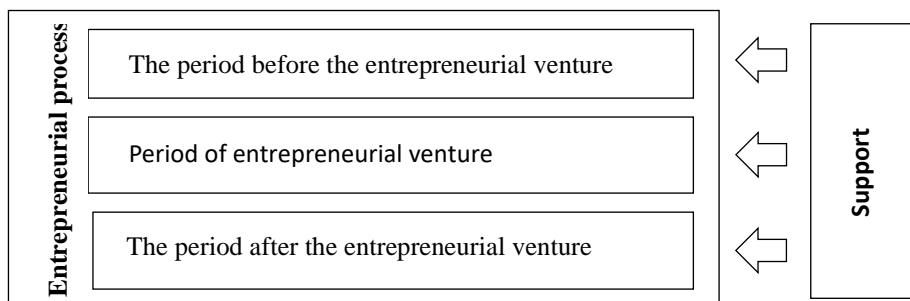


Figure 1. Model of Support for the Entrepreneurial Process

Source: Authors

In this paper, key forms of support for the entrepreneurial process have been identified and are discussed in more detail according to the parts of the entrepreneurial process from Table 1.

## SUPPORT IN THE PERIOD BEFORE THE UNDERTAKING

### Support for learning about entrepreneurship

This type of support for the entrepreneurial process involves the adequate dissemination of relevant information about entrepreneurship aimed at individuals of different categories (in terms of age, previous education levels, social belonging, employment status, etc.), and it pertains to all three phases of the entrepreneurial process (informing, motivating, and educating individuals). It has the same methodological basis, while the differences across phases are observed only in the type and scope of the information presented. This can be implemented through organizing workshops, events, and announcements about entrepreneurship.

*Entrepreneurship workshops* are specialized workshops supporting the entrepreneurial process, which can be informational, motivational, or educational in content, presenting relevant information about entrepreneurship. These are conducted based on a pre-defined workshop program designed by entrepreneurship experts and typically utilize PowerPoint presentations and other written materials (handouts, leaflets, brochures, etc.).

They can be held within (TIM, 2015):

- *Formal education*: Through the implementation of a special subject, "Entrepreneurship," organized by the competent educational institution within the regular primary and/or secondary education based on the curriculum of the given subject, or higher education based on the subject specifications.
- *Informal education*: During the implementation of entrepreneurial projects through dedicated informational campaigns (aimed at promoting entrepreneurship, self-employment, certain population categories, etc.) organized and conducted by specialized organizations for entrepreneurship development (Business Incubators, Hub Centers, Technology Parks), state authorities responsible for entrepreneurship development (relevant ministry, Chamber of Commerce, National Employment Service, Agency for SME Development, Office for Local and Regional Development, Cabinet of the Minister for Innovation and Technological



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Development, etc.), or independent consultants and non-governmental agencies specialized in entrepreneurship consulting.

- *Entrepreneurship events* are specialized events supporting the entrepreneurial process, which can have various names but convey information about entrepreneurship in a specific way. They can take the form of (NAP, 2017):
  - competitions,
  - exhibitions and fairs,
  - knowledge quizzes,
  - thematic excursions,
  - visits to successful entrepreneurs,
  - round tables,
  - forums, etc.

These are conducted according to a pre-defined event program. To increase participant attendance, some of these events can be combined with additional content such as cultural (musical, theatrical, visual arts), advertising (company presentations), sports, and others, and their organizers can be state or non-state institutions.

- *Entrepreneurship announcements* are specialized announcements supporting the entrepreneurial process through modern information and communication technologies, conveying relevant entrepreneurial content (informational, motivational, and educational) to target groups, from state authorities responsible for entrepreneurship development, non-governmental institutions and organizations, or individuals (experts), through:
  - *Digital media*: Portals, websites, TV films, commercials, blogs, newsletters, emails, SMS messages, etc.
  - *Presentation media*: Billboards, information boards, banners, etc.
  - *Printed media*: Magazines, newspapers, leaflets, brochures, posters, etc

### **Support for maturing entrepreneurial intention**

This type of support for the entrepreneurial process involves the additional dissemination of targeted relevant information about entrepreneurship to individuals who have previously gained initial knowledge about entrepreneurship and have reached the stage of maturing their entrepreneurial intentions. This support should help them more easily navigate their own entrepreneurial introspection and successfully review the previously covered phase of the entrepreneurial process in terms of meeting all necessary conditions for starting their own entrepreneurial venture. Additionally, it should assist them in making the best possible entrepreneurial decision, which could be to undertake the entrepreneurial process, postpone the decision for a certain period, or abandon the entrepreneurial venture.

In this phase, consulting from non-governmental institutions or individuals (experts) is the most effective.



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# SUPPORT DURING THE UNDERTAKING PERIOD

## Supporting the conceptualization of an entrepreneurial opportunity

This type of support focuses on enhancing the creativity of potential entrepreneurs by developing their creative thinking skills, which involves thinking outside existing frameworks and clichés (lateral thinking), as well as developing their ability to reconfigure ideas (combining new ideas from existing ones). This support is relevant for both phases of the entrepreneurial process (opportunity recognition and idea creation). It can be implemented through the organization of creative workshops, creative mentoring, and software support in the form of platforms, expert systems, or knowledge bases for innovative management.

**Creative workshops** are specialized workshops that, according to (Skorup A, Krstić M, Lapčević G, 2017), can be organized on the principle of individual creativity development (Analogical Reasoning, Mind Mapping, TRIZ Method) as well as group interaction (Brainstorming, Team Idea Mapping, Six Thinking Hats). Support in these workshops is conducted based on a pre-defined program and, depending on the principle or tool applied, may be accompanied by various auxiliary materials such as forms, templates, props (e.g., colored hats, markers of different colors, colored paper), and similar items. They can be held within both *formal and informal education* similarly to entrepreneurship workshops.

**Creative mentoring** is carried out through specialized mentoring, equipping potential entrepreneurs to understand the entrepreneurial context in terms of recognizing entrepreneurial opportunities within it and, based on that, creating a greater number of potential entrepreneurial ideas, including their selection and refinement into one final (Skorup A, Krstić M, Lapčević G, 2017). This type of support for the creative process can be a continuation of creative workshops or an independent segment of entrepreneurial education.

**Software support** involves the use of a special type of Artificial Intelligence (AI) intended for self-directed learning (self-education). It is implemented through a specialized software system based on the web, which can take the form of a platform, an expert system, or a knowledge base for innovative management. The condition is that it has an implemented creativity module, which serves to develop creativity through self-education. By accessing the software system via the web, potential entrepreneurs gain access to all relevant content and recommendations (instructions) on how to independently enhance their own creativity (Skorup A, Krstić M, Lapčević G, 2018).

## Support for Preparing to Implement Entrepreneurial Opportunities

This type of support for the entrepreneurial process involves building the capacity of potential entrepreneurs by equipping them with the skills necessary to conduct a techno-economic analysis of the previously selected entrepreneurial opportunity and developing the skills required to create and present a business plan. This support is provided in both phases of the entrepreneurial process (business plan creation and business plan presentation). It can be realized through organizing workshops for creating and presenting business plans, mentoring for business plan creation and presentation, and software support in the form of platforms, expert systems, or knowledge bases for innovative management.

**Workshops for creating and presenting business plans** are specialized workshops aimed at helping potential entrepreneurs develop skills for creating a business plan in accordance with the applicable methodology in the Republic of Serbia and for presenting it. The goal is to enable entrepreneurs to



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secure the necessary capital for starting their business and to provide a clear roadmap for managing the growth and development of their future business entity. These workshops help potential entrepreneurs first develop the skills needed to create a business plan and then to successfully present it to others. The workshops can be held within:

- Formal Education: Analogous to entrepreneurship workshops.
- Informal Education: Through the implementation of entrepreneurial projects (for startups, self-employment, business plans, youth, etc.), educational camps, or other forms of education conducted by state authorities responsible for entrepreneurship development or non-governmental institutions (funds and institutions supporting entrepreneurial projects).

**Mentoring for business plan creation and presentation** involves specialized one-on-one mentoring to help potential entrepreneurs create a business plan for their entrepreneurial venture. It provides necessary instructions for improving the presentation of their entrepreneurial idea. This personalized approach helps ensure that potential entrepreneurs receive tailored guidance and support.

**Software support** involves the use of specialized ICT systems to support the creation of business plans, which are based on elements of Artificial Intelligence (AI). These systems are typically web-based and can take the form of platforms, expert systems, or knowledge bases for innovative management. They include a business plan module that serves to self-educate potential entrepreneurs and enable them to independently create their business plans. Through access to these software systems via the web, potential entrepreneurs can access all relevant content and recommendations (instructions) to independently improve their business plan creation skills. (Skorup A, Krstić M, Lapčević G, 2018).

## Assessment of Entrepreneurial Opportunities

This type of support for the entrepreneurial process involves the additional dissemination of targeted relevant information about entrepreneurship to individuals who have previously gained initial knowledge about entrepreneurship and have reached the stage where their entrepreneurial intentions are maturing. This support is designed to help them more easily navigate their entrepreneurial introspection and successfully review the previously completed phase of the entrepreneurial process in terms of meeting all necessary conditions for launching their own entrepreneurial venture. Additionally, it assists them in making the best possible entrepreneurial decision, which could be to proceed with the entrepreneurial process, postpone the decision for a certain period, or abandon the entrepreneurial venture.

In this phase, consulting from non-governmental institutions or individuals (experts) is particularly effective.

## Support for the implementation of entrepreneurial ventures

This type of support concerns building the capacities of entrepreneurs across various fields to further equip them for successfully executing their business plan. It involves three phases of the entrepreneurial process: Institutionalization of the business entity, Provision of conditions, and Commencement of operations, and can be implemented through organizing specialized workshops for institutionalizing the business entity, ensuring conditions, and commencing operations.

**Workshops for institutionalizing the business entity** are specialized workshops providing entrepreneurs with necessary legal assistance, instructions, and education, either just before or during the commencement of operations. They cover education in areas such as: organizational design,



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including informing entrepreneurs about all options (legal forms) for organizing a business entity, depending on whether it's a company or a sole proprietorship, including instructions for registering the business entity with the relevant authority (Business Registers Agency – BRA); taxation, including instructions for registering the business entity and its employees with the relevant tax authority; financial management, including instructions for opening accounts in commercial banks.

**Workshops for ensuring conditions** are specialized workshops providing entrepreneurs with necessary assistance, instructions, and education, either just before or during the commencement of business operations regarding possibilities for securing conditions for starting a business, including significant sources of financing (IZFI, 2019): *Informal equity capital* (e.g., loans from founders, family, and friends); *Formal equity capital* (e.g., offering shares to others in the entrepreneurial venture); *Bank loans* (e.g., loans from commercial banks if available); *Private investors* (e.g., known as "business angels"); *Loans from potential business partners* (e.g., goods on deferred payment from suppliers of raw materials, finished products, etc.); *Equipment leasing* (e.g., from leasing providers); *Available grants and subsidies* (e.g., from the Government or EU); *Support from universities* (e.g., if the venture involves research); *Competition and publicity* (e.g., through participation in competitions, etc.).

**Workshops for commencing operations** are specialized workshops providing entrepreneurs with necessary assistance, instructions, and education, either just before or during the commencement of business operations, including educating entrepreneurs to develop entrepreneurial skills in: *human resource management* (e.g., organizing an entrepreneurial team and engaging employees, as well as defining and building core competencies of the business entity); *marketing and business communication*; *learning from mistakes* (e.g., successfully overcoming initial business steps); *stress management*; *business ethics*; *time management*; *networking* (e.g., connecting with other business entities in clusters, etc.).

## SUPPORT IN THE PERIOD AFTER THE UNDERTAKING

### Support during the life cycle of a business entity

This type of support aims to mitigate the risk of entrepreneurial venture failure to reasonable levels. It involves providing concrete assistance to the business entity and building the capacities of entrepreneurs across various fields to ensure their sustainability in the market. This support is implemented across all three phases of the entrepreneurial process: Startup phase, Growth phase, and Maturity phase. It can be carried out through various forms of support such as incubation, networking, workshops, and entrepreneurial consulting.

**Incubation** is a form of support provided to entrepreneurs by business incubators, specialized institutions aimed at supporting newly established business entities (startups), during the phase where the risk of failure is highest (typically due to external threats and internal mistakes). It encompasses the Startup phase of the entrepreneurial process and integrates the following supportive services: *networking with other members* of the business incubator; *management consulting* across various areas crucial for entrepreneurship; *financial assistance* that may follow from the business entity's status (membership in the incubator), such as obtaining loans from commercial banks; *business and technical support* (e.g., shared meeting rooms and infrastructure); *shared business services* for all incubator members; *flexible business space* at below-market rental rates.

**Networking** is a form of support provided to entrepreneurs by business incubators, entrepreneurship development agencies, and/or independent consultants. It involves information and instructions for





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connecting with: *Entrepreneurial associations* (local, regional, national levels); *Innovation ecosystems* (local, regional, national levels); *Clusters* (regional groupings of business entities interconnected through a common value chain); *Virtual networks* (electronically connected networks of business entities based on mutual agreements aimed at achieving common interests through risk and resource sharing), to build a stronger market position through improved negotiating power; as well as *other benefits* resulting from networking.

**Workshops** are a form of support throughout all three phases of the entrepreneurial lifecycle, and in content, they can cover various areas of entrepreneurial activity. They focus on educating entrepreneurs to develop the necessary skills for enhancing business operations of the business entity: *Lifecycle stages* (growth and development) of the business entity; *Strategic management* (vision, mission, program, goals, methods); *Criteria for success and performance measurement*; *Innovation and creativity*; *Innovation-development plan*; *Crisis management*; *Standardization*; *Financing options* in the Growth and Maturity phases (Equity capital from original sources, venture capital, leasing, factoring, undistributed profit, etc.); Business opportunities through *franchises and licenses*; Business consolidation opportunities through *downsizing and restructuring* in the later stages of maturity.

**Entrepreneurial consulting** is a form of support for the entrepreneurial process that continuously occurs throughout all three phases of the lifecycle. It involves providing expert assistance to business entities in selecting business concepts and appropriate methodologies for their realization, conducted by specialized entrepreneurship development agencies and/or professional consultants, etc. It pertains to managing the business entity and encompasses all relevant areas of its operations (legal regulations, accounting, financial management, stock exchange operations, personnel issues, organization and organizational structure, communication, marketing, sales, strategic direction, ecology, innovation, standardization, ICT, etc.).

## DISCUSSION

Support for the entrepreneurial process can be categorized as follows:

- Financial Support: Typically includes incentives for entrepreneurial development, micro-loans, goods or materials on deferred payment, and similar forms.
- Non-financial Support: Can be informational, motivational, educational, instructional, and more. It can be delivered:
- Individually: One-on-one with an entrepreneur.
- Group Interaction: Simultaneously with multiple individuals.
- Online Support: Using artificial intelligence or online platforms.

Support for the entrepreneurial process may involve various communication methods:

- specialized workshops,
- events,
- electronic communication tools,
- presentation media,
- printed media,



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- ICT systems, and
- other methods.

Starting from the presumed entrepreneurial support model (Figure 1), and the considerations in the previous chapter, the key forms of support for the entrepreneurial process can be summarized in Table 2.

Table 2. Structure of the entrepreneurial process support model

Entrepreneurial process		Support	
Part	Part	Financial forms	Non-Financial forms
Pre-venture Period	Learning about Entrepreneurship		Entrepreneurship Workshops, Entrepreneurship Events and Entrepreneurship Announcements
	Maturation of Entrepreneurial Intent		Entrepreneurship consulting
Vrnture Period	Conceptualizing Entrepreneurial Opportunity		Creative workshops, Creative mentoring Software support
	Preparing for the Implementation of the Entrepreneurial Opportunity		Workshops for creating and presenting business plans Mentoring for business plan creation and presentation Software support system
	Assessing the Entrepreneurial Feasibility		Entrepreneurship consulting
	Implementing the Entrepreneurial Venture	Share capital, Bank loans, Private investors, Loans from potential business partners, Leasing, Grants and subsidies, University support, Publicity	Workshops for institutionalizing the business entity Workshops for ensuring conditions Workshops for commencing operations
Post-venture Period	Life Cycle of the Business Entity	Incubation, Micro loans, Loans to encourage entrepreneurship	Networking Workshops Entrepreneurial consulting

*Source: authors*

## CONCLUSION

In this paper, the support for the entrepreneurial process, primarily based on the authors' previous experience, is discussed.

The purpose of this paper was to identify and systematize the key forms of support for the entrepreneurial process by its periods and components, so that these could be most appropriately applied in specific entrepreneurial processes, thereby reducing the risk of entrepreneurial venture failure to a reasonable level.



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During the examination of support for the entrepreneurial process, key forms of support were identified and systematized in Table 2.

The resulting structure of support for the entrepreneurial process can serve as a solid foundation for further research into entrepreneurial support.

## REFERENCES

- BUJ. (2019). Entrepreneurship . Available at: Business Jargons : <https://businessjargons.com/entrepreneurship.html>
- IOE. (2019). 9 Importance of Entrepreneurship. Available at: iEduNote: <https://iedunote.com/importance-of-entrepreneurship>
- IZFI. (2019). Izvori finansiranja,. Preuzeto sa Zavod za intelektualnu svojinu, Republika Srbija: <http://www.zis.gov.rs/prirucnik-za-pronalazace/sastavljanje-tima-i-potruga-za-sredstvima/izvori-finansiranja.1070.html>
- Krstić, M. (2014). Upravljanje inovacijama. Visoka škola za poslovnu ekonomiju i preduzetništvo, Beograd.
- Krstić, M, Lapčević, G. (2020). An Empirical Multidimensional Model of the Entrepreneurial Process. Journal of Entrepreneurship & Innovation, 12(12), November.
- Lapcevic, G, Krstic, M. (2018). Research Of Risk In: The Entrepreneurial Process. 7th Int. Sci. Conference "Employment, Education and Entrepreneursheep EEE -2018", Proceedings, pp. 158-177.
- Leković, B. (2015). Kauzalitet preduzetničkog ponašanja, faktora uspešnosti preduzetničkog poduhvata i ambijentalnih uslova. Doktorska disertacija, Ekonomski fakultet, Subotica.
- NAP. (2017). Projekt Napred. Available at: Visoka škola za poslovnu ekonomiju i preduzetništvo Beograd: <https://vspep.edu.rs/default-18d5600c50/napred>
- Rohrer, C. (2014). When to Use Which User-Experience Research Methods. Available at: Nielsen Norman Group: <https://www.nngroup.com/articles/which-ux-research-methods/>
- Skorup, A, Krstić, M, Lapčević, G. (2017). Inovativni pristup preduzetničkog treninga za podsticaj kreativnosti. Naučno-stručna konferencija sa međunarodnim učešćem "Trendovi u poslovanju", Kruševac, Zbornik radova, str. 359-368.
- Skorup, A, Krstić, M, Lapčević, G. (2018). Softverska platforma za inovativni menadžment za podršku razvoju omladinskog i ženskog preduzetništva. Naučno-stručna konferencija sa međunarodnim učešćem "Trendovi u poslovanju", Kruševac, Zbornik radova, str. 155-166.
- TIM. (2015). Preduzetničko obrazovanje. Komparativni pregled obrazovnih politika, modela i prakse. Available at: [http://socijalnoukljucivanje.gov.rs/wp-content/uploads/2016/03/Preduzetnicko\\_obrazovanje%E2%80%93Komparativni\\_pregled.pdf](http://socijalnoukljucivanje.gov.rs/wp-content/uploads/2016/03/Preduzetnicko_obrazovanje%E2%80%93Komparativni_pregled.pdf)
- VBM. (2019). Industry Maturity Stages. Available at: [https://www.valuebasedmanagement.net/methods\\_product\\_life\\_cycle.html](https://www.valuebasedmanagement.net/methods_product_life_cycle.html)
- WME. (2021 ). Metodologija. Available at: <https://bs.wikipedia.org/wiki/Metodologija>



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# THE ARTIFICIAL INTELLIGENCE AND ECONOMY

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DOI: 10.5937/EEE24052R  
JEL: A11, G2  
Review Scientific Paper

### ABSTRACT

*This paper examines the profound impact of Artificial Intelligence (AI) on the global economy, exploring its transformative effects across various sectors, the job market, and overall economic growth. The study begins by tracing the evolution of AI technology and its current state, providing context for its economic implications. It then delves into AI's influence on key industries such as manufacturing, finance, healthcare, and retail, highlighting how AI is driving innovation and efficiency. The research addresses the complex dynamics of AI in the job market, discussing both job displacement and creation, and the changing skill requirements in an AI-driven economy. The paper also analyzes the potential economic benefits of AI, including increased productivity, new business models, and projections for economic growth. However, it also confronts the challenges and concerns associated with widespread AI adoption, such as income inequality, data privacy issues, and regulatory hurdles. Furthermore, the study explores AI's role in global economic competition, examining how nations are positioning themselves in the AI race and the potential for shifts in economic power. The paper concludes by outlining strategies for preparing for an AI-driven economy, including education and workforce training initiatives, government policies, and business adaptation strategies. It also provides a future outlook, considering various scenarios for AI's long-term economic impact. This comprehensive analysis aims to provide a balanced view of AI's economic implications, offering insights for policymakers, business leaders, and individuals navigating the AI-driven economic landscape. The paper underscores the importance of harnessing AI's potential while addressing its challenges to ensure a prosperous and equitable economic future.*

### KEYWORDS

*artificial intelligence, economy, benefits, governmental policy*

## INTRODUCTION

In recent years, Artificial Intelligence (AI) has emerged as a groundbreaking force, fundamentally altering the global economic landscape. This technological revolution is redefining how businesses operate, how work is performed, and how economies function on a macro scale. As AI systems increasingly master tasks once exclusive to human cognition, we find ourselves at the cusp of a new economic era, one that promises both unprecedented opportunities and complex challenges. AI's

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influence extends far beyond simple automation. It encompasses a broad spectrum of technologies that mimic human intelligence, including machine learning, natural language processing, and computer vision. These advanced capabilities are not just enhancing existing processes but are catalyzing entirely new business models and economic paradigms. The economic implications of AI are vast and varied. In manufacturing, AI-driven robotics are streamlining production lines. In finance, AI algorithms are revolutionizing trading strategies and risk assessment. Healthcare is benefiting from AI-powered diagnostics and personalized treatment plans. Retail is being transformed by AI-enhanced customer experiences and supply chain optimizations.

These are just a few examples of how AI is reshaping industries and driving economic growth. Moreover, AI is proving to be a powerful tool in addressing some of the world's most pressing challenges. From developing sustainable energy solutions to enhancing food production and improving healthcare accessibility, AI technologies are contributing to global progress in ways that have significant economic ramifications. As we stand on the brink of this AI-driven economic transformation, it becomes crucial to understand its full scope and implications.

This paper aims to provide a comprehensive analysis of AI's impact on the global economy, exploring its effects across various sectors, its influence on labor markets, and its potential to drive economic growth. We will also delve into the challenges that come with widespread AI adoption, including ethical considerations, regulatory needs, and the imperative to ensure that the benefits of this technology are equitably distributed. By examining the current state of AI in the economy and projecting future trends, this study seeks to offer valuable insights for businesses, policymakers, and individuals navigating this new economic landscape. As AI continues to evolve and integrate into every facet of our economy, understanding its potential and preparing for its challenges will be key to harnessing its full benefits and shaping a prosperous, inclusive economic future.

## BACKGROUND ON ARTIFICIAL INTELLIGENCE AND ITS EVOLUTION

Artificial Intelligence, as a concept and field of study, has a rich history dating back to the mid-20th century. The term "Artificial Intelligence" was first coined in 1956 at the Dartmouth Conference, marking the birth of AI as a formal academic discipline. This conference, organized by John McCarthy, Marvin Minsky, Nathaniel Rochester, and Claude Shannon, set the stage for decades of research and development in the field. Since then, AI has undergone significant evolution, characterized by periods of rapid progress, setbacks, and renewed interest.

AI can be broadly defined as the development of computer systems capable of performing tasks that typically require human intelligence. These tasks include visual perception, speech recognition, decision-making, and language translation. However, AI is not a monolithic concept; it encompasses a wide range of technologies and approaches, each with its own strengths and applications.

The evolution of AI can be categorized into three main types: Narrow or Weak AI, General or Strong AI, and Artificial Superintelligence. Narrow AI, which is the most prevalent form today, is designed to perform specific tasks within a limited domain. Examples include virtual assistants like Siri or Alexa, recommendation systems used by streaming services, and image recognition software. General AI, which does not currently exist, would match or exceed human intelligence across a wide range of cognitive tasks. This remains a long-term goal for many researchers in the field. Artificial Superintelligence, a theoretical form of AI, would surpass human intelligence in virtually every aspect, including creativity, general wisdom, and problem-solving abilities.



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The development of AI has been marked by several key periods, each contributing to its current state. The 1950s and 1960s saw early enthusiasm and foundational work in AI, including the development of the first AI programs like the Logic Theorist and the General Problem Solver. This period was characterized by optimism and bold predictions about the future of AI. The 1970s and 1980s experienced the first "AI winter," a period of reduced funding and interest due to unmet expectations. This downturn was largely due to the limitations of early AI systems and the realization that creating human-like intelligence was far more complex than initially thought (Singla, Sukharevsky, Yee et al., 2024, Stryker, Kavlakoglu, 2024).

The 1990s and 2000s brought a resurgence of AI with advances in machine learning and the development of expert systems. This period saw AI begin to find practical applications in various industries, from finance to healthcare. From the 2010s to the present, we have witnessed dramatic progress in deep learning and neural networks, leading to breakthroughs in areas such as image and speech recognition, natural language processing, and autonomous systems. This current wave of AI development has been fueled by the availability of big data, increased computing power, and refined algorithms.

Today, AI is experiencing unprecedented growth and adoption across various sectors. Key areas of advancement include Machine Learning and Deep Learning, which enable systems to improve their performance on tasks through experience. These technologies have revolutionized fields like predictive analytics and pattern recognition. Natural Language Processing allows machines to understand, interpret, and generate human language, powering applications from chatbots to language translation services. Computer Vision enables machines to interpret and make decisions based on visual input, with applications ranging from facial recognition to medical image analysis.

AI is also making significant strides in robotics, integrating with physical systems for automation and complex task performance. This has led to advancements in manufacturing, logistics, and even healthcare, where AI-powered robots assist in surgeries and patient care. Furthermore, the development of autonomous systems, such as self-driving vehicles, showcases AI's ability to operate independently in real-world environments, promising to transform transportation and urban planning.

As AI continues to evolve, it is increasingly integrated into everyday technologies and business processes, driving innovation and economic transformation across industries. The impact of AI extends beyond technological advancements; it is reshaping business models, altering workforce dynamics, and raising important ethical and societal questions. Understanding this background and evolution is crucial for grasping the current and potential future impacts of AI on the global economy. The rapid advancements in AI technology are not only reshaping existing industries but also creating entirely new economic opportunities and challenges, setting the stage for a future where AI plays an increasingly central role in our economic and social structures.

## **ARTIFICIAL INTELLIGENCE IMPACT ON VARIOUS ECONOMIC SECTORS**

Artificial intelligence is revolutionizing numerous economic sectors, fundamentally altering how businesses operate and deliver value. This section explores AI's transformative effects across key industries. In manufacturing, AI is ushering in the era of Industry 4.0. Smart factories utilize AI-powered robotics and machine learning algorithms to optimize production processes, predict equipment failures, and enhance quality control. This results in increased efficiency, reduced downtime, and improved product quality. For instance, companies like Siemens and General Electric are implementing AI-driven



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predictive maintenance systems, significantly reducing operational costs and improving productivity (Ashta, Herrmann, 2021, Acemoglu, Restrepo, 2019, Bradley, 2024).

The finance and banking sector has embraced AI for risk assessment, fraud detection, and personalized customer service. AI algorithms analyze vast amounts of data to make more accurate lending decisions and detect unusual patterns indicative of fraudulent activities. Robo-advisors, powered by AI, are democratizing investment management by providing low-cost, automated financial advice. Companies like JPMorgan Chase are using AI to automate document review processes, saving thousands of work hours annually.

Healthcare is experiencing a paradigm shift with AI applications. Machine learning algorithms are enhancing diagnostic accuracy, particularly in medical imaging. AI-powered systems can detect diseases like cancer at early stages, potentially saving countless lives. In drug discovery, AI is accelerating the process of identifying potential new medications by analyzing molecular structures and predicting their effects. Telemedicine platforms are incorporating AI to triage patients and provide initial diagnoses, improving healthcare accessibility. In retail and e-commerce, AI is personalizing the shopping experience and optimizing supply chain management. Recommendation engines use machine learning to suggest products based on customer preferences and behavior (CFA, 2024, Deloitte, 2018).

AI-powered chatbots are enhancing customer service by providing instant, 24/7 support. In inventory management, AI predicts demand patterns, reducing overstock and stockouts. Amazon's anticipatory shipping model, which predicts customer orders before they're placed, exemplifies AI's potential in this sector. The transportation and logistics industry is being reshaped by AI through route optimization, autonomous vehicles, and predictive maintenance. AI algorithms are improving supply chain efficiency by optimizing shipping routes and predicting delivery times more accurately. The development of self-driving cars and trucks promises to revolutionize both personal and commercial transportation, with companies like Tesla and Waymo leading the charge. Agriculture is benefiting from AI through precision farming techniques.

AI-powered drones and sensors collect data on soil conditions, crop health, and weather patterns. Machine learning algorithms analyze this data to provide farmers with insights on optimal planting times, irrigation needs, and pest control measures. This results in increased crop yields, reduced resource usage, and more sustainable farming practices. The energy sector is leveraging AI to optimize power generation, distribution, and consumption. Smart grids use AI to balance supply and demand more efficiently, reducing waste and improving reliability. In renewable energy, AI is enhancing the prediction of wind and solar power generation, allowing for better integration of these variable sources into the grid. These examples illustrate how AI is not just improving existing processes but often completely reimagining how sectors operate. As AI continues to evolve, its impact on these and other economic sectors is expected to deepen, driving innovation, productivity, and economic growth across the global economy.

## ARTIFICIAL INTELLIGENCE AND JOB MARKET

The integration of Artificial Intelligence into the global economy is profoundly reshaping the job market, creating a complex landscape of challenges and opportunities. This transformation is characterized by job displacement in some sectors, job creation in others, and a widespread need for new skills across industries. One of the most significant impacts of AI on the job market is the automation of routine and repetitive tasks. Jobs that primarily involve predictable physical work or data processing are at the highest risk of displacement. For instance, roles in manufacturing, data entry, and basic customer service are increasingly being automated. A study by the McKinsey Global Institute estimates that by 2030, up to 800 million jobs worldwide could be lost to automation. However, while AI is displacing some jobs,



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it is also creating new ones. The development, implementation, and maintenance of AI systems require a workforce with specialized skills. New roles such as AI ethicists, machine learning engineers, and data scientists are emerging and in high demand. Additionally, AI is creating indirect job opportunities in fields that complement AI technologies, such as user experience design for AI interfaces or legal experts specializing in AI-related regulations.

The rise of AI is also transforming existing jobs rather than eliminating them entirely. Many roles are being augmented by AI, requiring workers to adapt and learn to work alongside intelligent systems. For example, in healthcare, while AI may take over tasks like image analysis, medical professionals are still needed to interpret results, make complex decisions, and provide patient care. This shift is driving a significant change in the skills required in the job market. There is a growing demand for skills that AI cannot easily replicate, such as critical thinking, creativity, emotional intelligence, and complex problem-solving. Technical skills related to AI, data analysis, and digital literacy are becoming increasingly valuable across various industries. The impact of AI on the job market is not uniform across all regions and demographics. Developed economies with higher labor costs may see faster adoption of AI and automation, potentially leading to more significant job displacement in the short term. However, these economies may also be better positioned to create and fill new AI-related jobs (Dupuy, 2024, Hazan, Madgavkar, Chui et al., 2024).

Developing economies, while potentially benefiting from AI-driven productivity gains, may face challenges in upskilling their workforce to meet the demands of an AI-driven economy. To address these challenges, there is a growing emphasis on lifelong learning and reskilling programs. Governments, educational institutions, and businesses are investing in initiatives to help workers adapt to the changing job market. For instance, Singapore's SkillsFuture program provides citizens with resources for continuous learning and skill development, including AI-related courses. The gig economy is also evolving in response to AI, with platforms using AI algorithms to match freelancers with projects more efficiently. This could lead to more flexible work arrangements but also raises questions about job security and workers' rights in an AI-driven economy. As AI continues to advance, the job market will likely see ongoing disruption and evolution. While the full extent of AI's impact on employment remains to be seen, it is clear that adaptability, continuous learning, and the development of uniquely human skills will be crucial for workers to thrive in the AI era. The challenge for policymakers and business leaders is to manage this transition in a way that maximizes the benefits of AI while minimizing social disruption and ensuring inclusive economic growth (Marr, 2024, Schwartz, 2018).

## ECONOMIC BENEFITS OF ARTIFICIAL INTELLIGENCE

Artificial Intelligence is poised to deliver substantial economic benefits across various sectors, potentially ushering in a new era of productivity and innovation. The economic impact of AI is multifaceted, encompassing increased efficiency, new business models, and overall economic growth. One of the primary economic benefits of AI is its potential to dramatically increase productivity. By automating routine tasks and augmenting human capabilities, AI allows workers to focus on higher-value activities. For instance, in manufacturing, AI-powered robots can work continuously without fatigue, increasing output while maintaining consistent quality. In knowledge-based industries, AI tools can process and analyze vast amounts of data quickly, enabling faster and more informed decision-making.

A study by Accenture predicts that AI could double annual economic growth rates by 2035 in developed economies. AI is also driving innovation and creating new business models. Companies are leveraging





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AI to develop personalized products and services, create more efficient supply chains, and enter new markets. For example, Netflix uses AI algorithms to recommend content to users, significantly improving customer satisfaction and retention. In the financial sector, AI-powered robo-advisors are making investment services accessible to a broader range of consumers. These innovations not only create new revenue streams for businesses but also contribute to overall economic growth. The economic impact of AI extends to cost savings for businesses and consumers. AI-driven predictive maintenance in industries like manufacturing and transportation can significantly reduce downtime and repair costs. In healthcare, AI-assisted diagnosis and treatment planning can lead to more cost-effective patient care. For consumers, AI-powered smart home devices can optimize energy usage, leading to lower utility bills. AI is also contributing to economic growth by addressing complex global challenges. In agriculture, AI is enabling precision farming techniques that increase crop yields while reducing resource usage. In the energy sector, AI is optimizing the integration of renewable energy sources into power grids, supporting the transition to a more sustainable economy.

These applications of AI not only create economic value but also contribute to solving pressing societal issues. The potential for AI to boost economic growth is significant. PwC estimates that AI could contribute up to \$15.7 trillion to the global economy by 2030. This growth is expected to come from productivity gains, increased consumer demand due to improved products and services, and the creation of new industries. However, it's important to note that the economic benefits of AI may not be evenly distributed. Countries and companies that are early adopters and innovators in AI technology are likely to see the greatest economic gains. This could potentially lead to increased economic inequality between nations and within societies. Moreover, the full realization of AI's economic benefits depends on overcoming several challenges. These include ensuring widespread access to AI technologies, addressing potential job displacement through retraining programs, and developing appropriate regulatory frameworks to govern AI use. Despite these challenges, the economic potential of AI is immense. As AI technologies continue to advance and become more integrated into various sectors of the economy, they are expected to drive significant productivity gains, foster innovation, and create new sources of economic value. The key to maximizing these benefits lies in proactive policies and strategies that promote AI adoption while addressing its potential drawbacks, ensuring that the economic gains from AI are sustainable and broadly shared across society.

## CHALLENGES AND CONCERNS

Despite its potential benefits, the widespread adoption of AI presents significant challenges and concerns (Cath, 2018, Lukić Nikolić, Brkljač, Jovanović, 2022, Novelli, Casolari, Rotolo et al., 2023, Russell, 2010):

- **Income Inequality:** As AI automates more jobs, there's a risk of widening the wealth gap between those who own AI technologies and those displaced by them. This could exacerbate existing economic inequalities.
- **Data Privacy and Security:** AI systems require vast amounts of data to function effectively, raising concerns about data privacy, security, and potential misuse. The collection and use of personal data by AI systems pose risks to individual privacy and autonomy.
- **Ethical Considerations:** AI decision-making processes can be opaque, leading to concerns about bias, fairness, and accountability. There are ongoing debates about the ethical implications of AI in areas such as autonomous weapons, facial recognition, and predictive policing.



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- **Regulatory Challenges:** The rapid development of AI technology often outpaces regulatory frameworks, creating uncertainties in areas such as liability, intellectual property rights, and consumer protection. Striking a balance between fostering innovation and ensuring public safety remains a challenge.
- **Technological Unemployment:** While AI creates new job opportunities, it also has the potential to displace a significant number of workers, particularly in routine and predictable tasks. This raises concerns about long-term structural unemployment and the need for large-scale workforce retraining.

## ARTIFICIAL INTELLIGENCE AND GLOBAL ECONOMIC COMPETITION

The development and adoption of AI technologies have become a key factor in global economic competition:

- **AI Race Between Nations:** Countries are increasingly viewing AI capabilities as crucial for economic and national security. This has led to what some call an "AI arms race," with nations like the United States, China, and European Union countries investing heavily in AI research and development.
- **Impact on International Trade:** AI is reshaping global trade patterns by enabling more efficient supply chains, personalized marketing across borders, and new forms of digital services. Countries with advanced AI capabilities may gain competitive advantages in international markets.
- **Potential for Economic Power Shifts:** As AI becomes more integral to economic productivity and innovation, it has the potential to shift the balance of economic power globally. Nations that lead in AI development and adoption may see their economic influence grow, while those lagging behind could face challenges in maintaining competitiveness.
- **Collaboration vs. Competition:** While there is intense competition in AI development, there's also recognition of the need for international collaboration on AI governance, standards, and addressing global challenges. **Implications for Developing Economies:** The AI revolution presents both opportunities and challenges for developing economies. While AI could help these countries leapfrog in certain sectors, there's also a risk of widening the technological and economic gap with developed nations.
- **Data as a Strategic Resource:** Access to large datasets is crucial for AI development, leading to increased competition for data resources and raising questions about data sovereignty and cross-border data flows. The interplay between these challenges and the dynamics of global economic competition will significantly shape the future economic landscape, influencing policy decisions, investment patterns, and international relations in the AI era.

## PREPARING FOR AN AI-DRIVEN ECONOMY

As AI continues to reshape the economic landscape, preparation is key for individuals, businesses, and governments (Ernst & Young, 2024, IBM, 2023, KPMG, 2023, Petronijević, Gavrilović, Radić, 2023):



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- **Education and Workforce Training:** There's an urgent need to revamp educational systems to equip future workers with AI-relevant skills. This includes emphasizing STEM education, critical thinking, and creativity. For the existing workforce, continuous learning and reskilling programs are essential to adapt to AI-driven changes in job markets.
- **Government Policies and Initiatives:** Governments must develop comprehensive AI strategies that address research funding, ethical guidelines, and regulatory frameworks. Policies should aim to foster innovation while ensuring equitable distribution of AI's benefits and mitigating its risks.
- **Business Strategies for AI adoption:** Companies need to develop strategies for integrating AI into their operations. This involves assessing where AI can add value, investing in necessary infrastructure, and cultivating an AI-savvy workforce. Businesses must also consider the ethical implications of their AI use.
- **Public-Private Partnerships:** Collaboration between government, industry, and academia is crucial for advancing AI research, addressing societal challenges, and ensuring responsible AI development.
- **Infrastructure Development:** countries need to invest in digital infrastructure to support AI technologies, including high-speed internet, cloud computing capabilities, and data centers.
- **Ethical and Legal Frameworks:** Developing robust ethical guidelines and legal frameworks for AI use is essential to address concerns about privacy, bias, and accountability.

## FUTURE OUTLOOK

The future of AI and its impact on the economy is subject to much speculation and analysis (Cazzaniga, Jaumotte, Li et al., 2024, Oppenheimer, Jaisson, Bell et al., 2024):

- **Potential Scenarios:** Various scenarios are envisioned, ranging from AI-driven utopias of increased productivity and solved global challenges to dystopian visions of mass unemployment and AI dominance. The reality is likely to fall somewhere in between, with outcomes heavily influenced by policy choices and societal responses.
- **Long-term Economic Implications:** In the long term, AI could lead to a significant restructuring of the global economy. This might include shifts in the nature of work, changes in economic power dynamics between nations, and the emergence of new industries and business models.
- **Technological Convergence:** The interaction of AI with other emerging technologies like blockchain, Internet of Things (IoT), and quantum computing could lead to unforeseen economic opportunities and challenges.
- **Sustainability and AI:** AI is expected to play a crucial role in addressing global challenges like climate change, resource scarcity, and healthcare, potentially leading to new economic paradigms focused on sustainability.
- **Human-AI Collaboration:** The future economy is likely to be characterized by increased human-AI collaboration, with AI augmenting human capabilities rather than simply replacing human workers.



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- **Ethical and Societal Considerations:** As AI becomes more advanced, questions about AI rights, the nature of consciousness, and the role of humans in an AI-driven world may become increasingly relevant, potentially reshaping economic and social structures. The future of AI in the economy remains uncertain and will be shaped by technological advancements, policy decisions, and societal attitudes. Preparing for this future requires flexibility, foresight, and a commitment to harnessing AI's potential for the benefit of all.

## CONCLUSION

The integration of Artificial Intelligence into the global economy represents one of the most significant technological shifts of our time. As we have explored throughout this paper, AI's impact is far-reaching, transforming industries, reshaping job markets, and altering the very fabric of economic structures.

The potential benefits of AI are immense. From dramatic increases in productivity and efficiency to groundbreaking innovations in healthcare, energy, and environmental management, AI promises to drive economic growth and address some of humanity's most pressing challenges. The ability of AI to process vast amounts of data, recognize patterns, and make predictions offers unprecedented opportunities for businesses to optimize operations, create new products and services, and enter new markets. However, the rise of AI also brings significant challenges. The potential for job displacement, widening economic inequalities, and ethical concerns surrounding data privacy and algorithmic bias cannot be overlooked. These challenges necessitate thoughtful policy responses, proactive business strategies, and a commitment to inclusive growth.

The global competition in AI development underscores its perceived importance as a driver of future economic success. Nations and corporations alike are investing heavily in AI research and development, recognizing it as a key to maintaining competitive advantage in the 21st-century economy. This race for AI supremacy, while driving innovation, also raises concerns about the concentration of economic power and the potential for a growing divide between AI leaders and laggards. Preparing for an AI-driven economy requires a multifaceted approach. Education systems must evolve to equip workers with the skills needed in an AI-augmented workplace. Governments need to develop comprehensive strategies that foster AI innovation while addressing its societal impacts.

Businesses must navigate the complexities of AI integration, balancing the drive for efficiency with ethical considerations and workforce concerns. Looking to the future, the full impact of AI on the global economy remains to be seen. The technology is still evolving, and its applications are continually expanding. What is clear, however, is that AI will play a central role in shaping economic outcomes in the coming decades. The challenge lies in harnessing its potential to create a future that is not only more productive and efficient but also more equitable and sustainable.

In conclusion, the AI revolution in the global economy is not just about technological advancement; it's about reimagining the relationship between technology, work, and society. As we move forward, it is crucial that we approach this transformation with a balanced perspective, embracing the opportunities while diligently addressing the challenges. The decisions made by policymakers, business leaders, and society at large in the coming years will be critical in determining whether AI becomes a force for widespread economic benefit or a driver of increased inequality. Ultimately, the goal should be to create an AI-driven economy that enhances human capabilities, creates new opportunities for fulfilling work, and contributes to the well-being of society as a whole. Achieving this will require ongoing dialogue, adaptive policies, and a commitment to ethical AI development. As we stand on the brink of this new



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economic era, the potential for positive transformation is immense, provided we navigate the challenges with wisdom, foresight, and a commitment to the common good.

## REFERENCES

Acemoglu, D., Restrepo, P. (2019). The wrong kind of AI? Artificial intelligence and the future of labour demand. *Cambridge Journal of Regions, Economy and Society*, 13(1), pp. 25-35.

Ashta, A., Herrmann, H. (2021). Artificial intelligence and fintech: An overview of opportunities and risks for banking, investments, and microfinance. *Strategic Change*, 30(3), 211-222.

Bradley, T. (2024). How AI Is Revolutionizing Customer Experience. *Forbes*. Available at: <https://www.forbes.com/sites/tonybradley/2024/10/11/how-ai-is-revolutionizing-customer-experience/?ss=ai>. Accessed: 11.10.2024.

Cath, C. (2018). Governing artificial intelligence: ethical, legal and technical opportunities and challenges. *Philosophical Transactions of the Royal Society A: Mathematical, Physical and Engineering Sciences*, 376(2133), 20180080.

Cazzaniga, M., Jaumotte, F., Li, L., Melina, G., Panton, A., Pizzinelli, C., Rockall, E., Tavares, M. (2024). Gen-AI: Artificial Intelligence and the Future of Work. International Monetary Fund, Washington DC.

CFA (2024). Standard II(B) Market Manipulation. Available at: <https://www.cfainstitute.org/standards/professionals/code-ethics-standards/standards-of-practice-ii-b>. Accessed 27.08.2024.

Deloitte (2018). Artificial Intelligence in Risk Management. London.

Dupuy, J. (2024). Will AI Replace Lawyers? OpenAI's o1 And The Evolving Legal Landscape. *Forbes*. Available at: <https://www.forbes.com/sites/joshuadupuy/2024/10/16/will-ai-replace-lawyers-openais-o1-and-the-evolving-legal-landscape/?ss=ai>. Accessed 16.10.2024.

Ernst & Young (2024). How artificial intelligence is reshaping the financial services industry. Available at: [https://www.ey.com/en\\_gr/insights/financial-services/how-artificial-intelligence-is-reshaping-the-financial-services-industry](https://www.ey.com/en_gr/insights/financial-services/how-artificial-intelligence-is-reshaping-the-financial-services-industry). Accessed 27.08.2024.

European Commission (2019). Ethics Guidelines for Trustworthy AI. Brussels.

European Parliament (2014). Directive 2014/65/EU of the European Parliament and of the Council of 15 May 2014 on markets in financial instruments and amending Directive 2002/92/EC and Directive 2011/61/EU (recast). Brussels.

Hazan, E., Madgavkar, A., Chui, M., Smit, S., Maor, D. (2024). A new future of work: The race to deploy AI and raise skills in Europe and beyond. McKinsey Global Institute, New York.

IBM (2023). How to build a successful risk mitigation strategy. Available at: <https://www.ibm.com/think/insights/risk-mitigation-strategy>. Accessed 28.08.2024.

KPMG (2023). Artificial Intelligence in Risk Management. London.

Lukić Nikolić, J., Brkljač, M., Jovanović, J. (2022). Doing Digital Business with Robots: Necessary Knowledge and Skills of Employees in Digital Age. *International Review*, 3-4, 3-17.



## Conference Proceedings

- Marr, B. (2024). Generative AI And The Future Of Jobs. Available at: <https://bernardmarr.com/generative-ai-and-the-future-of-jobs/>. Accessed: 10.10.2024.
- Novelli, C., Casolari, F., Rotolo, A., Taddeo, M., Floridi, L. (2023). Taking AI risks seriously: a new assessment model for the AI Act. *AI & Society*, 1-5.
- Oppenheimer, P., Jaisson, G., Bell, S., Peytavin, L. (2024). AI: To buy, or not to buy, that is the question. Global strategy paper no. 70. Goldman Sachs, New York.
- Petronijević, J., Gavrilović, M., Radić, N. (2023). Risks of using artificial intelligence in investment funds management. 12th International Scientific Conference "Employment, Education and Entrepreneurship EEE2023", Proceedings, pp. 323-328.
- Russell, S. J. (2010). Artificial intelligence a modern approach. Pearson Education, Inc., London.
- Schwartz, P. (2018). How will Ai change the future of work. PwC, London. Available at: <https://www.pwc.com/gx/en/issues/artificial-intelligence/future-of-work.html>. Accessed: 10.10.2024.
- Singla, A., Sukharevsky, A., Yee, L., Chui, M. (2024). The state of AI in early 2024: Gen AI adoption spikes and starts to generate value. Mckinsey, New York.
- Stryker, C., Kavlakoglu, E. (2024). What is artificial intelligence (AI)? Available at: <https://www.ibm.com/topics/artificial-intelligence>. Accessed: 11.10.2024.
- Varona, D., Suárez, J. L. (2022), Discrimination, bias, fairness, and trustworthy AI. *Applied Sciences*, 12(12), 5826.
- Wall Street (2014). The Commodity Futures Trading Commission is in the process of implementing the Dodd-Frank Wall Street Reform and Consumer Protection Act. New York
- WEF (2024). Why corporate integrity is key to shaping the use of AI. Available at: <https://www.weforum.org/stories/2024/10/corporate-integrity-future-ai-regulation/> Accessed: 27.08.2024.



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# THE IMPACT OF DIGITAL EDUCATION ON THE SUCCESS OF ENTREPRENEURSHIP: EXPLORING THE INTERPLAY BETWEEN ONLINE LEARNING, DIGITAL SELF-EFFICACY, AND ENTREPRENEURIAL INTENTION IN THE DIGITAL ECONOMY

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DOI: 10.5937/EEE24053T  
JEL: I24, I25  
Review Scientific Paper

### ABSTRACT

*This study investigates the impact of digital education on the success of digital entrepreneurship, focusing on the interplay between online learning, digital self-efficacy, and the entrepreneurial intentions of early-career individuals in the digital economy. By examining how digital education fosters entrepreneurial skills and knowledge, the research identifies the features of digital education that significantly enhance entrepreneurial motives towards digitally driven start-ups, with digital self-efficacy serving as a mediating factor. The facets of online education, digital self-efficacy, and the motivation for digitally driven start-ups among undergraduates were assessed quantitatively using pre-validated instruments. Multivariate analysis revealed the positive influence of online education in fostering entrepreneurial intention, partially mediated by digital self-efficacy. In particular, the personalization, real-time feedback, and Intelligent Interaction of online education play a significant role in fostering digital entrepreneurial motivation. The study findings have significant implications for utilizing online education to mitigate the challenges faced by early-career entrepreneurs. Additionally, leveraging digital self-efficacy can heighten digital entrepreneurial intentions. The findings highlight best practices and suggest improvements in digital education to better support the dynamic needs of digital entrepreneurs. By fostering a robust environment for digital entrepreneurship, these enhanced digital education platforms can significantly contribute to entrepreneurial success.*

### KEYWORDS

*digital education, digital entrepreneurship, digital self-efficacy, online learning platforms, entrepreneurial success, lifelong learning*

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# INTRODUCTION

The rise of the digital economy has transformed industries, workplaces, and consumer behaviors worldwide. Digital entrepreneurship, which refers to entrepreneurial initiatives that are enabled by or reliant on digital technologies, is a key driver of this transformation (Bican, Brem, 2020). It encompasses businesses that operate primarily in online environments, ranging from e-commerce ventures to platform-based companies and tech start-ups. As traditional industries face digital disruption, there has been a significant shift in how entrepreneurs access resources, interact with markets, and develop innovative solutions (Schaltegger, Wagner, 2011). With this, digital education has emerged as a critical enabler, shaping how individuals acquire the skills, knowledge, and competencies needed to thrive in a digital-first entrepreneurial environment (Prokopenko et al., 2024).

The digital economy is characterized by the pervasive influence of digital technologies, such as the Internet, artificial intelligence, cloud computing, and big data, which have significantly altered traditional business models and entrepreneurial landscapes. The World Bank (2021) defines the digital economy as an ecosystem where economic activity is driven by information and communication technology (ICT), with digital transactions at the core. This has resulted in new opportunities for entrepreneurs to tap into global markets, innovate with lower capital requirements, and leverage digital tools to improve operational efficiencies.

In this context, digital entrepreneurship has gained momentum. Traditional entrepreneurship models relied on physical infrastructure, face-to-face interactions, and brick-and-mortar establishments, but digital entrepreneurship is built around virtual environments, online interactions, and digital platforms (Shevchenko et al., 2023; Radović Marković et.al., 2021a). For example, companies like Amazon, Airbnb, and Uber are not merely companies that moved into the digital sphere; they are businesses that were born and scaled in the digital economy. The barriers to entry for entrepreneurship have been significantly lowered, thanks to the accessibility of digital tools and platforms that reduce the need for significant upfront capital. Entrepreneurs now have access to tools for creating websites, engaging in digital marketing, leveraging cloud services, and utilizing online learning to upgrade their competencies.

The concept of digital education refers to the process of acquiring knowledge and skills through digital platforms and tools (Alenezi, 2023). These can include massive open online courses (MOOCs), webinars, virtual classrooms, and self-directed online learning platforms. In the digital age, education is no longer confined to traditional physical classrooms; it is now accessible to anyone with an internet connection. The importance of digital education is amplified by the need for entrepreneurs to stay abreast of rapidly evolving technological trends and innovations that influence their ability to adapt, compete, and succeed (Satjharuthai, Lakkhongkha, 2023).

Digital education has been a key driver in enabling potential entrepreneurs to acquire essential digital skills, such as coding, digital marketing, and data analytics, which are increasingly necessary in launching and scaling a digital venture. Additionally, it provides a flexible and cost-effective alternative to traditional education, allowing individuals to pursue entrepreneurship while still maintaining other commitments. According to Khuong et al. (2023), the accessibility of digital education can help bridge the knowledge gap for individuals in developing economies, further democratizing entrepreneurial opportunities in the digital economy.

## ONLINE LEARNING IN DIGITAL ENTREPRENEURSHIP

Online learning has emerged as a prominent facet of digital education (Wang et al., 2023). With the increasing number of platforms offering specialized courses on entrepreneurship, coding, finance, and marketing, aspiring digital entrepreneurs are able to access a wealth of resources that can help them launch and scale their businesses.





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The proliferation of platforms such as Coursera, Udemy, LinkedIn Learning, and edX has made high-quality education available to individuals across the globe, offering courses tailored to different aspects of entrepreneurship.

Online learning is not only about gaining knowledge; it also encourages self-paced learning, adaptability, and continuous improvement—skills that are essential for digital entrepreneurs operating in dynamic and competitive markets (Žur, 2020, Karnouskos, 2017). The ability to learn at one's own pace and apply theoretical knowledge to real-world entrepreneurial challenges provides learners with a unique advantage. Furthermore, digital education often incorporates practical aspects, such as capstone projects, business simulations, and peer collaborations, which help learners build real-world skills and networks that can be leveraged in their entrepreneurial journey (Wang et al., 2021).

The effectiveness of online learning is also underscored by its ability to reach underserved populations, providing opportunities for individuals from rural or underdeveloped regions to gain access to high-quality entrepreneurial education (Marope et al., 2015, Radović-Marković et al., 2017). This democratization of knowledge is particularly relevant in a world where digital entrepreneurship is seen as a pathway to economic empowerment and social mobility. According to the Global Entrepreneurship Monitor (2021), individuals who engage in digital entrepreneurship are more likely to succeed if they have access to online learning tools that equip them with the necessary skills and knowledge to navigate the complexities of the digital economy.

## DIGITAL SELF-EFFICACY AND ENTREPRENEURIAL SUCCESS

Self-efficacy, a psychological construct introduced by Albert Bandura (1997), refers to an individual's belief in their ability to execute specific tasks and achieve desired outcomes. In the context of digital entrepreneurship, digital self-efficacy refers to the confidence an individual has in their ability to utilize digital tools, platforms, and technologies effectively to drive business success (Primario et al., 2022, Ahmad et al., 2024). This concept is closely linked to entrepreneurial intention, as an individual's belief in their capacity to succeed using digital tools can directly influence their willingness to engage in digital entrepreneurial activities.

Digital self-efficacy plays a critical role in the success of digital entrepreneurship (Ahmad et al., 2024). Entrepreneurs with high digital self-efficacy are more likely to engage with digital platforms, innovate using technological solutions, and persist through challenges associated with the digital economy. Research suggests that individuals with stronger digital self-efficacy are better equipped to adapt to the fast-paced and often volatile nature of digital markets (Amorós et al., 2021). This adaptability is crucial, as digital entrepreneurs are required to make decisions in environments characterized by constant change, emerging technologies, and shifting consumer preferences (Kraus et al., 2019).

Moreover, the relationship between digital self-efficacy and entrepreneurial success is not unidirectional (Jun et al., 2023). Success in entrepreneurial ventures can further bolster an individual's digital self-efficacy, creating a positive feedback loop. For instance, as digital entrepreneurs achieve milestones, such as launching a product or reaching a financial target, their confidence in their ability to use digital tools effectively increases, thereby motivating them to pursue further digital entrepreneurial activities.



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# ENTREPRENEURIAL INTENTION IN THE DIGITAL ECONOMY

Entrepreneurial intention refers to an individual's conscious decision to engage in entrepreneurial activities (Tomy, Pardede, 2020). It is widely recognized as a precursor to entrepreneurial behaviour. In the context of the digital economy, entrepreneurial intention is shaped by various factors, including exposure to digital education, digital self-efficacy, access to resources, and market opportunities (Primario et al., 2022). Research on entrepreneurial intention, based on the theory of planned behaviour (Ajzen, 1991), posits that intention is influenced by three primary factors: attitudes toward entrepreneurship, subjective norms, and perceived behavioural control.

Digital education and online learning can significantly impact these factors by altering individuals' perceptions of the feasibility and desirability of starting a digital venture (Wang et al., 2023). Exposure to entrepreneurial content in online courses, coupled with the opportunity to practice digital skills, can shift individuals' attitudes towards digital entrepreneurship, making it a more attractive and attainable career option. Similarly, online communities and networks, which are often embedded in digital learning platforms, serve as subjective norms, where individuals receive encouragement and validation for their entrepreneurial ambitions.

Entrepreneurial intention in the digital economy is also closely tied to the concept of opportunity recognition. Digital entrepreneurs often identify gaps or inefficiencies in digital markets and develop solutions that address these needs. Digital education enhances this ability by providing learners with the analytical tools needed to assess market trends, consumer behavior, and technological advancements (Khuong et al., 2023). As such, individuals with strong entrepreneurial intentions are more likely to leverage their digital education to recognize and capitalize on emerging opportunities.

## RESEARCH GAP, THE RELATIVE AND THE OBJECTIVES OF THE STUDY

While substantial research has been conducted on the general relationship between education and entrepreneurship, the specific dynamics between digital education, digital self-efficacy, and entrepreneurial intention in the context of the digital economy remain underexplored (Mir et al., 2023, Al Amimi et al., 2023). The rapid growth of digital entrepreneurship necessitates a deeper understanding of how digital education impacts the entrepreneurial journey and what factors contribute to the success of digital ventures. Moreover, existing literature has largely focused on traditional education and entrepreneurship models (Al-Mamun et al., 2022), leaving a gap in the understanding of how online learning and digital self-efficacy influence entrepreneurial outcomes in a technology-driven world.

Given the importance of digital entrepreneurship as a driver of economic growth, innovation, and job creation, particularly in emerging economies, it is crucial to investigate how digital education can be leveraged to enhance entrepreneurial success. This study aims to explore the interplay between online learning, digital self-efficacy, and entrepreneurial intention, to identify the key determinants of success for digital entrepreneurs.

Based on the background and identified research gaps, this study seeks to unveil, how online learning impacts entrepreneurial intention in the digital economy, the role that digital self-efficacy plays in the success of digital entrepreneurs, and to which extent the interplay between online learning and digital self-efficacy influences entrepreneurial outcomes.



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By addressing these objectives, this study aims to contribute to the growing body of knowledge on digital entrepreneurship and provide insights that can inform educational practices, policy development, and entrepreneurial support programs in the digital economy.

## THEORETICAL BACKGROUND

This section presents both the theoretical and current empirical understanding of the primary study variables, serving to justify their inclusion in the conceptual framework.

### Digital entrepreneurial intention

Entrepreneurial intention denotes an individual's conscious state of mind aimed at starting a new business venture or engaging in entrepreneurial activities in the future (Bird, 1988). In the digital context, entrepreneurial intention expands to include the desire and motivation to start or engage in entrepreneurial ventures specifically within the digital economy (Davidsson, Wiklund, 2001). Digital entrepreneurial intention (DEI) is a more recent concept that reflects the aspirations of individuals to leverage digital technologies and online platforms to launch entrepreneurial activities. As digitalization reshapes the landscape of entrepreneurship, understanding the drivers behind digital entrepreneurial intentions has become essential for fostering innovation in the digital economy.

The emergence of the digital economy has facilitated new entrepreneurial opportunities, drastically reducing entry barriers for digital startups (Sussan, Acs, 2017, Radović-Marković, 2023). Entrepreneurs no longer rely solely on physical resources to build ventures; instead, they can exploit the growing access to online resources, digital marketplaces, and global audiences. However, the intention to pursue digital entrepreneurship is not merely influenced by the availability of technology – it is also shaped by psychological, educational, and motivational factors.

The concept of entrepreneurial intention has been largely studied using Ajzen's (1991) Theory of Planned Behavior (TPB). TPB posits that an individual's intentions to engage in a specific behavior are determined by three factors: attitudes toward the behavior, subjective norms, and perceived behavioral control (Ajzen, 1991). This framework has been widely applied in entrepreneurship research to explain the formation of entrepreneurial intentions, including in the digital context. In digital entrepreneurship, TPB's core elements adapt to reflect the influence of digital skills and online environments. Attitudes towards digital entrepreneurship are influenced by the perceived ease and scalability of digital businesses, while subjective norms may include pressures or encouragement from online networks and communities. Finally, perceived behavioral control in digital entrepreneurship is often tied to an individual's confidence in their digital competencies and the belief that they can navigate the challenges of digital ventures.

### Online learning

Digital education plays a crucial role in fostering digital entrepreneurial intention by equipping individuals with the skills and knowledge required to succeed in digital ventures. The human capital theory (Becker, 1964) suggests that investments in education and training enhance an individual's capabilities, making them more likely to engage in entrepreneurial activities. In the digital era, this theory applies to both formal



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education systems and informal online learning platforms that focus on entrepreneurial and digital skills development.

Recent empirical findings support the idea that digital education positively influences entrepreneurial intention. A study by Solesvik et al. (2021) found that participation in online entrepreneurship courses significantly increased the likelihood of students pursuing digital entrepreneurship. The study revealed that exposure to entrepreneurial concepts and digital tools not only improved participants' skills but also enhanced their confidence in identifying and acting on digital business opportunities. Moreover, online learning platforms provide flexible and accessible learning environments, which are particularly important for fostering entrepreneurial intention in non-traditional learners and working professionals (Martin, 2020).

Beyond traditional online courses, Massive Open Online Courses (MOOCs) have gained prominence as a tool for digital entrepreneurship education. MOOCs allow learners to access high-quality content on digital business creation, marketing, and innovation at minimal cost. A recent study by Markova et al. (2023) concluded that participants in entrepreneurship-related MOOCs demonstrated higher entrepreneurial intentions, driven by the knowledge acquired and the collaborative learning environment that MOOCs facilitate.

## Digital self-efficacy

One of the key predictors of entrepreneurial intention, particularly in the digital sphere, is digital self-efficacy (DSE). Bandura's (1977) self-efficacy theory defines self-efficacy as an individual's belief in their capacity to execute behaviors necessary to achieve specific goals. Digital self-efficacy refers to an individual's confidence in their ability to use digital tools and technologies effectively. High levels of DSE are strongly correlated with an increased likelihood of pursuing digital entrepreneurship. Studies have shown that individuals with greater confidence in their digital skills are more likely to identify entrepreneurial opportunities in the digital economy and act on them (Hsu, Shinnar, Powell, 2014).

Empirical evidence underscores the importance of DSE in shaping digital entrepreneurial intentions. For instance, a study by Zhao et al. (2022) found that digital self-efficacy was a significant predictor of entrepreneurial intentions among university students enrolled in digital entrepreneurship programs. The study concluded that students with higher levels of DSE exhibited stronger intentions to pursue digital ventures due to their belief in their ability to navigate the digital landscape effectively.

Additionally, the relationship between DSE and entrepreneurial intention is moderated by factors such as access to digital resources and exposure to digital education (Chen, Chen, 2021). Individuals with both high DSE and greater exposure to digital educational platforms have been found to have significantly stronger entrepreneurial intentions, highlighting the interaction between personal confidence and external support in the digital domain.

## Conceptual framework

The body of empirical research examining digital entrepreneurial intention is steadily growing. Recent studies have consistently identified digital skills and digital self-efficacy as critical factors influencing digital entrepreneurial intention. For example, a longitudinal study by Obschonka et al. (2020) found that digital self-efficacy significantly predicted digital entrepreneurial intention over a three-year period among aspiring entrepreneurs in Europe. The study also highlighted the role of online communities and digital platforms in reinforcing entrepreneurial intentions through network effects. Moreover, an analysis by Pihie and Bagheri (2022) found that individuals exposed to digital entrepreneurship education were more likely to express entrepreneurial intentions compared to those who received traditional entrepreneurship training.

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The researchers concluded that the combination of digital skills development and the practical application of entrepreneurial theories through digital platforms was key to fostering higher entrepreneurial intention. Another study by Qureshi et al. (2023) explored the impact of social media exposure on digital entrepreneurial intention. The study found that individuals who actively participated in entrepreneurial communities on platforms like LinkedIn and Instagram exhibited higher digital entrepreneurial intentions due to increased access to resources, mentorship, and peer influence. This indicates that digital self-efficacy and digital education, coupled with social engagement, create an ecosystem conducive to entrepreneurial growth in the digital economy (Radović-Marković et. al., 2021).

Digital entrepreneurial intention is influenced by a combination of individual factors such as digital self-efficacy and educational exposure, as well as external factors like access to digital platforms and networks. As the digital economy continues to expand, fostering digital entrepreneurial intention through targeted education and skill-building initiatives will be crucial for nurturing the next generation of digital entrepreneurs. Empirical findings strongly support the role of digital education and digital self-efficacy in shaping entrepreneurial intentions, suggesting that investments in these areas will have long-lasting impacts on the success of digital entrepreneurship. Grounded in both empirical evidence and theoretical foundations, the authors propose the following relationships among the key variables (Figure 1).

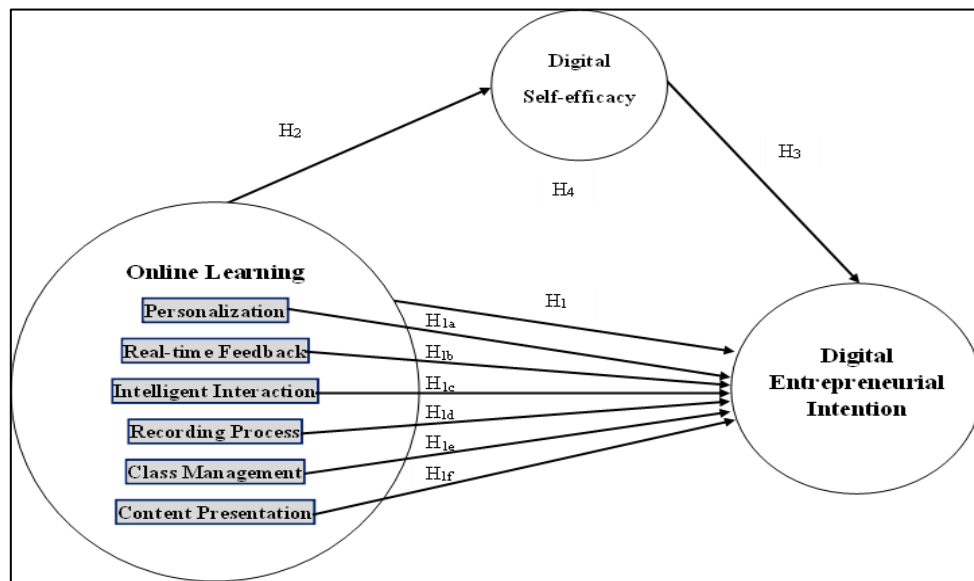


Figure 1. Conceptual Framework  
Authors based on Wang et al. (2021)

## METHODOLOGY

This investigation is epistemological in nature, as it explores the assumed relationships within the context of their current theoretical framework. Additionally, the study adopts a positivist research philosophy, asserting that the variables demonstrate objective behavior, which is supported by the fractal data derived from the research environment. The study further posits that these variables' behavior has long-term implications for the study subjects. A deductive research method was employed, grounded in the established theoretical foundation. The study utilizes quantitative data, which is analyzed



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objectively, leading to the adoption of a quantitative methodology and a survey-based approach. As a cross-sectional study, data collection occurred only once.

The study examined the extent to which digital entrepreneurial intention is influenced by online learning and individuals' digital self-efficacy. Online learning, and digital self-efficacy were treated as input variables, with digital self-efficacy functioning as a mediator (Figure 1). Digital entrepreneurial intention was the outcome variable. Facets of online learning (personalization, real-time feedback, intelligent interaction, recording process, class management, and content presentation) were evaluated for their individual influence towards digital entrepreneurial intentions (Wang et al., 2021). The variables were measured using instruments with established reliability and validity, which were further verified through the assessment of the measurement model in Partial Least Squares - Structural Equation Modeling (PLS-SEM). The survey tool comprised three instruments aimed at evaluating different aspects of online learning (24 items), digital self-efficacy (25 items), and digital entrepreneurial intention (6 items). Responses were captured using 5-point and 7-point Likert scales (Appendix 1: Table A1), where 1 represented "strongly disagree," and 5 or 7 represented "strongly agree."

Data collection was conducted through an online questionnaire distributed to undergraduates enrolled in the Moodle-based Learning Management System (LMS) at Faculty of Business Studies & Finance (FBSF), Wayamba University of Sri Lanka. Moodle was chosen as the platform for testing the study model because it serves as the university's primary e-learning system, designed to support a range of teaching and learning materials and activities. It facilitates various interactive features, including forums, wikis, quizzes, surveys, chats, and peer-to-peer activities, serving the majority of departments and students. Additionally, Moodle is widely adopted across the education sector, particularly in higher education.

The sample consists of internal undergraduates from the FBSF for the 2021/2022 academic year. All participants completed their first two academic years (six semesters) entirely through online learning, utilizing a 100% virtual format via the university's LMS. Additionally, they completed several ICT-related course units and two course units in entrepreneurship. The sampling frame included the index numbers of all internal undergraduates at FBSF for the 2021/2022 academic year. The sample size was determined using the "10-times rule method," a widely used guideline for deciding sample size in PLS-SEM (Hair et al., 2011, Peng, Lai, 2012, Shoab, Radović Marković, 2017 ). According to this method, the sample size should be at least 10 times the maximum number of paths pointing to any latent variable in the model (Goodhue et al., 2012).

Based on this, the minimum required sample size was 90 (9 x 10). To account for potential low response rates, five times the minimum required sample size was drawn using a lottery method. As a result, 450 questionnaires were distributed, with a response rate of 70%, yielding 312 valid responses. Table 1 outlines the respondents' demographic characteristics. The data was analyzed using PLS-SEM with the SmartPLS (version 4) statistical software in which a Hierarchical Component Model (HCM) was developed. PLS-SEM was employed as it provides robust explanations of the relationships among latent variables, generating fewer contradictory results than regression analysis and allowing for the analysis of multiple independent and dependent variables. Additionally, PLS-SEM improves the parsimony of the analysis (Hair et al., 2014, Ringle et al., 2012).

Table 3. Profiles of the Respondents

	<b>Attribute</b>	<b>n</b>	<b>%</b>
Gender	Male	103	33
	<b>Female</b>	<b>209</b>	<b>67</b>
Age (in years)	20	128	41
	<b>21</b>	<b>184</b>	<b>59</b>
Specialization	Accountancy	<b>71</b>	<b>23</b>



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	<b>Business Management</b>	<b>207</b>	<b>66</b>
	Banking & Finance	26	08
	Insurance & Risk Management	08	03

$n = 312$

The sample was predominantly female (67%) and composed mainly of business management undergraduates (66%). All participants fell within the 20-21 age range.

## RESULTS

This section opens with descriptive statistics, followed by the correlation analysis results. It then presents the key findings from the data analysis, which include the evaluation of the measurement and structural models using PLS-SEM, along with a summary of the hypothesis testing.

Table 4. Descriptive Statistics of Study Variables

Variable	Mean	Standard Deviation	Skewness	Kurtosis
	(Response scale – 5-point and 7-point Likert scales)			
Personalization	4.92	1.09	-0.69	0.15
Real-Time Feedback	5.02	1.01	-0.81	0.77
Intelligent Interaction	5.01	1.27	-0.53	-0.10
Recording Process	4.69	1.32	-0.48	0.16
Class Management	4.16	0.79	-1.31	2.34
Content Presentation	4.05	0.59	-0.46	0.53
Online Learning	4.64	0.71	-0.73	0.34
Information and Data Literacy	4.98	1.01	-0.34	-0.08
Communication and Collaboration	5.58	0.93	-0.75	0.56
Digital Content Creation	4.07	0.55	-0.44	0.24
Safety	3.88	0.55	-0.29	0.22
Problem Solving	3.67	0.68	-0.57	0.57
Digital Self-Efficacy	4.44	0.57	-0.52	0.69
Behavioral Intention	5.41	1.09	-0.58	0.23
Entrepreneurial Capacity	5.36	1.16	-0.64	-0.06
Digital Entrepreneurial Intention	5.38	1.08	-0.64	0.25

$n = 312$

The descriptive statistics for the variables indicate generally positive perceptions, with most means exceeding 4, suggesting that respondents rated the variables favorably (Table 2). The standard deviations are relatively low, implying that responses were fairly consistent across participants. Skewness values are negative for all variables, indicating a left-skewed distribution, where respondents tended to rate the variables higher, clustering toward the positive end of the scale. The kurtosis values are mostly near zero, implying that the distributions are close to normal, with some variables exhibiting slight

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peakedness (leptokurtic tendencies). Overall, the data reflect favorable responses across the variables with minimal variation, demonstrating a generally uniform and positive sentiment.

Table 5. Correlation between Study Variables

	Digital Entrepreneurial Intention	Personalization	Real Time Feedback	Intelligent Interaction	Recording Process	Class Management	Content Presentation	Online Learning
Personalization	.713**							
Real Time Feedback	.680**	.759**						
Intelligent Interaction	.738**	.662**	.633**					
Recording Process	.535**	.434**	.367**	.690**				
Class Management	.147**	.041	.071	.103	.122*			
Content Presentation	.288**	.187**	.199**	.204**	.148**	.241**		
Online Learning	.798**	.803**	.776**	.880**	.758**	.315**	.385**	
Digital Self Efficacy	.582**	.436**	.483**	.425**	.317**	.299**	.552**	.584**

$n = 312$

\*\*Correlation is significant at the 0.01 level (2-tailed).

\*Correlation is significant at the 0.05 level (2-tailed).

The Pearson correlation coefficients reveal significant positive relationships (Schober et al., 2018) between several variables and Digital Entrepreneurial Intention (Table 3). Notably, Online Learning demonstrates the strongest correlation ( $r = .798$ ), indicating a strong link between the quality of online learning experiences and the intention to pursue digital entrepreneurship. Intelligent Interaction ( $r = .738$ ) and Personalization ( $r = .713$ ) also show strong correlations, suggesting that customized and interactive digital environments contribute significantly to fostering entrepreneurial intentions. Real-Time Feedback ( $r = .680$ ) and Digital Self-Efficacy ( $r = .582$ ) display moderate correlations, highlighting the importance of immediate feedback and confidence in digital skills. Other variables, such as the Recording Process ( $r = .535$ ) and Content Presentation ( $r = .288$ ), have weaker but still significant relationships, while Class Management exhibits the weakest correlation ( $r = .147$ ). Overall, these results suggest that elements related to user engagement, personalization, and confidence in digital learning are key contributors to strengthening digital entrepreneurial intention.

Sarstedt et al. (2014) recommended a two-phase approach to data analysis in PLS-SEM: first, assessing the measurement model (outer model) and second, assessing the structural model (inner model). The measurement model involves evaluating reliability and validity using Composite Reliability (CR), Cronbach Alpha (CA) for internal consistency, Average Variance Extracted (AVE) for convergent validity, and Discriminant Validity for unidimensionality (Hair et al., 2013). In this study, both Low-Order Constructs (LOC) and High-Order Constructs (HOC) are assessed for reliability and validity through Confirmatory Factor Analysis (CFA) in PLS-SEM.



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The low-order measurement model (Figure 2) included items with loadings meeting the reference criterion ( $FL > 0.708$ ; Hair et al., 2013), with only items that met this threshold retained (Appendix 2: Table A2). The CR and Cronbach's alpha values for all latent variables exceeded the minimum thresholds ( $CR > 0.70$ ,  $CA > 0.70$ ), confirming internal consistency. The AVE values ( $> 0.50$ ) ensured convergent validity, while discriminant validity was confirmed using Fornell and Larcker's (1981) criterion (Appendix 2: Table A3).

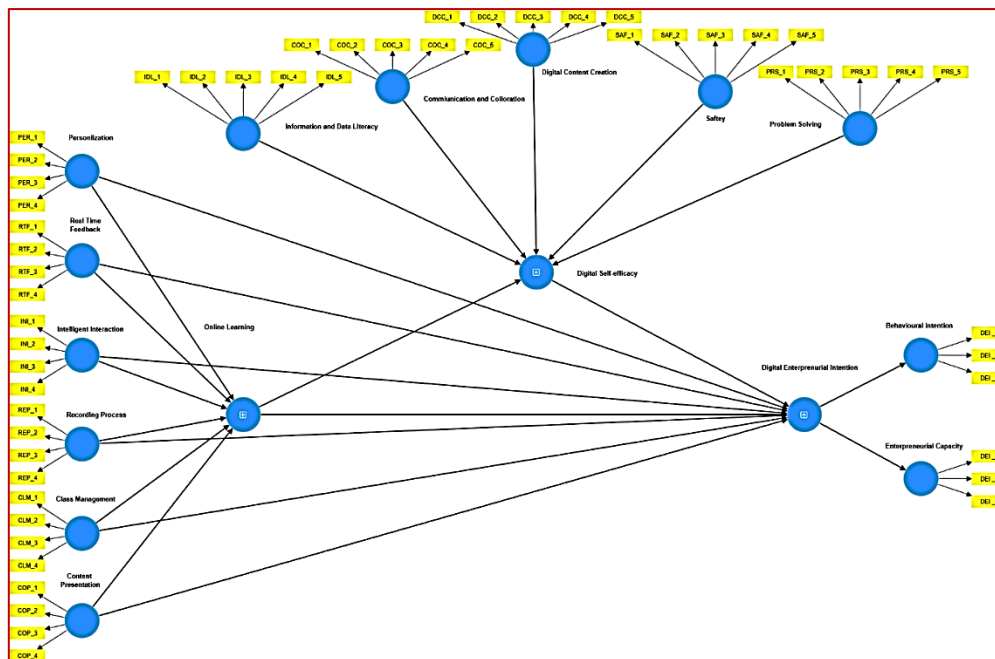


Figure 2. The Measurement model  
*Authors based on Results of the Data Analysis*

The high-order measurement model, also reflective, used the same criteria for reliability and validity. The embedded approach estimated the latent variables, with the low-order model's estimates used as indicators in the high-order model. Table A4 (Appendix 4) and A5 (Appendix 5) confirm that all reliability and validity indices are within acceptable ranges, ensuring the soundness of the model.

Finally, the structural model (Figure 3), containing three HOCs (online learning, digital self-efficacy, and digital entrepreneurial intention), was assessed to test the hypothesized relationships (Sarstedt et al., 2014, Janadari et al., 2016).

The reliability and validity of the structural model were evaluated using convergent validity, collinearity, weights, and significance. Tables A6 (Appendix 6) and A7 (Appendix 7) confirm that the model is largely reliable and valid. Collinearity was assessed through the Variance Inflation Factor (VIF), with all values below 3 (Diamantopoulos, Sigouw, 2006), indicating minimal overlap among indicators (Appendix 6). Convergent validity was confirmed with AVE values above 0.5 (Appendix 4). The path coefficients, along with their p-values and t-statistics (Appendix 7), show that all paths except, Class Management -> Digital Entrepreneurial Intention, Content Presentation -> Digital Entrepreneurial Intention, and Recording Process -> Digital Entrepreneurial Intention significantly influence digital entrepreneurial intention, indicating the independent variable (online learning) is a strong determinant of the dependent variable (digital entrepreneurial intention).

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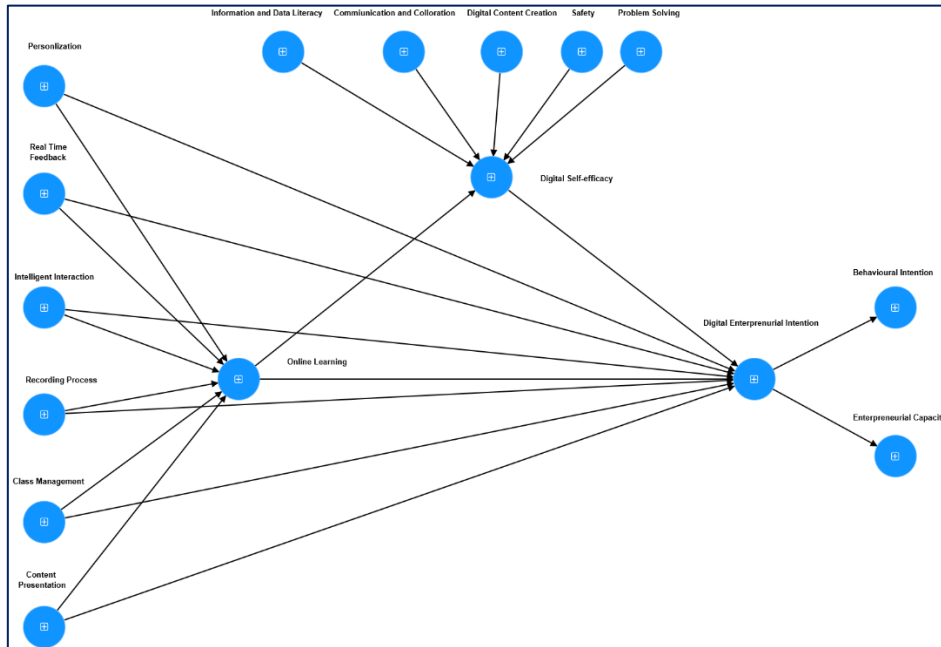


Figure 3. Structural model  
Authors based on Results of the Data Analysis.

Additionally, the VIF values for HOCs were within acceptable limits ( $> 3$ ), confirming no significant collinearity among exogenous variables (Appendix 8). The structural model's coefficient of determination ( $R^2$ ) is 0.703, indicating that 70.3% of the variance in digital entrepreneurial intention is explained by the model (Cohen, 1988). Effect size ( $f^2$ ) for independent variables was determined using Hair (2014) and Cohen's guidelines, showing that the variables had varying effects, from small to significant, on digital entrepreneurial intention.

Table 6. The Effect Size of Independent Variables on The Dependent Variable

Variable	Digital Entrepreneurial Intention	Effect size
Online Learning	0.366	Larger
Digital Self-Efficacy	0.382	Larger
Personalization	0.207	Medium
Real-Time Feedback	0.150	Medium
Intelligent Interaction	0.094	Smaller

Authors based on Results of the Data Analysis

The evaluation of  $f^2$  shows that both online learning and digital self-efficacy have larger effect on digital entrepreneurial intention, while personalization, and real-time feedback have medium effects. The mediating effect of digital self-efficacy on the online learning - digital entrepreneurial intention relationship was also found to be larger (Table 4). The structural model's predictive relevance assesses how well it explains the variance in the endogenous construct, typically measured using  $Q^2$ . A  $Q^2$  value greater than 0 indicates that the exogenous construct has predictive relevance for the endogenous construct (Stone, 1974, Geisser, 1974, Hair et al., 2021). The  $Q^2$  value for this model is 0.239.

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The evaluation of the two measurement models (Low and High-Order Models) shows that the authors successfully filtered an appropriate set of indicators to estimate the latent constructs. The structural model evaluation further revealed that, digital self-efficacy, and the online learning significantly influence digital entrepreneurial intention, with mediating effect from digital self-efficacy. As a result, these latent constructs can be modeled to explain the variance in digital entrepreneurial intention with strong predictive ability.

In the path analysis, the model's hypotheses are tested based on the significance and strength of the standardized regression estimates for each individual path (Schumacker, Lomax, 2004). Table 5 presents the results of the hypothesis testing.

Table 7. Summary of Hypotheses Testing

Hypothesis	Results			Decision
	Standard $\beta$ estimate	p-value		
H <sub>1</sub> : Online Learning impacts Digital Entrepreneurial Intention	0.232	0.000		Significant
H <sub>2</sub> : Online Learning impacts Digital Self-efficacy	0.176	0.000		Significant
H <sub>3</sub> : Digital Self-efficacy impacts Digital Entrepreneurial Intention	0.270	0.000		Significant
H <sub>4</sub> : Digital Self-efficacy mediates the relationship between Online Learning and Digital Entrepreneurial Intention	H <sub>1</sub> :	0.232	0.000	Significant (Partial; mediation)
	H <sub>2</sub> :	0.176	0.000	
	H <sub>3</sub> :	0.270	0.000	
H <sub>1a</sub> : Personalization of Online Learning impacts Digital Entrepreneurial Intention	0.268	0.007		Significant
H <sub>1b</sub> : Real-time Feedback of Online Learning impacts Digital Entrepreneurial Intention	0.145	0.030		Significant
H <sub>1c</sub> : Intelligent Interaction of Online Learning impacts Digital Entrepreneurial Intention	0.373	0.000		Significant
H <sub>1d</sub> : Recording Process of Online Learning impacts Digital Entrepreneurial Intention	0.147	0.078		Insignificant
H <sub>1e</sub> : Class Management of Online Learning impacts Digital Entrepreneurial Intention	0.002	0.949		Insignificant
H <sub>1f</sub> : Content Presentation of Online Learning impacts Digital Entrepreneurial Intention	0.010	0.794		Insignificant

*Authors based on Results of the Data Analysis*



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The study supported many hypotheses ( $H_1-H_4$  &  $H_{1a} - H_{1c}$ ), with online learning, digital self-efficacy, personalization, real-time feedback and intelligent interaction, being significant predictors of digital entrepreneurial intention at the 0.05 significance level. These latent constructs are identified as strong positive predictors of digital entrepreneurial intention based on the standard estimates ( $\beta$ ). Additionally, the mediating effect of digital self-efficacy ( $H_4$ ) is significant (Baron, Kenny, 1986, Hair et al., 2021), though partial mediation was observed for its' effect.

## DISCUSSION AND CONCLUSION

This study explored the influence of online learning, digital self-efficacy, and various features of online learning environments on digital entrepreneurial intention PLS-SEM. The results offer significant insights into the factors driving digital entrepreneurial intention, with several hypotheses being supported, while others were not. These findings provide a nuanced understanding of the interplay between online learning and entrepreneurial behavior in the digital economy.

The results confirmed that online learning positively impacts digital entrepreneurial intention ( $H_1$ ) with a significant  $\beta$  estimate of 0.232 and  $p$ -value  $< 0.001$ . This finding aligns with prior research that highlights the importance of digital education in fostering entrepreneurial skills (Morris et al., 2021; Hadi, Abdallah, 2023). Online learning environments provide individuals with the flexibility to acquire entrepreneurial knowledge and develop the competencies needed to thrive in digital markets, which in turn strengthens their intention to pursue entrepreneurial ventures (Qazi et al., 2022).

Furthermore, online learning was also found to have a significant effect on digital self-efficacy ( $H_2$ ;  $\beta = 0.176$ ,  $p < 0.001$ ), consistent with previous studies indicating that digital learning platforms can enhance learners' confidence in using digital tools and technologies (Bandura, 2018, Chang et al., 2023). Digital self-efficacy, in turn, showed a significant positive impact on digital entrepreneurial intention ( $H_3$ ;  $\beta = 0.270$ ,  $p < 0.001$ ). This result is consistent with recent findings by Urban (2022), which emphasize the critical role of self-efficacy in predicting entrepreneurial intention, particularly in digital contexts where individuals must navigate uncertainties and complex technological environments.

The mediation analysis ( $H_4$ ) confirmed that digital self-efficacy partially mediates the relationship between online learning and digital entrepreneurial intention. This partial mediation ( $p < 0.001$ ) indicates that while online learning directly fosters digital entrepreneurial intention, its impact is amplified when learners develop greater self-efficacy through their educational experiences. Similar findings have been reported by scholars such as Farooq et al. (2022), who identified digital self-efficacy as a crucial mediator in the relationship between learning experiences and entrepreneurial outcomes.

Several specific features of online learning were tested for their impact on digital entrepreneurial intention, yielding mixed results. Personalization of online learning had a significant effect ( $H_{1a}$ ;  $\beta = 0.268$ ,  $p = 0.007$ ), suggesting that learners benefit from customized content that caters to their specific needs, ultimately enhancing their entrepreneurial mindset. This finding is supported by recent literature indicating that personalized learning experiences promote deeper engagement and stronger entrepreneurial outcomes (Alomari et al., 2023).

Real-time feedback ( $H_{1b}$ ;  $\beta = 0.145$ ,  $p = 0.030$ ) and intelligent interaction ( $H_{1c}$ ;  $\beta = 0.373$ ,  $p < 0.001$ ) were also found to significantly influence digital entrepreneurial intention. These results align with previous studies that highlight the importance of immediate feedback and interactive learning environments in fostering entrepreneurial learning (Mueller, Shepherd, 2016, Liu et al., 2022). Real-time feedback helps learners adjust their strategies and enhance their decision-making skills, while



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intelligent interaction through adaptive learning technologies enhances critical thinking and problem-solving abilities, both essential for entrepreneurial success in digital domains.

Contrary to expectations, the hypotheses related to the impact of the recording process ( $H_{1d}$ ;  $\beta = 0.147$ ,  $p = 0.078$ ), class management ( $H_{1e}$ ;  $\beta = 0.002$ ,  $p = 0.949$ ), and content presentation ( $H_{1f}$ ;  $\beta = 0.010$ ,  $p = 0.794$ ) on digital entrepreneurial intention were not supported. These findings suggest that while these aspects of online learning may contribute to the overall learning experience, they may not directly influence entrepreneurial intentions. The insignificant impact of class management and content presentation may reflect the notion that these elements are more focused on structuring the educational environment rather than fostering the intrinsic motivation and confidence necessary for entrepreneurship (Dabbagh, Kitsantas, 2020).

The recording process was close to significance but did not meet the threshold ( $p = 0.078$ ). This could indicate that while recorded lectures offer flexibility and convenience, they might lack the dynamic engagement and real-time interactions that are crucial for fostering entrepreneurial intention. Studies by Richardson et al. (2021) also suggest that passive learning methods, such as recorded content, might be less effective in promoting the active learning required for entrepreneurial mindset development.

This study highlights the significant role of online learning and digital self-efficacy in shaping digital entrepreneurial intention, with specific online learning features such as personalization and intelligent interaction driving these outcomes. However, elements like class management and content presentation had no significant impact. Despite its contributions, the study has limitations, including a focus on self-reported data, which may introduce bias, and a cross-sectional design, limiting causality. Future research should explore longitudinal approaches and diverse contexts to provide deeper insights into how digital learning environments influence entrepreneurial behaviors over time.

## REFERENCES

- Ahmad, Z., AlWadi, B.M., Kumar, H., Ng, B.-K., Nguyen, D.N. (2024). Digital transformation of family-owned small businesses: a nexus of internet entrepreneurial self-efficacy, artificial intelligence usage and strategic agility. *Kybernetes*, ahead-of-print.
- Ajzen, I. (1991). The theory of planned behavior. *Organizational Behavior and Human Decision Processes*, 50(2), 79–211.
- Al Amimi, M. H., Ahmad, S. Z. (2023). The moderating effect of educational support on the relationship between self-efficacy and intention in cyber entrepreneurship. *Journal of Work-Applied Management*, 15(2), 216-232.
- Alenezi, M. (2023). Digital learning and digital institution in higher education. *Education Sciences*, 13(1), 88.
- Al-Mamun, A., Olowolayemo, A., Wani, S., Sofiadin, A. (2022). Exploring the impact of digital entrepreneurship education among graduates in Bangladesh. *Journal of Information Systems and Digital Technologies*, 4(2), 58-81.
- Amorós, J. E., Cristi, O., Naudé, W. (2021). Entrepreneurship and subjective well-being: Does the motivation to start-up a firm matter? *Journal of Business Research*, 127, 389-398.
- Bandura, A. (1977). Self-efficacy: Toward a unifying theory of behavioral change. *Psychological Review*, 84(2), 191–215.



## Conference Proceedings

- Bandura, A. (1997). *Self-efficacy: The Exercise of Control*. W.H. Freeman and Company, New York..
- Bandura, A., Wessels, S. (1997). *Self-efficacy*. Cambridge University Press, Cambridge.
- Baron, R. M., Kenny, D. A. (1986). The Moderator-Mediator Variable Distinction in Social Psychological Research: Conceptual, Strategic, and Statistical Considerations. *Journal of Personality and Social Psychology*, 51(6), 1173–1182.
- Becker, G. S. (1964). *Human Capital: A Theoretical and Empirical Analysis, with Special Reference to Education*. University of Chicago Press, Chicago.
- Bican, P. M., Brem, A. (2020). Digital business model, digital transformation, digital entrepreneurship: Is there a sustainable "digital"? *Sustainability*, 12(13), 5239.
- Bird, B. (1988). Implementing entrepreneurial ideas: The case for intention. *Academy of Management Review*, 13(3), 442–453.
- Chen, S., Chen, H. (2021). Exploring the relationship between digital self-efficacy and entrepreneurial intention in the digital economy. *Journal of Entrepreneurship Education*, 24(2), 1–14.
- Davidsson, P., Wiklund, J. (2001). Levels of analysis in entrepreneurship research: Current research practice and suggestions for the future. *Entrepreneurship Theory and Practice*, 25(4), 81–100.
- Fini, R., Grimaldi, R., Marzocchi, G. L., Sobrero, M. (2009). The foundation of entrepreneurial intention. *Journal of Business Venturing*, 24(3), 317–339.
- Gielnik, M. M., Bledow, R., Stark, M. S. (2020). A dynamic account of self-efficacy in entrepreneurship. *Journal of Applied Psychology*, 105(5), 487-505.
- Global Entrepreneurship Research Association. (2021). *Global Entrepreneurship Monitor*. London
- Hair, J. F., Hult, G. T. M., Ringle, C. M., Sarstedt, M. (2021). *A Primer on Partial Least Squares Structural Equation Modeling* (3rd ed.). Sage Publications, Thousand Oaks.
- Hair, J. F., Ringle, C. M., Sarstedt, M. (2013). Partial least squares structural equation modeling: Rigorous applications, better results and higher acceptance. *Long range planning*, 46(1-2), 1-12.
- Hsu, D. K., Shinnar, R. S., Powell, B. C. (2014). Self-efficacy, entrepreneurial intentions, and gender: Assessing the impact of entrepreneurship education longitudinally. *Entrepreneurship Theory and Practice*, 38(3), 635–657.
- Janadari, M. P. N., Sri Ramalu, S., Wei, C., Abdullah, O. Y. (2016). Evaluation of measurement and structural model of the reflective model constructs in PLS–SEM. In *Proceedings of the 6th International Symposium* (pp. 20-21). South Eastern University of Sri Lanka, Oluvil.
- Jun, M., Ariyesti, F. R., Ali, S., Xiaobao, P. (2023). The effect of effectuation and causation approach on entrepreneurial orientation in the presence of leader dominance and self-efficacy. *Journal of Entrepreneurship in Emerging Economies*, 15(4), 835-858.
- Karnouskos, S. (2017). Massive open online courses (MOOCs) as an enabler for competent employees and innovation in industry. *Computers in Industry*, 91, 1-10.
- Khuong, N. V., Anh, L. H. T., Ha, L. T. N., Cuong, L. V., Ngan, N. P. T., Thu, H. T. M., Minh, L. K. (2023). Factors Affecting Decision to Adopt Artificial Intelligence During COVID-19 Pandemic Period: Evidence from PLS-SEM and fsQCA. *Vision*, 09722629221149847.



## Conference Proceedings

- Kraus, S., Palmer, C., Kailer, N., Kallinger, F. L., Spitzer, J. (2019). Digital entrepreneurship: A research agenda on new business models for the twenty-first century. *International Journal of Entrepreneurial Behavior & Research*, 25(2), 353-375.
- Markova, S., Korhonen, M., Pitkänen, P. (2023). Digital entrepreneurship education in MOOCs: Assessing its role in shaping entrepreneurial intentions. *International Journal of Entrepreneurial Behavior & Research*, 29(4), 815–832.
- Marope, P. T. M., Chakroun, B., Holmes, K. P. (2015). *Unleashing the potential: Transforming technical and vocational education and training*. UNESCO Publishing,
- Martin, C. (2020). Online learning and entrepreneurial intention: Insights from the post-COVID world. *Journal of Entrepreneurship and Innovation in Emerging Economies*, 6(1), 45–61.
- Memon, M. A., Ting, H., Ramayah, T., Chuah, F., Cheah, J.-H. (2017). A review of the methodological misconceptions and guidelines related to the application of structural equation modeling: A Malaysian scenario. *Journal of Applied Structural Equation Modeling*, 1(1), 1-13.
- Mir, A. A., Hassan, S., Khan, S. J. (2023). Understanding digital entrepreneurial intentions: A capital theory perspective. *International Journal of Emerging Markets*, 18(12), 6165-6191.
- Obschonka, M., Hakkarainen, K., Rantanen, T. (2020). Digital self-efficacy and entrepreneurial intention: A longitudinal study among European entrepreneurs. *Journal of Business Venturing*, 35(4), 1–20.
- Pihie, Z. A. L., Bagheri, A. (2022). Digital entrepreneurship education: The mediating role of entrepreneurial self-efficacy and intention. *Education + Training*, 64(5), 578–596.
- Primario, S., Rippa, P., Secundo, G. (2022). Rethinking entrepreneurial education: The role of digital technologies to assess entrepreneurial self-efficacy and intention of STEM students. *IEEE Transactions on Engineering Management*, 71, 2829-2842.
- Prokopenko, O., Jarvis, M., Bielialov, T., Omelyanenko, V., Malheiro, T. (2024). *of Entrepreneurship: Bridging the Innovation Skills Gap Through Digital Learning*. In *International Conference Innovation in Engineering* (pp. 206-230). Springer Nature Switzerland, Cham.
- Qureshi, A., Imran, A., Malik, A. (2023). The impact of social media exposure on digital entrepreneurial intention: Exploring the mediating role of self-efficacy. *Journal of Small Business and Enterprise Development*, 30(3), 561–582.
- Radović Marković, M. (2023). *Digitalization, Workforce Transformation and Education in the Global Economy*, Eliva, Chişinau.
- Radović Marković, M., Đukanović, B., Marković, D., Dragojević, A. (2021a). *Entrepreneurship and Work in the Gig Economy – The Case of the Western Balkans*. Routledge, London.
- Radović-Marković, M., Vučković, M., Nikitović, Z., Lapčević, G., (2021). Learner creativity among entrepreneurship students in higher education through E-Learning. *International Journal of Entrepreneurship*, 24(5), 7-15.
- Radović-Marković M. et.al. (2017). E-Learning As A Tool For Empowering Entrepreneurship, *Journal of Women's Entrepreneurship and Education*, 3-4, 65-72.
- Sarstedt, M., Ringle, C. M., Hair, J. F. (2014). PLS-SEM: Looking back and moving forward. *Long Range Planning*, 47(3), 132-137.
- Satjharuthai, K., Lakkhongkha, K. (2023). The Role of Entrepreneurs in Driving the Success of their Businesses in the Digital Era. *International Journal of Professional Business Review*, 8(7), 1-10.



## Conference Proceedings

- Schaltegger, S., Wagner, M. (2011). Sustainable entrepreneurship and sustainability innovation: categories and interactions. *Business strategy and the environment*, 20(4), 222-237.
- Shoab F.M., Radović Marković, M. (2017), Impact of Business Simulation Games on Entrepreneurial Intentions of Business Graduates: A PLS-SEM APPROACH, U: Radovic Markovic (ed.), Shoaib Farooq (ed.), Vujicic (ed.). *Organisational Behavior and Types of Leadership Styles in terms of Globalization*, pp. 11-25. Newton Abbot: Compass Publishing, Seoul.
- Schober, P., Boer, C., Schwarte, L. A. (2018). Correlation Coefficients: Appropriate Use and Interpretation. *Anesthesia & Analgesia* 126(5), 1763-1768.
- Schumacker, R. E., Lomax, R. G. (2004). *A Beginner's Guide to Structural Equation Modeling* (2nd ed.). Lawrence Erlbaum Associates, New Jersey.
- Shevchenko, I., Lysak, O., Shyshak, A. Z., Mazur, I., Korotun, M., Nestor, V. (2023). Digital economy in a global context: world experience. *International Journal of Professional Business Review*, 8(4), 1-16.
- Solesvik, M., Westhead, P., Matlay, H. (2021). Digital entrepreneurship education and entrepreneurial intentions: Evidence from online learning platforms. *Journal of Small Business and Enterprise Development*, 28(2), 221–238.
- Sussan, F., Acs, Z. J. (2017). The digital entrepreneurial ecosystem. *Small Business Economics*, 49(1), 55–73.
- Tennakoon, W. D. N. S. M., Amarathunga, P. A. B. H., Dilshani, A. K. D. N., Praveeni, S. M. N., Lasanthika, W. J. A. J. M. (2023). Determinants of Employee Transition to Entrepreneurship: A Test of Theory of Planned Behavior and the Dualistic Model of Passion, *MENTOR The Journal of Business Studies*, 7(2), 57-78.
- The World Bank. (n.d.). *Digital Development*. Washington DC.
- Tomy, S., Pardede, E. (2020). An entrepreneurial intention model focussing on higher education. *International Journal of Entrepreneurial Behavior & Research*, 26(7), 1423-1447.
- Ulfert-Blank, A. S., Schmidt, I. (2022). Assessing digital self-efficacy: Review and scale development. *Computers & Education*, 191, 104626.
- Wang, S., Shi, G., Lu, M., Lin, R., Yang, J. (2021). Determinants of Active Online Learning in the Smart Learning Environment: An Empirical Study with PLS-SEM. *Sustainability*, 13(17), 9923.
- Wang, Y. M., Wei, C. L., Chen, W. J., Wang, Y. S. (2023). Revisiting the E-Learning Systems Success Model in the Post-Covid-19 Age: The Role of Monitoring Quality. *International Journal of Human–Computer Interaction*, 40(18), 5087–5102.
- Zhao, H., Seibert, S. E., Hills, G. E. (2005). The Mediating Role of Self-Efficacy in the Development of Entrepreneurial Intentions. *Journal of Applied Psychology*, 90(6), 1265–1272.
- Zhao, X., Li, S., Wang, T. (2022). Digital self-efficacy and digital entrepreneurial intention among students: A mediation analysis. *Technological Forecasting and Social Change*, 176, 121456.
- Žur, A. (2020). Two heads are better than one – entrepreneurial continuous learning through massive open online courses. *Education Sciences*, 10(3), 62.





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# SMART AND REGENERATIVE AGRICULTURE IN THE FUNCTION OF AGRICULTURAL ENTREPRENEURSHIP

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DOI: 10.5937/EEE24054P

JEL: Q16

Review Scientific Paper

### ABSTRACT

*This paper explores the integration of smart and regenerative agriculture technologies as a function of agriculture entrepreneurship in order to enhance agricultural productivity, environmental sustainability, economic viability and food security. Smart agriculture leverages advanced technologies like sensors, machine learning, and cloud computing for precision farming, optimizing resource use, and improving crop management. Regenerative agriculture focuses on soil health, biodiversity, and ecosystem services, aiming to restore soil organic matter, enhance water cycles, and foster carbon sequestration. The synergy of these practices offers numerous benefits, including improved soil health, increased resilience to climate change, cost savings through reduced input use. Additionally, these methods address the growing consumer demand for sustainably produced food, offering market opportunities for farmers. This transformative approach not only supports the livelihood of farmers but also contributes to the broader goals of food security, environmental protection, and sustainable development. The integration of these technologies promises to revolutionize agricultural practices, potentially reversing the negative impacts of conventional agriculture and creating more resilient and sustainable food systems, particularly in developing regions facing economic challenges and fragmented agricultural sectors.*

### KEYWORDS

*smart agriculture, regenerative agriculture, agriculture entrepreneurship, new technologies, computer networks, cloud computing, machine learning*

## THE IMPORTANCE OF NEW TECHNOLOGIES IN AGRICULTURE

Technology and technique represent a functional unity of knowledge, skills, and science, procedures and products, serving to improve human life. New technologies in agriculture are crucial for general development and for the development of agricultural entrepreneurship. Agriculture, along with agricultural entrepreneurship, in the modern era becomes inseparably connected with new technologies and Industry 4.0. As a result, smart agriculture, precision agriculture, and smart villages are developed

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as forms of application and implementation of new technology in rural areas, not only to increase the standard of living and profitability of farmers, i.e., residents of rural areas, but also to enhance ecological sustainability and reduce the negative effects of climate change. The key function of smart, and/or precision agriculture, is the intelligent allocation and rationalization of resources to optimize their use for greater efficiency and effectiveness of agricultural production. Until now, this function has been managed by agricultural entrepreneurship, which manages the chain from farm to fork, from agricultural production to supply chains all the way to sales in large markets. New technologies enable better organization, transparency, precision, and sustainability of agricultural production, supply chains, and the agricultural food industry along with agricultural entrepreneurship.

In this way, through new technologies, agricultural entrepreneurship and agricultural production gain a new dimension of business, production processes, and supply, all in accordance with high standards of sustainable development and ecology.

Blockchain technology, applied in agriculture, yields excellent results in terms of product transparency and consumer information about the characteristics, origin, and benefits of a particular agricultural product. Blockchain technology, already applied in developed Western countries in agricultural production and supply chains, provides consumers with a high degree of information and transparency of the agricultural product itself, allowing them to follow the product from agricultural field to the table. Additionally, a new field in agriculture is regenerative agriculture, which, in synergy with new technologies and smart and precision agriculture, opens a new dimension and aspect of agricultural production based on sustainable development, high standards of ecology, and healthy food, i.e., organic products. Regenerative agriculture, supported by new technologies, can greatly contribute to healthier nutrition, which today's consumers seek and demand. In this way, agricultural entrepreneurship gains an advantage in the form of offering agricultural products for which there is great demand. According to the author and numerous experts, agricultural products, primarily food and drinking water, obtained in the process of regenerative agriculture, represent a new golden age of agriculture, i.e., a resource of the future. Condition that needs to be met is more understanding for investments and financial support from the state for new technologies applied in agriculture, agricultural entrepreneurship, as well as for the new form of agricultural production known as regenerative agriculture.

## SMART AND REGENERATIVE AGRICULTURE SERVICE

In presenting the smart agriculture service, which pertains to aspects of regenerative agriculture, real-time soil quality monitoring and analysis, machine learning and/or deep learning based on neural networks, are used to predict soil quality based on data from previous time periods. Based on the prediction of machine learning in real time, the process of monitoring and maintaining a high level of field soil quality at every moment of agricultural production is possible. The smart agriculture service can encompass regenerative agriculture and soil analysis via sensors, using data obtained from sensors as input values for machine learning or neural networks on a remote or nearby computer server or cloud computing. This represents a significant technological advancement for addressing the major problem that exists not only in the European Union but across all of Europe, which is the reduction or decline in the quality of agricultural land.

In response to the growing problem, not only to address climate changes that significantly contribute to the declining quality of soil but also to address the overexploitation of land, pollution, and the issue of neglected agricultural land, the smart agriculture service focused on regenerative agriculture has been introduced in the following descriptions. This service enables sustainability, ecological standards,



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response to climate changes as well as renewal and enhancement of the quality and fertility of existing agricultural land through regenerative methods and techniques (Lipper et al., 2017).

For the implementation of this smart agriculture service in the function of regenerative agriculture, sensors are required, which today, but increasingly in the future, will be produced as mass production products, becoming cost-effective and more affordable (Chikoye et al., 2017). Additionally, a computer network is required, ideally wireless, 5G or 4G, which enables data transmission from sensors to central servers or cloud computing, where the data will be processed, used in the method of machine learning or deep learning, and the obtained results analyzed and options provided for making the most optimal, intelligent, and rational decisions.

Additionally, instead of using 5G or 4G computer networks, it is possible to utilize far-reaching computer networks specialized for agriculture, such as LoRaWAN and others with low power consumption, suitable for smart cities, smart villages, and smart agriculture (Seneviratne, 2019). It is possible to analyze soil and vegetation, namely crops on the given land, thereby obtaining data on the quality of the given soil through multispectral and hyperspectral analysis using a central camera or multiple cameras mounted on drones.

In this case, we will focus on sensors, namely microsensors that are located in the soil and measure various soil parameters, from moisture and temperature to pH values. Additionally, it is possible to manually take samples regarding the quality of agricultural land and upload data to a central server.

To even begin applying techniques and methods of regenerative agriculture, which include certain functions of smart agriculture such as the optimization of resource use, resource allocations for intelligent and rational management of agricultural production to maximize effects, namely yields while minimizing input values, it is necessary to devise a technological solution. This technological solution is from a namely computer network perspective, as well as from a software perspective (Selman, 2010).

This smart agriculture service in synergy with regenerative agriculture allows the application of smart city services for the purpose of improving and creating smart villages based on new technologies. This will contribute not only to improving the quality of agricultural land, which is an urgent and concerning problem at this moment, but will also contribute to all aspects of society in rural communities in terms of sustainability, ecological standards, information availability to residents, improving the standard of living, mitigating climate change, mitigating world hunger, and the adoption of new technologies in traditional and conservative communities of rural areas.

## THE IMPORTANCE OF TECHNOLOGICAL SOLUTIONS AND THEIR APPLICATIONS IN PRACTICE

Regarding the technical and technological solution, it should primarily focus on a wireless computer network, elements such as sensors or microsensors, stations for transmitting and retransmitting wireless signals, and one or more central servers, i.e., computers that receive data from sensors. Additionally, an alternative to localized computer servers is the use of cloud computing, which is increasingly prevalent, especially for larger holdings and corporate agricultural operations (Peterson, Davie, 2020).

The use of new technologies in the form of edge computing and fog computing, which allow for the processing of received data at the network edge in case of a central server failure, works together with cloud computing in distributing, dispatching data to a central location, processing, and analyzing data, enabling resilience, redundancy, data processing speed, as well as the function of load balancing. The



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network of this technical and technological solution would consist of elements such as the data source, represented by sensors, a wireless communication link that connects data sources with telecommunications stations, which forward data to edge computing, then to fog computing, and finally to cloud computing or alternatively forward data to a local server. The end-user is not the cloud computing or the local server, but rather the farmer and his laptop or desktop computer in the office. To forward the information, we use a communication link from the data source, then telecommunications stations for forwarding signals, which use computer networks and data transmission via somewhat faster communication links, such as 5G, and finally, data transmission from the local server or cloud computing to the farmer's laptop or computer can be conducted via the internet, either cable or through mobile telephony.

This computer network enables relatively fast data transmission from sensors to cloud computing, using numerous transmission technologies such as 5G, 4G, depending on the needs and size of the farm, as well as the purpose and function of the given technological solution.

To make all this work, internet access is necessary, through which both the local server and the farmer's computer or laptop need to be connected. Therefore, the solution could be either cable internet or mobile telephony internet, which covers large areas without requiring significant expenses. Such a network allows for relatively good and reliable efficiency at cost-effectiveness, especially important and significant in developing countries.

In this way, by using new technology, these problems can be overcome, which is of great significance not only for the status and financial position of farmers, for their standard of living, but also for the development of economically underdeveloped countries, as well as for improving resilience, flexibility, and scalability of supply chains on a global level.

The technologies that the author would apply in this case include microsensor technology, 5G or 4G wireless data transmission, cloud computing, edge computing, and fog computing. Finally, a technology that is significant for this service of smart and regenerative agriculture, and which is no less important, is machine learning and/or deep learning.

Machine learning is a sub-branch of artificial intelligence of great importance in the modern world, both in science, agricultural and other practices of highly developed countries. Artificial intelligence technology enables systems to perform numerous tasks that require human intelligence, in a way that they are performed by machines, or software, including tasks such as decision making, language translation, and speech recognition.

As an important sub-branch of artificial intelligence, the author would use machine learning technology, which allows machines to learn from data and adapt to additional data through the training process, without explicit programming for specific tasks. Prediction of outcomes through machine learning models possesses two characteristics that are significant and largely define both machine learning and new technologies in the economy and society. These two characteristics are nonlinearity and scalability.

Nonlinearity represents the ability of the system, in this case, prediction, to connect a dependent variable with one or more independent variables in conditions where there is no direct proportional relationship between the change in the dependent variable and the cause, which establishes a complex causal relationship between cause and effect, or input and output data. This can be of great significance for the analysis and interpretation of complex and complicated systems and models.

The other characteristic related to this service of smart agriculture and regenerative agriculture is the scalability of managing and processing a significant increase in both users in the business and/or data as input values, without significantly reflecting on the performance results.



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The technology that would be applied as an alternative to machine learning is deep learning, a subfield of machine learning that is based on neural networks and also on nonlinearity, and which simulates neural pathways in the human brain. In this way, numerous analyses can be performed and insights into significant results and research can be obtained not only in the field of regenerative agriculture and soil quality but also in numerous other areas of agriculture, economy, and society.

### **REGENERATIVE AGRICULTURE FROM THE PERSPECTIVE OF AGRICULTURAL ENTREPRENEURSHIP**

Understanding the problems of smart and regenerative agriculture from the perspective of agricultural entrepreneurship, its implementation in agriculture and individual farms, represents not only the design and architecture of the computer network and technology but also the method of financing new technology and maintenance. Agricultural entrepreneurship has the task not only to manage the agricultural production (via smart and regenerative agriculture), manage the process of product placement and sales in the market, but also to design, organize, and manage an investment project, which includes numerous phases, among which are significant: careful selection of sources of financing and financial analysis of the investment project (Pejanović, 2019; Evenson, Pingali, 2007).

Financing is one of the key aspects of agricultural entrepreneurship that can greatly modernize technology and enhance the profitability of agricultural production from the perspective of smart and regenerative agriculture. Financing is necessary from the perspective of fixed and working capital. Fixed assets are assets that have a long lifespan and can be divided into intangible, tangible, financial assets, and receivables.

Also, the financing of working capital should be considered, which includes raw materials, consumables, working tools, worker wages, property rentals, and other circulating assets, which are assets with a short lifespan (less than a year).

In this case, the focus should be on fixed assets, which can be divided into intangible and tangible, where intangible includes patents, licenses, and software. Software represents a key component of intangible fixed assets that is needed for the optimal functioning of the computer network and other technological infrastructure necessary for smart agriculture. Under tangible fixed assets falls infrastructure, which includes computer infrastructure, microsensors, telecommunications stations, computer networks, local servers or cloud computing, along with edge computing and fog computing. Tangible fixed assets also include buildings, machinery, and equipment.

To fully understand the problem of financing new technologies in agriculture in developing countries (such as the Republic of Serbia) by agricultural entrepreneurship and entrepreneurs, we must understand the financial system and economic environment of developing countries and how serious a problem of the underdeveloped financial infrastructure and institutions represents for the progress and technological development of each country.

The financial system primarily serves to procure funding sources, and it consists of financial markets, financial institutions, and financial instruments. The absence of any of these three elements represents a significant problem in financing any investment project, not only those related to new technology and smart and regenerative agriculture. The lack of a developed financial system, financial institutions, is a failure of the state. The lack of financial instruments is an aspect of the interest of citizens of a given country in investing in securities. The development of the financial market itself represents the



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responsibility and obligation not only of the state, but also of economic entities and their willingness to accept risks, and of the citizens themselves and their willingness to invest.

In developing countries, this problem is particularly pronounced, and it is overlooked by using one aspect of the financial system, i.e., banking. Therefore, in such countries, bank-centric financial systems most commonly occur, in which, as in the Republic of Serbia, financial resources and sources of financing are in the hands of large banks, most often of foreign origin.

In order for such a system to change and diversify, offering a multitude of financing source options and opportunities for developing the financial system, and thus economic and technological development (because technological development is mostly financed from financial instruments and financial markets), significant, deep and fundamental changes are needed, encouraged by the top of the state, by promoting entrepreneurship and a tendency to rational risk among citizens.

To address the issue of financing smart and regenerative agriculture in developing countries, it is necessary to adapt to the bank-centric system at this moment, until conditions are met for a broader range and spectrum of financial instruments and sources of financing. The bank-centric financial system is not capable of meeting the needs of domestic entrepreneurship for development, as well as the needs of the country for economic and technological development in the long run. Therefore, changes are necessary and essential.

Still, to implement the system of smart and regenerative agriculture, using the current possibilities of the financial system in a bank-centric system, it is necessary to consider the available sources of financing. These can include personal funds, loans, pooling of investors, leasing, issuing securities, as well as cooperatives or clusters, depending on the system of organizing and consolidating capital from country to country.

Firstly, it should be mentioned that the most expensive form of financing is leasing, which should be avoided at all costs and alternative sources of financing should be found. Primarily in a bank-centric system loans stand out as a logical solution for financing an investment project.

To carry out and present an investment project, and ultimately obtain loan approval, it is necessary to develop and elaborate the investment project and accompanying documentation, which consists of the following phases and elements: market analysis, technology analysis, location analysis, ecological analysis, staff organization analysis, as well as financial analysis of the investment project. Among the elements of the investment project that agricultural entrepreneurs should pay attention to when investing in smart and regenerative agriculture, besides technological analysis, financial analysis particularly stands out, as well as the payback period of the investment and the ecological aspect of the given agricultural production.

Regenerative agriculture represents a new form of agricultural production, and in synergy with precise and smart agriculture, it can contribute to the production of high-quality organic food. Such food is in high demand on the global agricultural market and will continue to be an extremely sought-after resource in the future, along with drinking water and energy. Therefore, the price of these agricultural products will very likely reach extremely high levels and will allow a quick return on funds within a few years. Already, with the current demand for healthy and organic food, disruptions in the supply chains of agricultural products and a high level of public awareness for ecology, sustainable development and organic products, it enables a relatively short investment horizon.

The second aspect is the ecological aspect, which is significant not only from the aspect of production, but environmental protection as well. Agricultural products produced with this technology are understood to be organic products of exceptional quality. Therefore, they must meet not only high criteria and conditions for qualifying for organic products, but also high standards of sustainable development and environmental protection. Therefore, the sale of these products has a significant



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competitive advantage compared to other agricultural products, especially nowadays with the development and growing awareness of the importance of ecology, green economy, sustainable development and mitigating the negative effects of climate change, of which agriculture contributes 25% to the impact on climate change (Francis, 2016). Therefore, citizens recognize quality and are ready to pay a high market price for it. This makes these products very sought after, but currently in deficit, which makes smart agriculture and regenerative agriculture not only the future of agriculture in developed countries, but also in developing countries.

To some extent understand the problem of financing new technologies in agriculture in a bank-centric system, agricultural entrepreneurs must view this problem not only from a socio-economic aspect, but also from the perspective of natural sciences, as a different view that contributes to precision and reliability.

Three concepts that stand out as significant from the aspect of electrical engineering and computing, that is, natural sciences, in solving the problem of financing sources for smart and regenerative agriculture in developing countries in a bank-centric system are: The concept of negative feedback, which we highlight as a key and crucial concept for the sustainability of financing sources and agricultural production based on new technologies. The concept of positive feedback, which applies additional new technologies if certain conditions are met. The concept of dichotomy, or two mutually opposing concepts, which together exist in synergy and can be used as needed, by whoever uses them, to solve problems. The concept of negative feedback in electrical engineering is particularly represented by the example of a water heater, which, when certain conditions in terms of heating water to a certain point, or temperature level, are met, the system turns off, or shuts down. Agricultural entrepreneurs can use these concepts with success, a significant concepts in terms of the way of thinking, philosophy, but also systems, mechanisms for managing financing sources, as well as risks and costs.

Indeed, these concepts can be used such that, thanks to smart and regenerative agriculture and the demand for organic products resulting from this agricultural production, the time horizon for returning investments can be short, which favors investors, i.e., farmers. This moment should be seized and, in accordance with the concept of negative feedback, the system should be turned off when certain conditions are met, i.e. in this context the condition that the loan can be fully repaid.

Loan repayment is a factor of exceptional importance, a factor of release from the bank, from debt, from periodic interest payments and expenses. In this way, agrarian entrepreneurs can efficiently and effectively manage costs and when certain conditions are met, debts and obligations to banks with early repayment of loans are resolved. This should be kept in mind, because banks, other creditor and financial institutions consider premature loan repayment as an extremely unfavorable risk for them, wanting to maintain profitability and the relationship of high dependence of the debtor on the creditor, which is the goal of every bank, as well as the bank-centric system in a certain economy. countries.

In this way, with the help of this concept, in a precise, disciplined, efficient, and effective manner, the entrepreneur frees himself in agricultural production of additional financial costs and obligations and becomes his own owner, without a mortgage and without debts. Thus the concept of negative feedback, which has long been present in entrepreneurship, in the form of wisdom of great entrepreneurs who manage to run a business without excessive indebtedness and business obligations, both in agriculture and other economic branches.

Another concept for managing and solving the problem of funding sources is the concept of positive feedback. In the field of electrical engineering, the most obvious example is an electrical device such as an air conditioner. Namely, the air conditioner works in such a way that, when certain conditions are reached, for example a high temperature of the outside environment, the device turns on and lowers the



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given temperature or vice versa. Therefore, when certain conditions are achieved, energy, work, concentration, functioning of the mechanism to change the given state for the better are enhanced.

Besides the concept of negative feedback, which authors emphasize as extremely important, positive feedback can be beneficial in conditions of high risk and losses in business. It involves the use of new technologies to a greater extent for the purpose of increasing sales, increasing profitability, and getting out of the risk and order of costs and losses. This new technology is not based on hardware infrastructure and significant investments but mostly on virtual infrastructure of electronic business.

Computer literacy and skills, as well as basic knowledge and skills in using computers, are necessary in today's world in order to be able to fully use the great potential and capacity of tools and means of electronic business, for the sake of increasing and improving business channels and product distribution. To improve sales, we can use digital tools such as B2B platforms, private agricultural exchanges, digital marketing using social networks, websites, applications, various business platforms, internet search engines like Google and artificial intelligence like ChatGPT.

In order for agricultural entrepreneurs to take full advantage of this concept of positive feedback and improve their business, whether it is to improve a loss-making business or to improve a business with regular income, they must make an extra effort to understand its' importance and reach a level of awareness that future and current consumers, be they in retail or wholesale, will no longer look for products in markets or micro markets, but on the Internet, on online platforms, websites, social networks and applications for smartphones and fast home delivery.

One example of the rapidly growing concept of artificial intelligence are AI-based platforms that connect manufacturers of specific products with large consumers, i.e., companies that purchase these products in significant quantities. These AI platforms use publicly available databases to create nonlinear and causal connections, processing vast amounts of data in seconds, linking producers with potential customers. Such examples are increasingly common in developed countries, and will gradually appear in developing countries, facilitating the connection between large buyers and local producers, i.e., large companies, but also regular consumers.

E-commerce represents a significant aspect of agricultural entrepreneurship and cannot be bypassed, ignored, or unrecognized. The fact is that, according to some studies, the value of products bought and sold through e-commerce worldwide has increased about fivefold in the last decade. Also, it is a fact that individual sellers and buyers, in the form of recommerce, have sold or bought goods worth 5 to 10 times more than in the few years before. This shows that the focus in business, entrepreneurship, and thus in agricultural entrepreneurship and trade, is shifting from the physical buying and selling of goods and agricultural products at markets, fairs, and shops, to virtualization and e-commerce, which is already present in numerous developed countries such as the USA, China, UK, Canada, Australia, Japan, and this trend has become the new standard, the new reality, which is increasingly present and will be more significantly represented in the future.

The last concept from electrical engineering and computing, which can be used for managing and controlling the costs of financing sources in agricultural entrepreneurship, related to the example of smart agriculture services in synergy with regenerative agriculture, is the concept of dichotomy, i.e., two mutually opposing elements, which exist simultaneously at the same moment. Thus, we have debt and loan repayment through taking on debt and/or collecting outstanding debts based on trust from business partners, an informal and market-unregulated skill, which is already present in developing countries among more skillful entrepreneurs. Trust is a key factor, both in the risk-prone and uncertain world of agricultural entrepreneurship and agricultural production, and generally in entrepreneurship, because it allows not only good business operations and good cooperation but also the potential of certain





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companies to emerge from the financial crises, as well as to emerge from severe economic situations, both at the level of the country, region, and in the case of global economic-financial crises. It is the fact that the modern system of economic organization, in the form of capitalism, is prone and subject to periodic and increasingly frequent cycles of economic downturns, according to the Russian and Soviet economist Kondratiev.

The interconnectedness of companies is of exceptional importance and is based on trust. An example of this is found in Japan with the keiretsu system – a successor concept to the zaibatsu – representing the interconnectivity of Japanese companies that orbit and gravitate around a few central companies and which cooperate and support each other based on mutual trust. This concept enabled Japan, as a country developing after World War II, to achieve high levels of economic development and surpass the USA in both economic production and technological innovation and development, while also remaining economically independent from the influence and influx of American capital into the Japanese economic system.

In line with this, the concept of trust can be applied in the concept of electrical engineering and computing known as dichotomy, namely repaying debts through debt collection or lending assets. The mutually opposing concept of repayment through collection or lending assets already exists in countries where relationships on financial and economic markets are not highly regulated, especially in developing countries, where this concept is considered one of the fundamental principles of economic, financial, entrepreneurial, and ultimately, business sustainability.

This concept, applied in entrepreneurship, represents a key concept for circumventing, avoiding crisis moments of any enterprise, but also achieving resilience, that is, resistance and flexibility of enterprises in cases of major economic crises. This business wisdom, applied sparingly, which can be linked with the electrical engineering concept, represents a form of resourcefulness, perseverance, creativity, and the survival ability of the fittest, upon which liberal capitalism is based.

This concept should be learned by every agricultural entrepreneur and every entrepreneur in general, to survive in the global financial competition, business competition, and to become a successful entrepreneur. These and other concepts for managing and optimizing debts and costs in entrepreneurship, applied to agricultural entrepreneurship, are not taught in colleges and schools, but they should be, and instead represent the wisdom and axioms of business and entrepreneurship, which are learned in the so-called "school of life for entrepreneurship" in developing countries, where creativity and resourcefulness are dominant traits for financial survival.

## CONCLUSIONS

New technologies in agriculture are of great complexity and importance for the future of agriculture, food security and sustainability. In this paper we have analyzed effects of smart agriculture and regenerative agriculture not just for agriculture itself but for society as a whole including living standard, environmental sustainability and mitigating negative climate change effects and risks.

Technological innovations in smart agriculture, such as energy-efficient computer networks and machine learning models, combined with regenerative agriculture as an approach aimed at improving soil health, biodiversity and environmental services, emphasize systems and practices that restore soil organic matter, improve water cycle and promote sequestration of carbon. This combination of new technologies and methods in agriculture has the potential and capacity to reverse the negative impacts of conventional agriculture on the environment and create more climate-resilient and sustainable food production systems, especially scalable food supply chains.



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The mentioned technologies in agriculture in combination with agricultural entrepreneurship offer significant benefits to farmers, including (Rhodes, 2017):

- Improved Soil Health – Regenerative practices help to build healthy, fertile soil by increasing organic matter content, improving soil structure, and enhancing nutrient availability resulting in better yields and reduced application of artificial fertilizers.
- Increased Resilience – Regenerative agriculture systems are more resilient to extreme weather events, such as droughts or heavy rainfall, due to improved soil structure and water retention capacity. This aspect is more and more relevant in today's conditions of negative climate change effects.
- Cost Savings – Not only that this new technology and new methods in agriculture can, as its motto minimizing inputs with maximizing outputs, improve profitability of agricultural production, but improved soil health can contribute to reduced erosion, nutrient runoff, and the need for tillage, saving both time and money.
- Enhanced Biodiversity – Regenerative practices support biodiversity that can help reduce the need for chemical inputs and promote a more balanced ecosystem.
- Carbon Sequestration – It is considered that traditional agriculture is responsible for 25 percent of atmospheric pollution and indirectly contributing negative effects of climate changes. One of the key benefits of regenerative agriculture is its potential to sequester carbon from the atmosphere into the soil mitigating climate change while also improving soil health.
- Market Opportunities – Consumers are increasingly seeking out products produced using regenerative agriculture practices, leading to market opportunities for farmers who adopt these methods. This high demand for this kind of products can help farmers differentiate their products and access premium markets.

## REFERENCES

- Chikoye, D., Gondwe, T., Nhamo, N. (2017). *Smart Technologies for Sustainable Smallholder Agriculture*. Academic Press, Cambridge.
- Evenson, R. E., Pingali, P. (2007). *Handbook of Agricultural Economics*. Elsevier, Amsterdam.
- Francis, C. (2016). The carbon farming solution: a global toolkit of perennial crops and regenerative agriculture practices for climate change mitigation and food security, by Eric Toensmeier. *Agroecology and Sustainable Food Systems*, 40(9), 1039–1040.
- Lipper, L., McCarthy, N., Zilberman, D., Asfaw, S., Branca, G. (2017). *Climate Smart Agriculture: Building Resilience to Climate Change*. Available at: <https://oers.taiwanmooc.org/handle/123456789/138419>. Accessed 25.05.2024.
- Seneviratne, P. (2019). *Beginning LoRa Radio Networks with Arduino: Build Long Range, Low Power Wireless IoT Networks*. Available at: [https://openlibrary.org/books/OL28245287M/Beginning\\_LoRa\\_Radio\\_Networks\\_with\\_Arduino](https://openlibrary.org/books/OL28245287M/Beginning_LoRa_Radio_Networks_with_Arduino). Accessed 26.05.2024.
- Pejanović, R. (2019). *Izazovi ekonomskog obrazovanja*. Akademska knjiga, Novi Sad.



## Conference Proceedings

Peterson, L. L., Davie, B. (2020). Computer Networks. Morgan Kaufmann Publishers, Burlington.

Rhodes, C. J. (2017). The Imperative for Regenerative Agriculture. *Science Progress*, 100(1), 80–129.

Selman, J. J. (2010). Regenerative Agriculture Infrastructure Design: The Built Environment of Food, Culture, & Soil. Available at: <https://scholarworks.umass.edu/cgi/viewcontent.cgi?article=1554&context=theses>. Accessed 25.05.2024.



## Conference Proceedings

# START-UP ECO SYSTEM IN SERBIA

Siniša Pekevski<sup>1</sup>

DOI: 10.5937/EEE24055P

JEL: M13, M21

Review Scientific Paper

### ABSTRACT

*State support and its institutions play a very important role in the process of establishing the start-up companies and their further development and operation. The government should strive to recognize innovative startups and help them to grow. In Europe, each country is trying to establish own startup ecosystem, respecting the rules that apply in the EU as a unified community. Start-up companies move the world and represent an engine for the development of society. Republic of Serbia adopted the law on innovative activity that entered into force in 2023, and according to that law, startups, startup is a newly established business company or entrepreneur that develops an innovative product or service and that has the potential fast and large growth. The purpose of this paper is to present the start-up scene in Serbia and to present how the start-up ecosystem is developing and the programs and measures which are support mechanism for startups. The research methodology is an analysis of secondary data from the delaroom.co platform, which is one of the leading platforms for start-ups and which is used by the most developed start-up countries such as Lithuania, Estonia, Latvia, like other documents and programs.*

### KEYWORDS

*Serbia startup, start up eco system, start up legislative*

## INTRODUCTION

The paper highlights the importance of a balanced approach legislative and government support in programs and together with other key elements can create companies which can achieve sustainable growth and competitiveness in the global market. Many factors can influence a start-up company to succeed in the global market and show significant success, not just being innovative or creative. Legislative support is one of the key factors for promoting and encouraging start up eco system. Also set of entrepreneurial skills and knowledge, as well as constant improvement of the product offered on the market and deeply listening and following the needs of customers and consumers, is crucial that every start-up company should follow.

Startups are a very important part of all economies, so governments seek to support innovative startups through different supporting programs and help them grow in the right way. This kind of support mainly goes through a network of institutions, whose important task is to assist startups in all their stages of operation. Supports by laws, policies and regulations are essential for this complex process.

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Startup companies bring a lot of benefits to one country, like opening new jobs, high added-value products and services, increasing tax receipts and even more innovation in existing large corporations (Weiblen, Chesbrough, 2015).

In general, institutions have a strong impact on the growth and development of new business. "Institutions are the rules of the game in a society or, more formally, are the humanly devised constraints that shape human interaction" (Acemoglu, Robinson, 2008). The role of institutions in Growth and development, The International Bank for Reconstruction and Development (The World Bank, Washington, Paper no.10).

The term 'entrepreneurial ecosystem' (Audretsch and Belitski, 2016, Stam, 2015), analogous to the terms 'natural' and 'biological ecosystem', was terminologically set up with the purpose of including elements in the entrepreneurial environment that facilitate the success of entrepreneurs in realizing their own entrepreneurial intentions. Respecting the context of startup entrepreneurship, a frequently used term in the literature is also the startup ecosystem (Fredin, Lidén, 2020, Ojaghi et al., 2019) which represents a community of stakeholders that support the efficient and effective development of startup entrepreneurs. Thanks to the characteristics of innovation and significant potential for achieving rapid growth, startups are a key source of economic growth and employment (Ivanović-Đukić et al., 2019, Steve, Dorf, 2014, Valliere, Peterson, 2009). Isenberg (2010) emphasizes that the entrepreneurial ecosystem is a dynamic concept, continuously evolving based on the interconnectedness of its components. The sustainability of this ecosystem relies on a holistic approach to entrepreneurship, considering the country's geographical, cultural, and social factors that can drive potential growth. However, while the government's role in shaping the entrepreneurial ecosystem is crucial, it cannot single-handedly build it.

Some authors believe that one of the biggest obstacles for growing and surviving of startups in Serbia is the lack of financial resources or procedures, which make access to them difficult (Jovin, 2016, Erić, Đurićin, Pantić, 2014)

## START-UP LEGISLATIVE AND SUPPORT PROGRAMS

Entrepreneurship is acknowledged as a catalyst for innovation, productivity, and job creation, with innovation being particularly crucial for startups to distinguish themselves in a competitive market. Innovation serves as a formidable tool for securing a competitive edge, offering numerous benefits that facilitate the growth, development, and success of startups. Innovative startups face serious obstacles in their innovation processes because of the high costs of innovations, lack of commercial and managerial competencies, and difficulties in cooperating with industrial agents (Franco-Leal, Diaz-Carrion, 2020).

Innovation and startups are crucial themes in contemporary academic discourse, particularly within entrepreneurship, business management, and economics. The intersection of innovation and startups is often explored through the lens of how novel ideas, products, processes, or business models are developed and commercialized by new or existing firms to create value and drive economic growth. Startups face numerous challenges in their innovation efforts, including resource constraints, market uncertainty, and regulatory hurdles. Despite these challenges, startups are uniquely positioned to introduce groundbreaking innovations due to their flexibility, risk-taking propensity, and focus on addressing unmet market needs. The academic literature emphasizes the critical role of supportive policies, access to funding, and robust entrepreneurial networks in enabling startups to navigate these challenges and capitalize on opportunities for innovation.



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The Republic of Serbia adopted a new Law on Innovation activity that entered into force in 2022. The law also regulates the establishment of the register of subjects of the National Innovation System, which implementation began in 2023. year. According to that law, startups, article 22, startup is a newly founded company or entrepreneur that develops an innovative product or service and has the potential for great and large growth, while article 23, spinoff is a startup founded by an existing legal entity with the aim of developing and commercializing innovations.

According to data and analytics provided by Dealroom.co (Table 1), a global leader in the provision of data insights, the year 2024 witnessed the emergence of 279 start-up enterprises within Serbia, but only 3 startup companies were open in 2023 and in the 2024 are established 4 startup companies. Among these, Serbian startup eco system haven't achieved the status of 'unicorns,' a term denoting start-up companies that have reached or exceeded a valuation of 1 billion USD but its predicted that till the end of 2024 there will be 1 Serbian unicorn. These start-up entities are located across the country, with a significant concentration in Belgrade. Substantial number of these enterprises are located within business incubators or accelerators, underscoring the unique role these subjects play in fostering entrepreneurial growth and innovation within the Serbia.

Table 1. Established startups and venture Capital Fund Investment

SERBIA	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
No of established startups	10	20	12	12	25	21	30	38	21	3	4
Venture Capital Fund Investment	4	15	9	6	17	14	18	21	6	2	0

Source: Dealroom.co (2024)

State support and development of the start-up system and start-up companies in Serbia is realized through the Innovation Fund, which was established in 2011. The basic idea of the foundation of this fund is to support the development of innovation through appropriate financial, technical and advisory support instruments to empower innovative enterprises and strengthen the link between research and development on the one hand and the business sector on the other, respecting the highest ethical, financial and business standards and practices.

The Fund aims to improve the links between science, technology and the economy and contribute to encouraging the development of innovative entrepreneurship by:

- supporting innovative entrepreneurship, especially in the early stages of development;
- connecting scientific research organizations and private companies for the development and commercialization of innovations;
- enabling new products, technologies and services to enter the market;
- establishing long-term institutional support of the state for innovative entrepreneurship in cooperation with international financial institutions, organizations, donors and the private sector.

Within the framework of this Innovation Fund, several programs have been developed in order to support start-up companies in different stages of existence, or in different stages of operation (Table 2).



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Table 2. Programs for support start-up companies

PROGRAM NAME	Number of applicant	Supported project	Total value of projects (in €)	Approved funds (in €)
MINI GRANTS PROGRAM	2.258	307	35.087.445	25.210.869
MATCHING GRANTS PROGRAM	700	92	42.606.107	26.968.389
COLLABORATIVE GRANT SCHEME PROGRAM	445	77	33.576.018	22.626.286
INNOVATION VOUCHER	1.518	1.267	9.504.052	6.345.479
TECHNOLOGY TRANSFER PROGRAM	97	77	1.564.374	1.564.374
PROOF OF CONCEPT	521	93	1.752.077	1.752.077
COVID-19	229	12	552.793	468.907
SMART START	226	58	2.191.826	1.988.263
KATAPULT	403	62	20.422.193	7.490.411
SERBIA VENTURES PROGRAM	5	2	10.000.000	10.000.000
SERBIA VENTURES BIOTECH PROGRAM	6	1	5.000.000	5.000.000
REGIONAL STARTUP CENTER CAPACITY BUILDING	23	23	980.307	980.307
GOVTECH PROGRAM	47	20	1.751.546	1.176.976
<b>TOTAL</b>	<b>6.478</b>	<b>2.091</b>	<b>164.988.738</b>	<b>111.572.338</b>

Source: [www.inovacionifond.rs](http://www.inovacionifond.rs)

- Mini Grants Program – is aimed at private young enterprises which are engaged in the development of technological innovations with a clear market need. This Program is designed to support the survival of companies during the critical phase of research and development and to allow Serbian entrepreneurs to grow effective business capacities through which they will launch their innovations on the market.
- Matching Grants Program – is designed for enterprises looking for significant financial resources for the commercialization of research and development. The Program has the goal to stimulate further knowledge-based development of innovative enterprises, encourage establishment of partnerships with international partners and to increase the number of technology-based companies.
- Collaborative Grant Scheme Program – is designed to incentivize private sector companies and public sector R&D organizations to engage in joint development projects with the goal of creating new products and services, as well as innovative technologies with significant future impact and market potential.
- Katapult – is a technological development and innovation support mechanism intended for startups in the early stages of development and market positioning (Ideation) and startups with proven market traction (Scale-up) that aim to accelerate their growth and secure private external investments.



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- Smart Start program – is to support highly promising teams in their efforts to validate their business ideas and demonstrate future usefulness of their technology through development of a first prototype or a minimum viable product (MVP).
- Technology Transfer Program – provides support to R&D institutions in order to increase their ability and efficiency in the commercialization of inventions
- Serbia Ventures (AI) – is designed to incentivize qualified individuals, private investors and institutions to engage in financing startups with high growth potential which are developing innovative products in the field of artificial intelligence by incorporating venture capital fund in Serbia.
- Serbia Ventures (Biotech) – is designed to incentivize private investors, high net worth individuals and institutions to engage in financing biotechnology startups with high growth potential by incorporating venture capital fund in Serbia

## VENTURE CAPITAL FUNDS SERBIA

Start-ups are the strongest manifestation of entrepreneurship and innovation (Giezzi, 2020). They are distinguished from other business ventures by dynamic market expansion executed most of using modern technologies, such as information and communication (Barandiaran-Irastorza, Peña-Fernández, Unceta- Satrustegui, 2020). Their rapid development is guaranteed by unique know-how and investor financial support (business angels; venture capital). Due to the exceptional originality of business ideas, high demand for capital, and intensive pace of development, start-ups are high-risk ventures, intended for visionaries and entrepreneurs with above-average levels of risk acceptance. Krejci (2015) says, a startup is a new and temporary company that has a business model based on innovation and technology.

The involvement of venture capital institutions (VCs) in the development of startups is crucial for the growth and success of startups. In addition to providing critical financial support to their investee startups, VCs actively play a professional role in helping these companies establish closer ties with various parties including upstream and downstream business partners and consumers (Macmillan et al., 1989, Steier, Greenwood, 1995, Hsu, 2006). VCs also provide a full range of value-adding services to startups, such as business modelling, market development, corporate governance, as well as refinancing and growth strategies (Gorman, Sahlman, 1989, Busenitz et al., 2004, Park, Steensma, 2012, Vanacker et al., 2013).

VC funds most often focus on investments related to startups. Venture capital funds are entities that raise funds for investment in non-public enterprises at the earliest stages of development (Zasepa, 2013). Capital, the source of which are venture capital funds and private equity funds, is equated with venture capital. The market of these funds brings together entities willing to invest their cash surpluses in innovative, risky enterprise projects in order to achieve extremely high profits on the invested capital. Venture capital funds is undoubtedly donor of cash capital, always correlated with high financial risk. In dictionary terms, the term venture capital has been defined as „risk capital”, engaging cash in a very risky venture, which, if successful, contributes to the investor receiving an excessively large profit (Wallace, Flynn, Collins Business English Dictionary, Sorger Kolon, 1990)

As of 2024, Serbia is home to 15 venture capital (VC) funds that have invested in various Serbian startup companies (Table 3). The most prominent player in the Serbian startup ecosystem is South Central Ventures, with investments in six startup companies across the country.





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Table 3. Top 15 Enterprise VC Funds in Serbia

Investor	Enterprise Serbia investments
<a href="#">South Central Ventures</a>	6
<a href="#">Eleven Ventures</a>	3
<a href="#">SeedBlink</a>	2
<a href="#">Point Nine</a>	2
<a href="#">Version One Ventures</a>	2
<a href="#">Earlybird Venture Capital</a>	2
<a href="#">Credo Ventures</a>	2
<a href="#">Kirov Group Ventures</a>	1
<a href="#">Crew Capital</a>	1
<a href="#">Catalyst Romania</a>	1
<a href="#">ICT Hub Venture</a>	1
<a href="#">Underline Ventures</a>	1
<a href="#">Moonfire Ventures</a>	1
<a href="#">Accel</a>	1
<a href="#">Euroventures</a>	1

Source: <https://shizune.co/investors/enterprise-vc-funds-serbia>

## CONCLUSION

One startup manager tells me in one research "Innovation is not just a luxury for startups; it's a necessity" I added to it with the phrase "support from the state in programs and measures is not a luxury, it is a key point in the development of the start-up ecosystem.

Although Serbia is the only country in the Western Balkans to have enacted a startup and innovation law, defining key concepts like startups, spin-offs, and support measures for startup companies, this legislation is merely a starting point for the development of its startup ecosystem. The ecosystem is valued at €2.1 billion, and with 279 startup companies, Serbia is performing well compared to other Western Balkan countries. However, it still falls short of its full potential. For comparison, Croatia, which is half the size of Serbia, has 469 startups, and its ecosystem is valued at €5.8 billion, indicating significantly greater growth and development potential.

In terms of venture capital, Croatia has 34 VC funds with considerably more investments, with the leading VC fund, Fil Rouge Capital, holding 34 investments in Croatian startups. While Serbia's innovation law is a solid foundation for progress, it needs to be further refined. Areas for improvement include extending support for startup longevity, attracting talent to establish startups in Serbia, and encouraging innovation in biotechnology and agriculture. Additionally, the €111 million allocated over 13 years is insufficient to support a sector that could drive Serbia's economic growth.

Future research should focus on segmenting startup companies by industry and assessing whether Serbia is an attractive destination for top startup talent.



## Conference Proceedings

## REFERENCES

- Acemoglu, D., Robinson, J. (2008). The role of institutions in growth and development, *Review of Economics and Institutions*, 1(2), 1-33.
- Audretsch, D., Belitski, M (2016). Towards an entrepreneurial ecosystem typology for regional economic development: The role of creative class and entrepreneurship. *Regional studies*, 55(1), 1-22.
- Autio, E., Thomas, L.D.W. (2014). Innovation Ecosystems and Growth in Startups. In: *The Oxford Handbook of Innovation Management*, Chapter 11( pp.1-28). Oxford University Press, Oxford.
- Barandiaran-Iratorza, X., Peña-Fernández, S., Unceta- Satrústegui, A. (2020). The Archipelago of Cultural and Creative Industries: A Case Study of the Basque Country. *Economies*, 8(1), 21.
- Blank, S., Dorf, B. (2012). *The startup owner's manual: The step-by-step guide for building a great company*. Wiley, New Jersey.
- Cockayne, D. (2019). What is a startup firm? A methodological and epistemological investigation into research objects in economic geography. *Geoforum*, 107, 77-87.
- Christensen, C.M. (1997). *The Innovator's Dilemma: When New Technologies Cause Great Firms to Fail*. Harvard Business School Press, Boston.
- deFaria, V.F., Santos, V.P., Zaidan, F.H. (2021). The Business Model Innovation and Lean Startup Process Supporting Startup Sustainability. *Procedia Computer Science*, 181(6), 93–101.
- Franco-Leal, N., Diaz-Carrion, R. (2020). A dynamic analysis of the role of entrepreneurial ecosystems in reducing innovation obstacles for startups. *Journal of Business Venturing Insights*, 14, e00192.
- Ghezzi, A., Cavallo, A. (2020). Agile Business Model Innovation in Digital Entrepreneurship: Lean Startup Approaches. *Journal of Business Research*, 110, 519–537.
- Weiblen, T., Chesbrough, H. W. (2015). Engaging with Startups to Enhance Corporate Innovation. *California Management Review*, 57(2), 66-90.
- Chesbrough, H. (2003). *Open Innovation: The New Imperative for Creating and Profiting from Technology*. Harvard Business School Press, Boston.
- Jesemann, I. (2020). Support of startup innovation towards development of new industries. *Procedia CIRP*, 88, 3–8.
- Jovin, S. (2016). Financing obstacles of small enterprises – empirical analysis in the republic of Serbia. *Teme – Journal of Social Sciences*, 40(3), 1101-1118.
- Erić, D., Djurićin, S., Pantić, O. (2014). Microcrediting of SMEs in the Republic of Serbia. Szabo, A. ed. Final workshop report on "Microfinance for SMEs in the Black Sea economic cooperation region". (pp. 138-157). Bucharest, Romania: BSEC & Konrad Adenauer Stiftung.
- Kaplan, R.S., Norton, D.P. (2001). *The Strategy-Focused Organization*. Harvard Business School Press, Boston.
- Kohler, T. (2016). Corporate accelerators: Building bridges between corporations and startups. *Business Horizons*, 59(3), 347-357.



## Conference Proceedings

Krejci, M., Strielkowski, W., Cabelkova, I. (2015). Factors that influence the success of small and medium enterprises in ICT: A case study from the Czech Republic. *Business: Theory and Practice*, 16(2), 304-315

Paoloni, P., Modaffari, G. (2018). Female-Owned Innovative Startups in Italy: Status Quo and Implications. *Administrative Sciences*, 8(4), 66.

Perin, B. (2015). *A revolução das startups: o novo mundo do empreendedorismo de alto impacto*. Alta Books, Rio de Janeiro.

Spender, J.C., Corvello, V., Grimaldi, M., Rippa, P. (2017). Startups and open innovation: A review of the literature. *European Journal of Innovation Management*, 20(1), 4–30.

Flynn, W. (1990). *Collins Business English Dictionary*. Sorger Kolon, Budapest.

Zasępa, P. (2013). *Zarządzanie ryzykiem portfela przez fundusze venture capital oraz private equity*. CeDeWu sp. z o.o, Warsaw.

[https://app.dealroom.co/metrics/ecosystem/f/year\\_min/anyof\\_2015/rows/anyof\\_~startups\\_count~\\_~unicorns\\_count~\\_~future\\_unicorns\\_count~\\_~years\\_funding\\_number~\\_~years\\_funding\\_amount~\\_~years\\_exits\\_amount~\\_~employees\\_number~\\_~current\\_year\\_ecosystem\\_value~\\_~years\\_new\\_funds~\\_~startups\\_count\\_founded\\_since\\_2010~/location/anyof\\_hungary\\_belarus\\_austria\\_serbia\\_switzerland\\_germany\\_andorra\\_bulgaria\\_~united\\_kingdom~\\_france\\_montenegro\\_luxembourg\\_italy\\_denmark\\_finland\\_slovakia\\_norway\\_ireland\\_spain\\_malta\\_ukraine\\_croatia\\_moldova\\_monaco\\_liechtenstein\\_poland\\_iceland\\_~san\\_marino\\_1~\\_~bosnia\\_and\\_herzegovina~\\_albania\\_lithuania\\_~north\\_macedonia~\\_slovenia\\_romania\\_latvia\\_netherlands\\_russia\\_estonia\\_belgium\\_~czech\\_republic~\\_greece\\_portugal\\_sweden\\_~isle\\_of\\_man~\\_~faroe\\_islands~\\_~gibraltar\\_1~?applyDefaultFilters=true&sort=-startups\\_count&id=49758](https://app.dealroom.co/metrics/ecosystem/f/year_min/anyof_2015/rows/anyof_~startups_count~_~unicorns_count~_~future_unicorns_count~_~years_funding_number~_~years_funding_amount~_~years_exits_amount~_~employees_number~_~current_year_ecosystem_value~_~years_new_funds~_~startups_count_founded_since_2010~/location/anyof_hungary_belarus_austria_serbia_switzerland_germany_andorra_bulgaria_~united_kingdom~_france_montenegro_luxembourg_italy_denmark_finland_slovakia_norway_ireland_spain_malta_ukraine_croatia_moldova_monaco_liechtenstein_poland_iceland_~san_marino_1~_~bosnia_and_herzegovina~_albania_lithuania_~north_macedonia~_slovenia_romania_latvia_netherlands_russia_estonia_belgium_~czech_republic~_greece_portugal_sweden_~isle_of_man~_~faroe_islands~_~gibraltar_1~?applyDefaultFilters=true&sort=-startups_count&id=49758)

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<https://shizune.co/investors/enterprise-vc-funds-serbia>



## Conference Proceedings

# GEN Z AND WORK HABITS, LITERATURE RESEARCH AMONG CROATIAN STUDENTS

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Etienne Šajn<sup>2</sup>

DOI: 10.5937/EEE24056B  
JEL: J24, E24, O15  
Review Scientific Paper

### ABSTRACT

*This paper will analyze the GEN Z and their work habits. How to motivate GEN Z to gain work habits, and how to manage the GEN Z to achieve the best work results. As a preparation for this topic, a literature review was made, and we will also have the opportunity to see if there is any difference between GEN Z and the Millennials work habits. This literature research will be a start point for future researches that are planned on this topic to be researched among Croatian student members of the GEN Z.*

### KEYWORDS

*GEN Z, work, zoomers, work habits, generation differences*

## INTRODUCTION

GEN Z, the generation born between 1997 and 2011, also known as Zoomers. This generation is very connected to the new technologies and the digital type of work. In this paper we want to research how to work with this new generation that is now entering the working market. As Kirchmayer et al. (2020) explain in their paper, the GEN Z are seen as the digital generation, as they all are fluent with the digital technologies but also they are expected to become more educated than any of the before generation. Kirchmayer et al. (2020) found out that since today, the main topic of interest by the researches were mostly the next categories:

- i) the factors that make this generation different,
- ii) the digital fluency of this generation,
- iii) the purchasing preferences,
- iv) the connection of the educational system and the position of the teachers, and
- v) how GEN Z will affect the business aspects and the work of the HR. Taking in consideration all this, we can line up the importance of the research conducted since today and as the topic is still not explored very much, we find space for new researches with Croatian students. GEN Z is motivated by more money, advancement and meaningful work (Kirchmayer et al., 2020).

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As Ngoc et al. (2022) explain, for years the Millennials were in focus of the researches, but now a day, things are changing, because the GEN Z is entering the work space. Analyzing the literature, Ngoc et al. (2022) pointed out, that GEN Z came to the World during economic crises, high unemployment, and the rapid growth of the Internet, this is why, they are more connected to devices versus their parents, they are less brand loyal but also when talking about buying something, GEN Z are very influenced by others opinion on social networks. They as generation, when talking about work, highly appreciate work and life balance, frequent feedbacks but also the connection between human and technology. Beside this, Ngoc et al. (2022) found that GEN Z is motivated by their salary, bonuses and other benefits, which is useful to know when taking in consideration the employment of a GEN Z.

Chareewan et al. (2020) conducted a research between the Croatian Millennials and GEN Z, as they explain; both generations are fully digital, born during the digital world age. Millennials are present on the digital platforms, and start having families later that their parents. They expect to enjoy their work; they value equality, fair and tolerance. Millennials search for a work place that has a mission, but also are more loyal to managers and co-workers that to organizations. On the other hand, Chareewan et al. (2020) pointed out that the GEN Z is mostly based on the technologies and they have the fear to miss out something, this is why they are so present on social networks. They are the new addition to the labor market. On one hand, they like to work with co-workers, but on the other hand, they like to achieve results by them self (Chareewan et al., 2020). As explained by Chareewan et al. (2020), GEN Z work expectations in Croatia are not much higher that the Millennials ones, but as a preparation for the work atmosphere, they advice to create workshops to better understand the differences between the two generations, from their point of view, this will help the work climate to be better.

GEN Z is different from previous generations, this generation is surrounded by modern technologies and their way of talking is throughout pictures (Hilcenko, 2020). One other important thing that Hilcenko found out is that the attention of GEN Z is shorter than the previous generation; the 45 minute classes that were introduced 500 years ago, in this present time are not any more possible, because the attention of this generation cannot be so long and it has to be divided with more brakes. Modern students spent twice as much time with modern technologies that rather read some books (Hilcenko, 2020). Hilcenko quoted Benjamin Franklin, were only if we involve someone in the work he will understand, and this is also with the GEN Z, they must be involved in the work to better understand what is expected from them. Almost 80% of the young belong to a visual type, so if you want to explain something, you have to draw it (Hilcenko, 2020).

Because of the global period they were raised, the GEN Z is dubious about five year projects but also afraid of tomorrow things to do (Tulgan, 2013). Tulgan thinks that the GEN Z will have more knowledge about the far destinations but they will not be as adventurous as the Millennials. Something that will attract the GEN Z to work will be the continuous reeducation about the work. GEN Z is motivated by short term projects and the communication with them should be short, clear and open (Tulgan, 2013).

Ružić et al. (2022) said that companies are now fighting for new employees that are coming from the GEN Z. They also pointed out, that today researches have been made regarding the work environment and GEN Z, but there is still plenty of space, especially on the Croatian work market. According to Ružić et al. (2022) on the global market there will be around two billion members of the GEN Z. They conducted their research among students in Pula, Croatia. Companies with strong employer branding and with an own identity may attract the GEN Z (Ružić et al., 2022). When taking in consideration working in a domestic company, authors said that students preferred a company where there is a good work environment but also a salary above average. Ružić et al. (2022) also found out that today employees are not so loyal anymore and they are more ready to change jobs frequently.



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Pekica (2020) made a research about the work expectations of GEN Z in Croatia, on the other hand, Pekica pointed out that almost half of the employers are worried that they will not be able to retain the new generation on a long period in one single company. Bačelić (2023) conducted a research among the retail workers and found out that every generation is less loyal. When talking about commitment to work, Millennials have a higher commitment than GEN Z (Bačelić, 2023). Raguž (2023) made an interesting research about feedback and GEN Z, and as she defined, feedback does not influence the satisfaction with work, positive or negative feedback will not influence the opinion of the members of GEN Z. Nenadić (2022) on the other side, said that GEN Z preferred real-time feedback and in-person approach. Companies now a day invest a lot of time on boarding processes because they found out new generation like this way of approach, which was also tested and proved by Nenadić (2022).

Bejtrovsky (2016) conducted a large research among workers in the Czech Republic, and found out that the members of the GEN Z are not good listeners and have a lack of interpersonal skills. They have difficulties in communication in person with others because they are used to do it digitally. The GEN Z is also known as the "silent" generation because of the massive digitalization (Bejtrovsky, 2016). Bejtrovsky (2016) in his research pointed out the importance of heterogeneous generation working teams, finding that both Millennials and GEN Z are more productive working with colleagues from different generations. All generations must be ready to learn important topics before starting a new job: interpersonal skills (assertiveness, empathy, respect and tolerance), communication and presentation skills, teamwork, willingness to share, work ethics and problem solving thinking (Bejtrovsky, 2016). Bejtrovsky (2016) said that in the 21<sup>st</sup> century we will have the largest number of generations working together, almost four generation working together, because of our life period that has been longer in this century.

Martinović et al. (2023) made a research about the use of sharing economy (as example eBay, UPwork, UBER and similar) between generations. Younger generations are more used to online buying (Martinović et al., 2023). The GEN Z is willing to pay more for a sustainable and green product. When talking about sharing economy, both generations, Millennials and GEN Z, read the reviews and care about others opinion, also found by Martinović et al. (2023). Famous people and influencers can motivate both Millennials and GEN Z to think about a product, but in larger numbers it will more motivate GEN Z members (Martinović et al., 2023).

Taking in consideration the researches conducted both in Croatia but also in the World, we found out that the topic of GEN Z and work habits is still free to be researched because there is plenty of space in the topic to be explored and we decided to proceed with our research, this paper will be used as a preparation for the next researches we plan to conduct.

## **PREVIOUS RESEARCHES AS A BASIS FOR NEXT RESEARCHES IN CROATIA**

As a starting point we decided to research the research made by Ozkan et al. (2015) and to enrich it in future with fresh Croatian data among Croatian students. As they explain, GEN Z character and mindset are different from previous generations. Their research was made among students in Turkey. The GEN Z is also known as the mobile generation, because they were raised on digital mobile devices (Ozkan et al., 2015). Also the authors pointed out, that the GEN Z's are self-confident, happy and likes social activities. The goal of their research was to find out the working perception of the GEN Z individuals. Ozkan et al. (2015) found out that the GEN Z is open to work in a group, social environment is important for a work place, they like to have a financial freedom and security for the future and they love freedom.



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Social environment is important for GEN Z to create a good work spirit. Traditional and cultural values are not any more so important to this generation. At this time, Millennials have more sense of leadership, and work is a way to make profit for them but also a way to improve in life (Ozkan et al., 2015). Both Millennials and GEN Z like to work with people who enable them to give the best. Ozkan et al. (2015) made a questionnaire of 6 questions to question the Turkish students on a scale 1 to 5, 1 lowest, 5 highest; the questions were the following:

- i) Social media in the workplace is very important to me,
- ii) Working means to fulfil a religious duty for me,
- iii) Happy to be where I tried to work is a priority for me. If I am not happy in work place, I will leave my job easily,
- iv) Working means that to secure the future, to ensure economic freedom, and livelihoods, to earn money to get what I want, to provide a better life for my children, (iiii) Working means that to realize my dreams, to satisfy my personal tastes and hobbies and sightseeing fun,
- v) Working means that to gain information, to learn new things and develop myself, to produce something good. Throughout this questions we want in future to make a Croatian version of the survey and enlarge it with topics close to the GEN Z in Croatia and regarding the work habits. As Ozkan et al. (2015) say, working with GEN Z will slightly change the way managers and the business work are now a day working, having them to adjust to the new generation and their way of thinking.

## RESEARCH AMONG WORLDWIDE AND CROATIAN STUDENTS

Some other really useful researches were made among students in the World. We would like to point out the research made by Kirchmayer et al. (2020) where a research was made among 235 students in Slovakia. They based their research on a work made by Kultalahti and Viitala, who used to research the perceptions of GEN Y, and Kirchmayer et al. (2020) modified the research to obtain the data for GEN Z. They wanted to line up the factors that motivate GEN Z in their work habits, and their started from the research question: "What are the factors that motivate GEN Z?". Even if they new GEN Z is a fully digital generation, Kirchmayer et al. (2020) insisted in conducting the research on a paper pencil bases.

They used a story telling method where they presented a story about a fictive character that is motivated at work and is happy about his work and they asked the students what makes that character motivated and enthusiastic at work. The students pointed out different factors that made the fictive character motivated about work.

At the first place was that he was really enjoying his work and what he was doing.

At the second place the answers were toward the intention that the character was happy with his work colleagues.

On the third place was reward, so that he was adequately rewarded for his work. Achievement and career advancement were the next ones. A good work place, a good leader, interesting work, a good day and private happiness were also pointed out by the students as motivators for a positive attitude toward a quality working place (Table 1).



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Table 1. Demonstrating what motivates students in work

Factors	Nominal item prevalence	% of items (N=665)	% of respondents (N=235)
Enjoys work	152	22.9%	64.7%
Co-workers	86	12.9%	36.6%
Reward	81	12.2%	34.5%
Achievement	79	11.9%	33.6%
Career advancement	28	4.2%	11.9%
Personal development	27	4.1%	11.5%
Recognition	27	4.1%	11.5%
Workplace	24	3.6%	10.2%
Leadership	22	3.3%	9.4%
Work of interest	20	3.0%	8.5%
Good day	17	2.6%	7.2%
Private happiness	16	2.4%	6.8%
Impact	14	2.1%	6.0%
Remaining factors total (including freedom at work, work load, work-life balance, flexible working time, etc.)	72	<1.5% each item	<4.3% each item

Source: Kirchmayer et al. (2020)

Ngoc et al. (2020) also conducted a literature review as a preparation for their work and after conducted a research among Vietnamese students. They found out twenty-three published papers talking about GEN Z and their work habits and conducted researches, and only three of them adopted a method face to face interview. They performed an interview with final year students in Vietnam about their work habit. Using a questionnaire and focus groups they questioned the students. The students were divided in two groups, group A students with no work experience and group B students with work experience. What we found out, Ngoc et al. (2020) used also the method and questions created by Ozkan et al. (2015), the same method we would like to perform after this literature review paper among Croatian students. Ngoc et al. (2020) in their research among Vietnamese students found out some important motivating factor, first of all, for GEN Z is important to have a friendly work atmosphere, also sincerity is important to them.

The next important factors are a clean, open and nice working place. There must be a balance between work and life, GEN Z is motivated with work when they have a balance, if possible they prefer flexible working time and part-time work. Also GEN Z, if possible, supports the idea of working some days of the week from home, not all the time from office. Ngoc et al. (2020) during their research pointed out that individuals of the GEN Z are concerned about the irresponsible activities that some companies are conducting and this could motivate them not to choose this kind of company during their work selection. Something interesting they found out is that GEN Z sees them self as really important members of the company that are irreplaceable and Ngoc et al. (2020) defined it as an unrealistic expectation. Something we can expect from GEN Z as found from the research from Ngoc et al. (2020) is that GEN Z members will easily change their job before they decide to stay in one place. A well known company is a motivation for GEN Z to apply for their job. The study conducted by Ngoc et al. (2020) shows that GEN Z is motivated by a positive work atmosphere, strong ethics and sincerity. In conclusion they pointed out that GEN Z, comparing to previous generations, have higher expectations from work, work habits,





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salary, bonuses and other motivators that at the very beginning are set much higher than expected and this must be understood by the managers when employing a GEN Z member.

Chareewan et al. (2020) conducted a study about the work expectations in Croatia between Millennials and GEN Z. They made the research among students in Croatia. As they wanted to understand how to find the right persons for the right job; and how to motivate them to stay at this job. Reviewing the literature, they pointed out there is a difference in approaching and also managing the two generations, because the communication techniques generations understand are different.

Chareewan et al. (2020) set different hypothesis:

- first that GEN Z has higher daily work expectations than Millennials,
- second that GEN Z has higher career goals than Millennials,
- third that gender is a significant moderator of the relationship between Millennials and GEN Z and daily work expectations, with females enhancing the effect to a greater extent than males and,
- fourth that gender is a significant moderator of the relationship between Millennials and GEN Z and career goals, with females enhancing the effect to a greater extent than males,
- fifth that desired occupation is a significant moderator of the relationship between Millennials and GEN Z and daily work expectations, with desired private industry jobs enhancing the effect to a greater extent than government jobs,
- sixth that desired occupation is a significant moderator of the relationship between Millennials and GEN Z and career goals, with desired private industry jobs enhancing the effect to a greater extent than government jobs,
- seventh that family financial satisfaction is a significant moderator of the relationship between Millennials and GEN Z and daily work expectations, with greater financial dissatisfaction enhancing the effect to a greater extent than financial satisfaction and
- eighth that family financial satisfaction is a significant moderator of the relationship between Millennials and GEN Z and career goals, with greater financial dissatisfaction enhancing the effect to a greater extent than financial satisfaction.

After setting this hypothesis, Chareewan et al. (2020) conducted the survey also on a paper and pencil basis. A total of 333 surveys were received back and analyzed. First they analyzed the origin of the students, and 4/5 of the students were Croatian nationality. In their results H1 and H2 were not supported, also H3 was rejected, H4 was supported, H5 was rejected, and H6, H7 and H8 were rejected also. So they conclude, only the hypothesis fourth that gender is a significant moderator of the relationship between Millennials and GEN Z and career goals, with females enhancing the effect to a greater extent than males has been confirmed by the research. As explained by Chareewan et al. (2020) the study conducted among Croatian students, at that time showed not much difference between the two generations, but from managers it is expected to understand both generations and motivate them to work together and solve the problems in a team way. Also Chareewan et al. (2020) pointed out that in Croatia non many studies have been conducted so there is still free place for new studies.

Ružić et al. (2022) conducted a digital research among Croatian students; they received a total of 220 fully completed questionnaires by members of the GEN Z. The authors prepared a 25 item questionnaire, based on two main research questions. The first question took in consideration what is important to attract members of the GEN Z to work and the second question took in consideration the gender; to research if there are any differences between genders in attracting them to work. They used a scale from one to seven in the questionnaire. What the



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authors pointed out, the next things are important for the members of the GEN Z: to receive a good career experience, to be in a happy work environment, to have good promotion opportunities, to work in a secure place, also for GEN Z is important to have a good relationship with colleagues. The authors defined that attractiveness factors are more important to female GEN Z members. Also something Ružić et al. (2022) pointed as a fact, the students who had grades below the average preferred a working place with more fun respectfully to students who had grades above the average.

Ho et al. (2020) made a research about how to attract GEN Z members to small and medium enterprises because as they pointed out, GEN Z members prefer to work for global multinational companies. Ho et al. (2020) used the Job Characteristic Model developed to find out five most important areas in a job. The first is the Task Variety, and refers to the different activities and skills that are used in a job. The second is the Task Significance, or how important a job is for the life of other people. The third is Autonomy, taking in consideration the freedom an individual has in completing the job. The last is Feedback, this is important for the employee to understand how the job was carried and understand the results of someone work. In their study Ho et al. (2020) found out that those tasks are important to GEN Z members in Malaysia. As Ružić et al. (2022) also Ho et al. (2020) conducted a digital research among GEN Z members to better understand the characteristics of GEN Z in Malaysia.

Rampen et al. (2023) conducted a recent research about the most important factors how to employ a GEN Z. They also conducted a literature review to better understand the topic as we in this paper. The review was made out of twenty articles they took in consideration. As Rampen et al. (2023) explained, we are today facing the Fourth industrial revolution, and thanks to the digital knowledge of the Millennials and GEN Z, those two generations easily adapt to this revolution. GEN Z members expect to work in an atmosphere where they can personally and professionally grow. There must be a clear compensation system, so that GEN Z members understand how their financial compensation will grow.

As Rampen et al. (2023) explained, there are four major areas of interest to better understand the better performance (Figure 1):

- i) job satisfaction,
- ii) work motivation,
- iii) leadership team and
- iv) organizational culture.

What Rampen et al. (2023) pointed out, is that GEN Z are different from previous generations, they bring their unique perspective and they seek jobs that are aligned with their values. A good workplace satisfaction is really important for GEN Z members. As explained by Rampen et al. (2023) there must be a clear compensation plan, GEN Z members want to know the financial benefits of working in a company. Training and job promotions motivate GEN Z. Members of GEN Z fully understand the importance of training and want to know how training will result in their career promotion. GEN Z members want to have the possibility to have power so that they can influence, be the decision making person and have the autonomy in work.

When taking in consideration management, managers managing GEN Z members must be transparent and open, managers that are sincere and genuine gain the preference of GEN Z members. Managers must be collaborative and must create a work inclusive atmosphere, this is respected by the GEN Z. Also managers that inspire cooperation; different point of views and give the opportunity everyone to be heard, get the respect of GEN Z members. As a conclusion Rampen et al. (2023) defined that GEN Z members can adapt to new teams, they are ambitious and can make an excellent asset in companies today.

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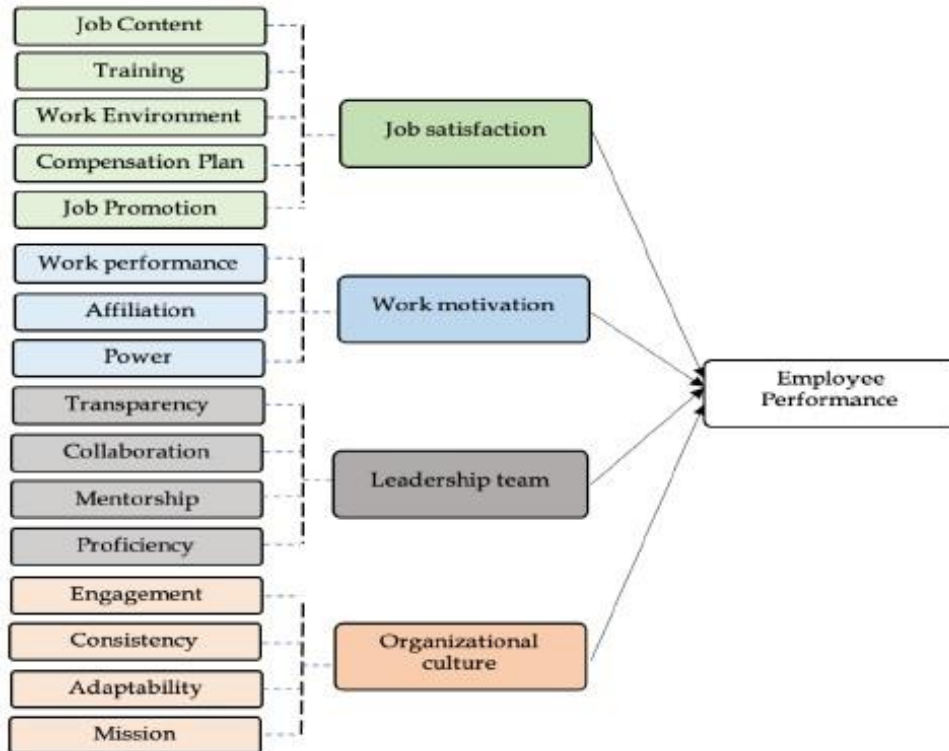


Figure 1: GEN Z Employee Performance  
Source: Rampen et al. (2023)

## CONCLUSION FOR NEXT RESEARCHES

After analyzing 15 papers we can confirm that the topic GEN Z and work habits has still plenty of space to be explored in Croatia among young ones. GEN Z members, as different authors pointed out, are motivated by a positive working place, good atmosphere, good relations between colleagues, but also are motivated by working in companies that invest in trainings and also that have a clear pay scale and a possibility of advancement in career. Taking in consideration the recent researches made in Croatia among the GEN Z (Chareewan et al. 2020, Ružić et al. 2022) our planed research will be a continuation of the researches made and will enrich the knowledge about the GEN Z and work habits in Croatia. The next step of this paper is the conduction of a research among Croatian students based on the research made by Ozkan et al. (2015), the research will upgrade their model with fresh Croatian data.

Also other authors are invited to continue researching the topic of GEN Z and work habits, as today we witness more and more GEN Z members entering the labor market and managers in Croatia not dealing well with the expectations of GEN Z members. For a better collaboration between colleagues, especially members of different generations like Millennials and GEN Z, there must be a good understanding of the motivation of GEN Z members and their way of understanding the job. As found from the literature, different motivations motivate Millennials and GEN Z members. Millennial managers are invited to read our paper to get an overview of the current situation in Croatia and in the World on the topic of GEN Z members and their work habits.



## Conference Proceedings

## REFERENCES

- Bačelić, M. (2023). Differences in work engagement and organizational commitment in retail work of Croatian generational cohorts (Doctoral dissertation, RIT Croatia).
- Bejtkovský, J. (2016). The employees of baby boomers generation, generation X, generation Y and generation Z in selected Czech corporations as conceivers of development and competitiveness in their corporation. *Journal of competitiveness*, 8(4), pp. 105-123.
- Chareewan, S., Grunhagen, M., Pološki Vokić, N., Dlačić, J. (2020). Differences in work expectations of generation Y and generation Z: An empirical investigation in Croatia. *Journal of Business, Industry and Economics*, 25, pp. 1-32.
- Hilčenko, S. (2020). How Generation "Z" Learns Better?. *European Journal of Social Science Education and Research*, 7(1), pp. 01-16.
- Ho, T. C., Choo, L. S., Teo, P. C., Kaliappen, N. (2020, November). Attracting Gen Z to small and medium enterprises (SMEs): A view through the Job Characteristic Model. *International Conference on Decision Aid Sciences and Application (DASA), Proceedings*, pp. 142-145.
- Kirchmayer, Z., Fratričová, J. (2020). What motivates generation Z at work? Insights into motivation drivers of business students in Slovakia. *Proceedings of the Innovation Management and Education Excellence Through Vision*, 6019, 6030.
- Nenadić, K. (2022). Gen Z Onboarding Experiences and Career Intentions (Doctoral dissertation, RIT Croatia).
- Nguyen Ngoc, T., Viet Dung, M., Rowley, C., Pejić Bach, M. (2022). Generation Z job seekers' expectations and their job pursuit intention: Evidence from transition and emerging economy. *International Journal of Engineering Business Management*, 14, 18479790221112548.
- Martinović, M., Barac, Z., Pirić, V. (2023). Attitudes and behaviors of the young generations in the context of the sharing economy concept in Croatia. *Zbornik Radova Ekonomski Fakultet u Rijeka*, 41(2), 521-548.
- Ozkan, M., Solmaz, B. (2015). The changing face of the employees—generation Z and their perceptions of work (a study applied to university students). *Procedia Economics and Finance*, 26, pp. 476-483.
- Pekica, G. (2020). Expectations of Generation Z When Entering the Job Market in Croatia. *Theses*.
- Rampen, D. C., Pangemanan, A. S., Mandagi, D. W. (2023). The X-factors behind Gen Z employee performance: A systematic review. *Jurnal Mantik*, 7(2), pp. 668-680.
- Ružić, E., Benazić, D., Paliaga, M. (2023). Employer Branding: An Investigation Into the Differences in Perception of the Attractiveness Dimensions Among Generation Z Members in Croatia. *Finance, Economics and Tourism-FET, Conference Proceedings*, pp. 29-47.
- Raguž, N. (2023). Impact of Feedback on Intrinsic Motivation and Persistence in Generation Z (Doctoral dissertation, RIT Croatia).
- Tulgan, B. (2013). Meet Generation Z: The second generation within the giant "Millennial" cohort. *Rainmaker Thinking*, 125(1), pp. 1-13.



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# ANALYSIS OF PUBLIC DEBT DYNAMICS OF THE REPUBLIC OF SERBIA IN THE PERIOD 2012-2023

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DOI: 10.5937/EEE24057P  
JEL: H10, H63, H68  
Review Scientific Paper

### ABSTRACT

*This paper examines the public debt dynamics of the Republic of Serbia from 2012 to 2023, a period characterized by significant economic reforms and global challenges. The study analyzes the evolving nature of Serbia's public debt, focusing on its composition, drivers, and impact on the country's economic landscape. Using data from the Ministry of Finance, the National Bank of Serbia, and international financial institutions, we investigate the interplay between public debt, fiscal policies, and macroeconomic indicators. The research reveals distinct phases in Serbia's debt trajectory: a sharp increase from 2012 to 2016, followed by a period of consolidation and reduction until 2019, and then a pandemic-induced surge in 2020 with subsequent stabilization efforts. We examine the effectiveness of fiscal consolidation measures, structural reforms, and their role in debt reduction. The study also assesses the changing structure of public debt, including its currency composition and maturity profile, and how these factors influence Serbia's fiscal vulnerability. Furthermore, we evaluate the sustainability of current debt levels in the context of Serbia's economic growth prospects and global economic uncertainties. This analysis provides valuable insights into the challenges and strategies of public debt management in emerging economies, offering lessons for policymakers and contributing to the broader discourse on fiscal sustainability in transitional economies.*

### KEYWORDS

*public debt dynamics, Serbia, fiscal policy, debt sustainability, economic reforms, debt structure, fiscal consolidation*

## INTRODUCTION

Public debt encompasses all direct and indirect financial obligations of the state towards domestic and foreign legal entities and individuals. Specifically, Serbia's direct obligations have been incurred both domestically and internationally. The portion of direct obligations incurred within the country falls under the category of internal public debt, while direct obligations incurred abroad constitute external debt. The external debt category also includes all of Serbia's indirect obligations, as all guarantees issued up to the end of 2011, as contingent liabilities of the state, relate to loans from foreign creditors.

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The aim of this research is to analyze Serbia's public debt for the period 2012-2023. Additionally, the study aims to examine the structure of public debt and how it influences its trajectory. Furthermore, the paper will analyze the current account deficit, which serves as a significant source of information for both domestic and foreign investors, as well as for economic policymakers. The structure of public debt will also be examined from the perspective of creditors, and their participation in the total public debt of our country will be presented.

The subject of this research consists of analyzing the dynamics of Serbia's internal and external debt, monitoring it, providing recommendations for its reduction, all with the goal of examining factors that affect the sustainability of public debt. The sustainability of public debt in the coming period depends on GDP growth, reduction of public expenditure volume, changes in their structure, and reduction of the fiscal deficit.

Research methods used include the application of qualitative and quantitative research approaches, with a dominant influence of qualitative analysis of observed (quantitative) data, as well as analysis of available scientific literature and official documents from relevant institutional bodies. For easier disclosure, analysis, and interpretation of the presented data, quantitative data are presented graphically and in tabular form.

## PUBLIC DEBT OF REPUBLIC OF SERBIA

Public debt represents accumulated state funds, or the total claims of creditors against the state. The concept of public debt is often used as a proxy for deficit at all levels of the public sector (Đorđević, Veselinović, 2010, Arsić, Obradović, Stojanović, 2015).

Depending on the context, public debt can be characterized as either risky or non-risky. In a normally functioning economy, the existence of public debt does not necessarily pose a risk. However, if an economy experiences crisis fluctuations, it can lead to liquidity problems. To maintain sustainability in situations characterized by budget deficits and continuous debt increase, the state is compelled to implement certain measures such as refinancing and new debt issuance. If the state fails to take necessary measures to ensure normal economic functioning, it may lead to a situation where the private sector withdraws, and the economy experiences a continuous decline.

The continuous increase in public debt and budget deficit reflects the modern functioning of a country's economy. The state's role involves interventions in various areas, from production to education, and maintaining social peace. This necessitates significant government expenditures. To ensure sustainability, the most crucial condition is increasing savings and investments. In the GDP structure of the Republic of Serbia, the share of public debt is significant, thus requiring a more thorough analysis.

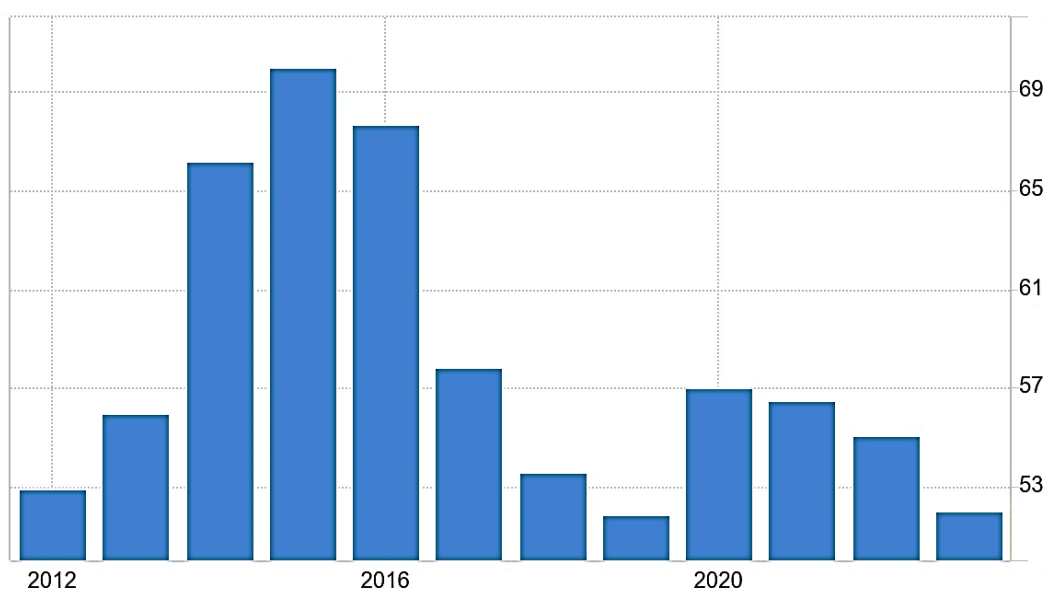
### The State and Structure of Serbia's Public Debt in the Period 2012-2023

State debt, based on its origin, can be classified as either internal or external. Internal state debt arises in relation to the domestic banking system, other financial organizations, the population, enterprises, and other entities within the domestic market. When the state borrows from the domestic market, it withdraws a portion of funds from circulation, resulting in a reduction of the money supply. This, in turn, leads to an increase in interest rates. The ultimate consequence is the "crowding out" effect on private investments. External public debt, on the other hand, is incurred in relation to foreign banks or



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consortiums of banks, or as a bilateral arrangement with the government of another country. In the case of external debt, a significant factor to consider is the country's credit rating. This rating plays a crucial role in determining the terms and conditions under which a country can borrow from international markets or other governments. Both types of debt have distinct implications for the economy. While internal debt may affect domestic interest rates and private investment, external debt exposes the country to international financial markets and currency risks. The balance between these two types of debt is a critical aspect of a country's overall debt management strategy. According to data from the Public Debt Administration, the composition of the Republic of Serbia's public debt reveals a significant disparity between external and internal debt. An analysis of the debt structure shows that external debt constitutes a majority share of the total public debt, accounting for 57.46%. Conversely, internal debt represents a smaller but still substantial portion, making up 42.54% of the total public debt. This distribution highlights the country's reliance on both domestic and international sources of financing, with a slight tilt towards external borrowing. Such a composition has important implications for Serbia's debt management strategies, exposure to currency risks, and overall economic policy (Bakić, 2020).



Graph 1. GDP to Public debt ratio Republic of Serbia

Source: Trading economics, <https://tradingeconomics.com/serbia/government-debt-to-gdp> (Accessed 8/18/2024)

The evolution of Serbia's public debt as a percentage of GDP from 2012 to the end of 2023 presents a narrative of economic challenges, policy responses, and external shocks. This period can be divided into several distinct phases, each reflecting different economic conditions and policy approaches.

1. Initial Growth Phase (2012-2015): In 2012, Serbia's public debt stood at 52.9% of GDP, already above the legal limit of 45% set by the country's fiscal rules. The subsequent years saw a rapid escalation of debt (Trklja, 2015, Rakita, 2016):

- 2013: 56.0%
- 2014: 66.2%
- 2015: 70.0%



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This sharp increase was primarily driven by high budget deficits, slow economic growth, and the depreciation of the dinar. The global economic slowdown following the 2008 financial crisis continued to impact Serbia's economy during this period. Additionally, the country faced the challenge of restructuring its economy, which led to increased government spending and borrowing.

2. Fiscal Consolidation Phase (2016-2019): Recognizing the unsustainability of the debt trajectory, Serbia implemented a series of fiscal consolidation measures starting in late 2014. The effects of these policies became evident from 2016 onwards:

- 2016: 67.7%
- 2017: 57.8%
- 2018: 53.6%
- 2019: 51.9%

This remarkable reduction in the debt-to-GDP ratio was achieved through a combination of measures including public sector wage cuts, pension reforms, improvements in tax collection, and structural reforms to boost economic growth. The success of these measures was also supported by a more favorable global economic environment and increased foreign direct investment into Serbia.

3. Pandemic Impact and Recovery (2020-2023): The COVID-19 pandemic disrupted the downward trend of Serbia's public debt (Petrović, Brčerević, Minić, 2016):

- 2020: 57.0%
- 2021: 56.5%
- 2022: 55.1%
- 2023 (projected): 52.0%

The increase in 2020 reflects the government's response to the pandemic, including increased healthcare spending and economic support measures. Despite this setback, Serbia managed to contain the debt increase more effectively than many other countries. The subsequent years show a return to the debt reduction path, indicating the resilience of Serbia's economy and the effectiveness of its fiscal management strategies.

This data tells a story of Serbia's economic transformation over the past decade. It highlights the country's ability to implement difficult reforms when necessary, its vulnerability to external shocks, and its capacity for economic recovery. The projected figure for 2023, bringing the debt-to-GDP ratio almost back to its 2012 level, suggests a full cycle of debt management, from crisis to recovery. However, it's important to note that while the debt-to-GDP ratio is approaching its 2012 level, the absolute value of the debt has likely increased significantly due to GDP growth over this period. This underscores the importance of sustained economic growth in managing public debt burdens. Looking forward, maintaining this downward trajectory will require continued fiscal discipline, further structural reforms, and strategies to enhance economic growth and resilience against potential future shocks.

Certainly. Here's a rephrased version updated for 2024 with the new currency breakdown:

As of 2024, the currency composition of Serbia's public debt reflects both the country's economic ties and its ongoing efforts to manage currency risk. Official data from the Ministry of Finance of the Republic of Serbia reveals a diverse but euro-dominated debt structure.

The euro continues to play a predominant role, accounting for 58.4% of the total public debt. This significant euro exposure underscores Serbia's strong economic links with the Eurozone and its potential





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path towards European Union integration. However, it also highlights the country's vulnerability to fluctuations in the euro exchange rate.

Notably, the share of dinar-denominated debt has increased to 21.4% of the total. This growth in domestic currency debt represents a positive trend, as it reduces the country's exposure to foreign exchange risks and provides greater monetary policy flexibility. However, the proportion of dinar-denominated debt is still relatively low compared to many developed economies, suggesting room for further improvement in this area.

The US dollar remains a significant component of Serbia's debt structure, constituting 13.4% of the total. This reflects the dollar's status as a global reserve currency and Serbia's engagement with international financial markets.

Special Drawing Rights (SDR) account for 6.4% of the debt, indicating Serbia's relationship with international financial institutions, particularly the International Monetary Fund.

The remaining 0.4% is composed of other currencies, demonstrating a small but diverse exposure to other international markets.

This currency composition presents both opportunities and challenges for Serbia's economic management. While the diversity offers some protection against currency-specific risks, the high proportion of foreign currency-denominated debt (78.6% in total) still poses significant challenges for fiscal and monetary policy, particularly in times of global economic uncertainty or domestic economic pressures.

## CONCLUSION

The analysis of Serbia's public debt dynamics from 2012 to 2023 reveals a complex narrative of economic challenges, policy responses, and resilience in the face of global shocks. This period has been characterized by distinct phases: rapid debt accumulation, successful fiscal consolidation, and pandemic-induced disruption followed by recovery.

The initial phase (2012-2015) saw a sharp increase in public debt, reaching a peak of 70.0% of GDP in 2015. This surge was primarily driven by high budget deficits, slow economic growth, and currency depreciation, reflecting the lingering effects of the global financial crisis and the challenges of economic restructuring.

The subsequent fiscal consolidation phase (2016-2019) demonstrated Serbia's capacity for implementing effective economic reforms. Through a combination of public sector wage cuts, pension reforms, improved tax collection, and structural changes, the country managed to significantly reduce its debt-to-GDP ratio to 51.9% by 2019. This remarkable turnaround highlights the importance of decisive policy actions in managing public debt.

The COVID-19 pandemic in 2020 presented a new challenge, temporarily reversing the downward trend in public debt. However, Serbia's response to this crisis, while increasing debt levels, showed resilience and effective crisis management. The quick return to a debt reduction path in the following years is testament to the robustness of the fiscal framework established in the preceding years.

The currency composition of Serbia's public debt, as of 2024, with 58.4% in euros, 21.4% in dinars, and significant portions in US dollars and SDRs, reflects both the country's international economic ties and its efforts to reduce currency risks. The increase in dinar-denominated debt is a positive trend, though there remains room for further improvement in this area.



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Several key lessons emerge from this analysis:

1. The importance of proactive fiscal management and structural reforms in maintaining sustainable debt levels.
2. The value of building fiscal buffers during periods of economic growth to better withstand external shocks.
3. The need for continuous efforts to increase the share of domestic currency-denominated debt to reduce exposure to exchange rate risks.
4. The critical role of sustained economic growth in managing the debt burden, as evidenced by the reduction in the debt-to-GDP ratio despite an increase in absolute debt levels.

Looking forward, Serbia's challenge will be to maintain its fiscal discipline while supporting economic growth and development. This will require continued structural reforms, prudent debt management, and strategies to enhance economic resilience against potential future shocks.

In conclusion, Serbia's experience over the past decade offers valuable insights into public debt management for emerging economies. It demonstrates that with appropriate policies and reforms, countries can successfully navigate challenging economic landscapes and build more resilient fiscal frameworks. As Serbia continues on its path of economic development and potential EU integration, maintaining this balanced approach to public debt management will be crucial for its long-term economic stability and growth.

## REFERENCES

- Arsić, S., Obradović, J., Stojanović, M. (2015). Analiza nivoa javnog duga u razvijenim i zemljama u razvoju. *Škola biznisa*, 1, 172-186.
- Bakić, S. (2020). Analiza kretanja javnog duga Republike Srbije u periodu 2008-2018, *CIVITAS*, 10(1), 180-193.
- Đorđević, M., Veselinović, P. (2010). Razvojne karakteristike srpske ekonomije u periodu tranzicije. *Škola biznisa*, 1, 21-30.
- Zakon o javnom dugu, ("Sl. glasnik RS", br. 61/2005, 107/2009, 78/2011, 68/2015, 95/2018, 91/2019 i 149/2020)
- Zakon o budžetskom sistemu ("Sl. glasnik RS", br. 54/2009, 73/2010, 101/2010, 101/2011, 93/2012, 62/2013, 63/2013 - ispr., 108/2013, 142/2014, 68/2015 - dr. zakon, 103/2015, 99/2016, 113/2017, 95/2018, 31/2019, 72/2019, 149/2020, 118/2021, 138/2022 i 118/2021 - dr. zakon)
- Kolačević, S., Hreljac, B. (2011). Javni dug kao ključna varijabla ostvarenja ciljeva ekonomske politike. *Ekonomski pogledi*, 62(3-4), 208-229.
- Marjanović, D., Ivanović, L. (2021). Analiza glavnih makroekonomskih indikatora u funkciji stabilnosti zemalja Zapadnog Balkana. U: *Makroekonomska stabilnost i unapređenje konkurentnosti zemalja Zapadnog Balkana* (ur. Marjanović, D., Jovičić, E., 7-27), Institut ekonomskih nauka, Beograd.
- Petrović, P., Brčerević, D., Minić, S. (2016). Privredni oporavak i ozdravljenje javnih finansija Srbije – vreme za rešavanje strukturnih problema. U: *Ekonomska politika Srbije u 2016. godini* (red. D. Šoškić, M. Arsić), 11-44, Ekonomski fakultet, Centar za izdavačku delatnost, Beograd.



## Conference Proceedings

Rakita, A. (2016). Analiza javnog duga Republike Srbije u periodu od 2011-31.10.2015. sa projekcijama za budući period. *Ekonomski pogledi*, 18(2), 101-113.

Ministarstvo finansija, Uprava za javni dug. (2014). Mesečni izveštaj, Analiza javnog duga i duga opšte države, decembar 2014. godine, br. 33.

Ministarstvo finansija, Uprava za javni dug. (2022). Mesečni izveštaj, Analiza javnog duga i duga opšte države, decembar 2022. godine, br. 129.

Trklja, M. (2015). Analiza budžetskog deficita i javnog duga u Republici Srbiji. *BizInfo*, 6(2), 17-29.

Internet izvori:

Procenat javnog duga u odnosu na BDP može dati i pogrešnu sliku. [https:// bif.rs/2020/09/procenat-javnog-duga-u-odnosu-na-bdp-mozedati-i-pogresnu-sliku/](https://bif.rs/2020/09/procenat-javnog-duga-u-odnosu-na-bdp-mozedati-i-pogresnu-sliku/) (Accessed 17.08.2024)

Eurostat (2022). [https:// ec.europa.eu/eurostat/databrowser/view/teina225/default/table? lang=en](https://ec.europa.eu/eurostat/databrowser/view/teina225/default/table?lang=en). (Accessed 18.08.2024)

NBS (2021). Izveštaj o inflaciji, februar 2021. [www.nbs.rs/export/sites/NBS\\_site/documents/publikacije/ioi/izvestaji/ioi\\_02\\_2021.pdf](http://www.nbs.rs/export/sites/NBS_site/documents/publikacije/ioi/izvestaji/ioi_02_2021.pdf). (Accessed 18.08.2024)

Strategija upravljanja javnim dugom od 2023. do 2025. godine. <http://javnidug.gov.rs/static/uploads/Revidirana%20strategija%20upravljanja%20javnim%20dugom%202023-2025.pdf>. (Accessed 18.08.2024)

Trading economics (2024). <https://tradingeconomics.com/serbia/government-debt-to-gdp> (Accessed 18.08.2024)

Vlada Republike Srbije (2022). Revidirana Fiskalna strategija za 2023. godinu sa projekcijama za 2024. i 2025. godinu. [https://www. mfin.gov.rs/sr/dokumenti2-1/ revidirana-fiskalna-stratgija za-2023-godinu-sa-projekcijama-za-2024-i-2025-godinu-1](https://www.mfin.gov.rs/sr/dokumenti2-1/revidirana-fiskalna-strategija-za-2023-godinu-sa-projekcijama-za-2024-i-2025-godinu-1). (Accessed 19.08.2024)



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# BELT AND ROAD INITIATIVE IN SERBIA: AN IMPACT ON ENTREPRENEURSHIP DEVELOPMENT

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DOI: 10.5937/EEE24058R  
JEL: E22, G23, F63, L26, Q01  
Review Scientific Paper

### ABSTRACT

*Belt and Road Initiative' (BRI) is a major global initiative with severe economic impact, geopolitical, environmental and social implications. The Belt and Road Initiative is a very ambitious project started by the Chinese Government with a partnership of 152 countries. Our study is based on a review of existing literature, our own research and GEM data. Also, our research on Serbia showed that impact of China is rather on the recovery of the country than geopolitics. In addition, the impact of the BRI on entrepreneurship in Asia is complex and multifaceted. While the initiative has the potential to create significant opportunities for entrepreneurs, it also poses some challenges and risks that need to be carefully managed. In any case, the Belt and Road Initiative can provide a significant opportunity for entrepreneurs to expand their businesses, promote innovation, and contribute to economic growth in participating countries.*

### KEYWORDS

*Belt and Road, entrepreneurship, investments, development, sustainable development goals*

## INTRODUCTION

The Belt and Road Initiative (BRI) is a development strategy proposed by the Chinese government that aims to promote economic cooperation and connectivity among countries in Asia, Europe, Africa, and beyond. The Belt and Road Initiative consists of two main components: the "Belt," which refers to the overland corridors that connect China with Central Asia, the Middle East, and Europe, and the "Road," which refers to the maritime routes that connect China with Southeast Asia, South Asia, Africa, and the Middle East. The BRI involves a vast network of infrastructure projects, including highways, railways, ports, and other facilities, that are intended to enhance trade and investment between participating countries. Entrepreneurship can play a significant role in the Belt and Road Initiative by facilitating the creation of new businesses and startups, promoting innovation, and supporting economic growth in participating countries. In line with this, Hillman (2020) in his book explores the implications of the BRI for China's rise as a global power and the opportunities and challenges it presents for other countries. In addition, Jing Wang and Xi Tian (2022) explore the potential impact of the BRI on global trade and investment flows, arguing that it could significantly increase economic integration between China and other countries. François Godement and Abigaël Vasselier (2017) in their report assesses the

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potential benefits and risks of the BRI for European countries, including the potential impact on European infrastructure, trade, and geopolitical relations.

Nguyen Thi Thuy Trang (2020) provides an in-depth analysis of the economic and political motivations behind the BRI and its implications for China's domestic and foreign policies.

In addition, researchers have offered a wide range of perspectives on the program, highlighting its potential benefits, and risks for China and the countries involved. Critics of the initiative argue that it has resulted in unsustainable debt burdens for participating countries, and that it may be used to further China's political and strategic interests. Supporters argue that it will promote economic growth and development in participating countries and enhance global connectivity and cooperation. However, in order to achieve this goal, Hillman (2020) concludes that China should learn from the past experiences of the West to make the BRI more equitable and high-quality.

## LITERATURE OVERVIEW

The new Silk Road or the Belt and Road should reconnect the continents, joining the East and the West via a network of roads, railways, ports, and other infrastructure (Radović-Marković, Tomaš, 2019). The countries associated with the project are benefited at various levels with lots of challenges in terms of funds. A study conducted on five countries in Asia associated with the project, namely China, Taiwan, South Korea, Japan, and Hong Kong, found that the Belt and Road Initiative has a positive impact on entrepreneurial intentions in these countries (Mathur, Nathani, 2020). The study also found that perceived opportunities and perceived capabilities affect entrepreneurial intentions positively, whereas fear of failure affects entrepreneurial intentions negatively.

Since its announcement, the BRI has generated a significant amount of research and analysis from scholars and experts across various fields. Some of the key research themes and findings related to the BRI include:

- **Economic Impact:** Many studies have examined the potential economic impact of the BRI on participating countries. Some argue that the initiative could boost economic growth and development by improving infrastructure, trade, and investment. Others are more skeptical, noting that the initiative may create unsustainable debt burdens and exacerbate existing economic inequalities. There are some studies that have examined the broader impact of the BRI on economic development and entrepreneurship. For example, a study by Li et al. (2022) examined the effect of the BRI on the economic growth and development of participating countries. The study found that the BRI has a positive impact on economic growth and development, although the effects vary depending on the country and the specific project. Another study by Fu et al. (2020) examined the impact of the BRI on international trade and found that the initiative has led to increased trade between participating countries. The study also found that the BRI has the potential to promote entrepreneurship development through increased access to markets and resources.
- **Geopolitical Implications:** The BRI has important geopolitical implications, as it involves China expanding its influence and presence in key regions of the world. Some experts argue that the initiative could help China establish itself as a global leader, while others worry that it could lead to increased tensions and competition with other major powers.
- **Environmental and Social Concerns:** The BRI also raises environmental and social concerns, as many of the infrastructure projects involved in the initiative have the potential



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to cause significant environmental damage or displace local communities. Some researchers have called for greater attention to be paid to these issues to ensure that the initiative does not have negative impacts on people and the planet.

- **Financing and Governance:** Another important area of research related to the BRI is financing and governance. Many experts have raised questions about the transparency and accountability of the financing mechanisms used to fund BRI projects, as well as the governance structures that will be put in place to oversee these projects. Namely, the initiative proposed by the Chinese government was to launch several projects in 2017 and 2018 under the Belt and Road Initiative to support "the use of the yuan as a billing currency for trade and create direct trade routes between China and other countries" (Huang, 2020). Huang also noted that The Shanghai International Energy Trading Centre launched a yuan-denominated oil futures contract in 2018 with the aim of raising it to a benchmark status in the Asia-Pacific region.
- **New Value Chain:** The BRI can also give rise to novel opportunities for companies to redesign and refine their value chain design. While protectionism creates friction in global trade, the BRI is creating lubricants to ease cross countries trade frictions and thus countries that were not lucrative part of the world value chain now have the opportunity to become integral parts of the global value chain. Policy coordination made it much easy to cross borders. Ethiopia is one good example. While the BRI in execution, major apparel companies started to explore and incorporate Ethiopia into their value chain design. Companies such as Phillips-Van Heusen (PVH) and Hennes & Mauritz (H&M) started to source from Ethiopia and Chinese manufacturers, Huajian, started manufacturing shoes in Ethiopia. These initiatives created larger impact for e.g. there will be more supply chain network to support the industry, availability of trained labors and ease of attracting capital investors (Lee, Shen, 2020).
- **Information Infrastructure:** In addition to physical infrastructure development, the BRI, calls for growth in digital trade and the expansion of communications networks to develop an The third prong of the initiative the "digital new silk road" or "information silk road" incorporated digital sectors like internet of things infrastructure, telecommunications, and e-commerce. Digitization seems to be a powerful way to reduce the cross-border logistics friction previously discussed (Hausman et al., 2010).
- **Sustainable Social and Economic Development:** The BRI aims to strengthen interconnectivity between countries along the land-based Silk Road Economic Belt and 21st Century Maritime Silk Road, while at the same time promoting sustainable social and economic development amongst all BRI countries (Lewis, et al., 2021; Lewis, Moise, 2018). BRI construction covers eight major areas, including infrastructure, industrial investment, economic and trade cooperation, resource development, cultural exchanges, financial cooperation, marine cooperation, and ecological protection. It is worth noting that both SDGs BRI and the give priority to solving the primary problems such as health, poverty alleviation, education, and employment that is also the major concerns of today's global population (Hong, 2016; UN Press Release, 2019).
- **Enhancing Development Resilience:** The Belt and Road Initiative promotes synergy among involved nations and the efforts include engaging in regional, economic and social cooperation and development, thus contributing towards global infrastructure connectivity and prosperity and resilience (UN, 2022).



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The BRI aimed to eventually cover more than 4.4 billion people and contribute more than USD 21 trillion towards the global GDP (Meltzer, 2017). In 2018, a US\$ 600 million technology and innovation fund was launched by the eWTP to focus on the BRI (Daily Times, 2018).

According to a report by Refinitiv (2019), a financial data provider, between 2013 and 2018, Chinese firms invested over \$90 billion in Belt and Road countries, with the largest recipient being Pakistan, followed by Bangladesh, Indonesia, and Malaysia.

In 2019, the value of China's trade with Belt and Road countries reached \$1.3 trillion, accounting for 28% of China's total foreign trade, according to China's Ministry of Commerce.

As of 2020, there were more than 138 countries and international organizations that have signed Belt and Road agreements with China, according to the Chinese Ministry of Foreign Affairs (Green Belt and Road Initiative Center, 2020).

A report by the World Bank in 2019 found that the Belt and Road Initiative had the potential to lift 32 million people out of moderate poverty, but also warned of potential environmental and social risks associated with the project. However, there have been concerns about the financial sustainability of some Belt and Road projects, with some countries struggling to repay loans. For example, in 2017, Sri Lanka handed over control of the newly-built Hambantota Port to a Chinese firm on a 99-year lease after failing to repay a loan.

A study by the Center for Global Development in 2018 found that eight out of 23 Belt and Road countries were at "particular risk of debt distress" as a result of the initiative's financing arrangements (Gaines, 2018).

## FOSTERING ENTREPRENEURSHIP DEVELOPMENT BY BELT AND ROAD

The Belt and Road Initiative (BRI) has the potential to foster entrepreneurship development in the participating countries in several ways:

- **Infrastructure development:** The BRI is primarily focused on infrastructure development, including building roads, railways, ports, and other transportation and communication networks. This can create new business opportunities and enable existing businesses to expand their reach and improve their efficiency.
- **Developing infrastructure for entrepreneurship:** The BRI involves the development of a vast network of infrastructure, including transportation, energy, and telecommunications facilities, that can facilitate entrepreneurship. For example, the development of new ports and logistics facilities can support the growth of international trade and e-commerce.
- **Investment and financing:** The BRI involves significant investment and financing from China and other countries, which can provide funding and support for entrepreneurship development. This can include funding for startups, small and medium-sized enterprises (SMEs), and other businesses, as well as support for technology transfer and innovation.
- **Trade facilitation:** The BRI aims to facilitate trade between participating countries by reducing trade barriers, improving customs procedures, and enhancing connectivity. This can create new opportunities for businesses to expand their markets and access new customers and suppliers.



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- **Knowledge and skills transfer:** The BRI involves cooperation and exchange between participating countries in areas such as education, research, and innovation. This can facilitate the transfer of knowledge and skills, which can support entrepreneurship development by fostering the development of local talent and capabilities.
- **Entrepreneurship support networks:** The BRI has the potential to create new entrepreneurship support networks by bringing together entrepreneurs, investors, and other stakeholders from participating countries. This can facilitate the sharing of knowledge, experiences, and resources, as well as the development of new partnerships and collaborations.
- **Encouraging cross-border entrepreneurship:** The BRI provides an opportunity for entrepreneurs to expand their businesses beyond their borders and tap into new markets. The initiative can facilitate cross-border entrepreneurship by providing access to financing, business incubation services, and networking opportunities.
- **Supporting innovation and technology transfer:** The BRI can support the transfer of technology and knowledge between participating countries, which can stimulate innovation and entrepreneurship. Entrepreneurs can leverage this opportunity to develop new products and services that address local needs and contribute to the growth of the local economy.
- **Promoting small and medium-sized enterprises (SMEs):** SMEs play a crucial role in economic development, and the BRI can provide a platform for them to expand their business and reach new markets. The initiative can support SMEs by providing access to financing, training, and business incubation services.
- **Building entrepreneurial hubs:** The BRI could focus on building entrepreneurial hubs in the countries it connects. These hubs could provide co-working spaces, incubators, accelerators, and access to funding for entrepreneurs. By creating these hubs, the BRI could encourage innovation and entrepreneurship in the region.
- **Facilitating international collaboration:** The BRI can provide a platform for entrepreneurs from different countries to collaborate and exchange ideas. This can lead to the development of new partnerships, joint ventures, and cross-border business opportunities.
- **Innovative Supply Chain Alliances:** The BRI offers new opportunities to consolidate the innovative supply chain networks through cross border tie-ups.

Overall, the BRI has the potential to foster entrepreneurship development by creating new business opportunities, providing funding and support for businesses, facilitating trade and knowledge transfer, and creating new entrepreneurship support networks. However, it is important to ensure that the initiative is implemented in a way that is sustainable and equitable, and that takes into account the needs and aspirations of all participating countries and communities.

## CHINA'S ROLE FOR INVESTMENTS AND SUPPORT ENTREPRENEURSHIP IN SERBIA

China is among those countries which are interested in expanding their influence in the Western Balkans. Namely, "Chinese view the region as a gateway to the European Union market and as a land bridge between the Chinese-owned port of Piraeus and Central Europe" (Hänsel, Feyerabend, 2018). Thus,





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China has begun to increase bilateral trade with the countries of the region and is investing in developing the transport and energy infrastructure and in certain strategic industries in the Western Balkans. For these reasons, China has signed a large number of bilateral agreements with Serbia, “agreed on \$3 billion package of economic investments” (BIRN, 2018). However, Chinese investments in Serbia with current and announced projects should reach \$ 10 billion in 2019 (Radović Marković, Tomaš, 2019).

The result of strong bilateral links between two countries can be recognized in a number of projects over the past few years. Chinese build highways, railways, bridges, energy, and other infrastructure facilities, as well as factories and the construction of large industrial–technological parks in Serbia. One of the greatest Chinese investments in Serbian economy was in “Železara Smederevo.” In addition, China has invested in traffic infrastructure starting with the construction of the “Pupin Bridge” in Belgrade, then in building of the highways part of the Pan-European Corridors X and the so-called Corridor XI that connects Serbia with Montenegro (Radović-Marković, Tomaš, 2019).

Globalization Impact on Entrepreneurship has a great opportunity for Serbia (Radovic Markovic, 2018a), to improve its railway infrastructure, which has already begun with an agreement on the improvement of the Belgrade–Budapest line. Construction of the Belgrade–Budapest railway line clearly show intentions to build a unique transport system so that goods from China can be transported from the port of Piraeus to Central Europe and vice versa. Also, Chinese company Zijin has become the strategic partner of RTB Bor, and Huawei Technologies will upgrade the Serbian phone company. Therefore, the investment of 1.26 billion dollars and 200 million for the settlement of debts of RTB was the largest investment in 2018 in Serbia. The Chinese will invest \$ 1.26 billion in RTB in the next six years, of which 75% will be invested in the first three years (Radović-Marković, Tomaš, 2019).

The Chinese build a new 350 MW power block in the Kostolac thermal power plant, the largest investment in the domestic energy sector and the first large power plant that is being built in Serbia after nearly three decades. The total value of the second phase of the modernization project of TPP Kostolac B is \$ 715.6 million, of which the investments in the construction of the new block B3 of 350 MW is \$ 613 million (Radović-Marković, Tomaš, 2019). Chinese loans for major infrastructure projects are mostly provided by the China Exim Bank. In a short period of time, China more than doubled trade with Serbia, but export from Serbia is still very small.

How much will the Chinese investments contribute to Serbia’s economic development and how much to Chinese ambitions in Western Balkans as well as their political consequences, opened a debate among scholars and politicians (Radović-Marković, 2018). They are divided into those that are against China’s influence in the Western Balkans and those who think that it will generate economic opportunities and challenges for the region. Despite their different views on strengthening the influence of China among the Balkan countries and possible long-term political consequences, recent research findings of Le Corre and Vuksanovic (2019) has shown that “Serbia seems focused on the recovery of their own country rather than geopolitics.” It is confirmed with the last key conclusion for EU institutions emerged from examining the Chinese approach to Serbia, especially regarding aid and investment, and that is that money has flowed for activities which Belgrade thought were in its best interest, rather than priorities that the Chinese determined from Beijing (AFET, 2017).

## CONCLUSION

The Belt and Road Initiative is a complex and multifaceted initiative that has generated a significant amount of research and analysis across a range of disciplines. As the initiative continues to unfold, it is



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likely that further research will be conducted to better understand its potential impacts and implications. While the Belt and Road Initiative has brought significant investments and economic benefits to some countries, its long-term impact and sustainability remain uncertain, and there are concerns about debt sustainability and other potential risks associated with the project. By focusing on building entrepreneurial hubs, providing access to funding, developing a skilled workforce, facilitating cross-border trade, and promoting digital connectivity, the BRI could help entrepreneurs build successful businesses and drive economic growth (Radović Marković, Tomaš, 2019).

Our research has simultaneously shown that Serbia in the last couple of years has reached improvements in implementation of internal reforms and creation of a more favorable business climate for development of small and medium companies and strengthening of the business sector. Thus, the development of entrepreneurship in the beginning of 2016 was on the list of priorities of the Government of the Republic of Serbia, which continued throughout 2023 as well. There was also established the Development Agency of Serbia (DAS), as the crucial executive institution in charge of implementation of entrepreneurship policy in the country.

## REFERENCES

- AFET. (2017). Serbia's Cooperation with China, the European Union, Russia and the United States of America. European Parliament, Strasbourg.
- Ahmad, J.U. (2020). China's 'One Belt One Road' project – Risks and benefits for Bangladesh. *The Asian Age*. Available at: <https://dailyasianage.com/news/221896/chinas-one-belt-one-road-project---risks-and-benefits-for-bangladesh>. [Accessed Apr 11 2023].
- Basu, T. (2018). Japan's Belt and Road Puzzle, Decoded. Available at: [Japan's Belt and Road Puzzle, Decoded – The Diplomat](https://thediplomat.com/2018/02/japans-belt-and-road-puzzle-decoded/). Available at: <https://thediplomat.com/2018/02/japans-belt-and-road-puzzle-decoded/>. [Accessed Apr 13 2023]
- BIRN, (2018). \$3bn Economic Agreements Boost China's Role in Serbia. Available at: <http://www.balkaninsight.com/en/article/new-agreementsboost-china-role-in-serbia-09-18-2018>
- Daily Times. (2018). eWTP ecosystem \$600m fund established to focus on "one belt, one road" countries. Available at: <https://dailytimes.com.pk/243900/ewtp-ecosystem-600m-fund-established-to-focus-on-one-belt-one-road-countries/>
- Du, J., and Y. Zhang. (2017). Does One Belt One Road Initiative Promote Chinese Overseas Direct Investment? *China Economic Review*, 47 (C), 189–205.
- Fu, X., Kong, L., Tang, T, Yan, X. (2020). Insider trading and shareholder investment horizons, *Journal of Corporate Finance*, 62, 101508.
- Gaines, J. (2018). China's Belt and Road Initiative Heightens Debt Risks in Eight Countries, Points to Need for Better Lending Practices. Available at: <https://www.cgdev.org/article/chinas-belt-and-road-initiative-heightens-debt-risks-eight-countries-points-need-better> [Accessed Apr 8 2023].
- Godement, F., Vasselier, A. (2017). China at the gates: A new power audit of EU-China relations. Available at: [https://ecfr.eu/publication/china\\_eu\\_power\\_audit7242/](https://ecfr.eu/publication/china_eu_power_audit7242/) [Accessed Apr 11 2023].
- Green Belt and Road Initiative Center (2020). Countries of the Belt and Road Initiative (BRI). Available at: <https://greenfdc.org/countries-of-the-belt-and-road-initiative-bri/>.



## Conference Proceedings

- Hausman, W. H., Lee, H. L., Napier, G. R., Thompson, A., Zheng, Y. (2010). A process analysis of global trade management: An inductive approach. *Journal of Supply Chain Management*, 46(2), 5-29.
- Hillman, J. (2020). *The Emperor's New Road: China and the Project of the Century*. Yale University Press, New Haven.
- Hong, P. 2017. Strengthening national policy capacity for jointly building the Belt and Road towards the Sustainable Development Goals. Available at: [https://www.un.org/en/unpdf/assets/pdf/PDFSDG-2016-02%20cdas\\_beltandroadb.pdf](https://www.un.org/en/unpdf/assets/pdf/PDFSDG-2016-02%20cdas_beltandroadb.pdf). [Accessed 29 January 2020].
- Huang, X. (2020). Prospects for The Chinese Yuan as a Global Currency. *International Review*, 1–2, 1–11.
- Voon, J.P., Xu, X. (2020) Impact of the Belt and Road Initiative on China's soft power: preliminary evidence. *Asia-Pacific Journal of Accounting & Economics*, 27(1), 120-131.
- Le Corre, P., Vuksanovic, V. (2019). Serbia: China's Open Door to the Balkans. *The Diplomat*, January 01. Available at: <https://thediplomat.com/2019/01/serbia-chinas-open-door-to-the-balkans/>
- Lewis, D. J., Yang, X., Moise, D., Roddy, S. J. (2021). Dynamic synergies between China's belt and road initiative and the UN's sustainable development goals. *Journal of International Business Policy*, 4, 58-79.
- Lewis, D., Moise, D. 2018. One Belt One Road ("OBOR") roadmaps: the legal and policy frameworks. In: Chaisse, J. and Gorski, J. (eds.). *The Belt and Road Initiative – Law, economics, and politics: 17–58*. Brill/Nijhoff, Leiden.
- Li, J., Qian, G., Zhou, K.Z. et al. (2022). Belt and Road Initiative, globalization and institutional changes: implications for firms in Asia. *Asia Pacific Journal of Management*, 39, 843–856.
- Mathur, G., Nathani, N. (2020). *The Belt and Road Initiative: An Entrepreneurial Perspective*, Springer Singapore.
- Meltzer, J.P. (2017). China's One Belt One Road Initiative: A view from the United States. *Brookings Report*, June 19, 2017. <https://www.brookings.edu/research/chinas-one-belt-one-road-initiative-a-view-from-the-united-states/>.
- Radovic-Markovic, M. (2018a). Organizational resilience and business continuity: Theoretical and conceptual framework. *Journal of Entrepreneurship and Business Resilience*, 1(1), 5-11.
- Radović Marković, M., Tomaš, R. (2019), *Globalization and Entrepreneurship in Small Countries*. Routledge, New York.
- Radović-Marković, M. (2018). *Globalization Impact on Entrepreneurship in Small Countries with Focus on Serbia and Western Balkan*. Nova Science Publishers, New York.
- Refinitiv (2019). Financial data. Available at: <https://www.refinitiv.com/en/search-results?q=+a+financial+data+provider%2C+between+2013+and+2018%2C+Chinese+firms+invested+over+%2490+billion+in+Belt+and+Road+countries%2C> [Accessed Apr 11 2023].
- TBSnews (n.d.). Belt and Road Initiative: China releases \$4.45b in 10 years for Bangladesh. Available at: [Belt and Road Initiative: China releases \\$4.45b in 10 years for Bangladesh | The Business Standard \(tbsnews.net\)](https://www.tbsnews.net/news/belt-and-road-initiative-china-releases-445-billion-in-10-years-for-bangladesh)
- Trang, N.T. (2020). China's Belt and Road Initiative: China's Motivations and Its Impacts On Developing Countries. In: *Critical Reflections on China's Belt & Road Initiative* (pp. 189-199). Palgrave Macmillan, London.



## Conference Proceedings

UN (2022). Partnering for shared brighter future. Progress report on Belt and Road Initiative in support of UN 2030 agenda for sustainable development. Retrieved on April 11, 2023 from [https://www.un.org/sites/un2.un.org/files/progress\\_report\\_bri-sdgs\\_english-final.pdf](https://www.un.org/sites/un2.un.org/files/progress_report_bri-sdgs_english-final.pdf)

UN Press Release (2019). United Nations poised to support alignment of China's Belt and Road Initiative with Sustainable Development Goals, secretary-general says at opening ceremony, SG/SM/19556, <https://www.un.org/press/en/2019/sgsm19556.doc.htm>. [Accessed 10 January 2020].

Wang, J., Tian, X. (2022). Impacts of the belt and road initiative on China's bilateral trade. *Journal of the Asia Pacific Economy*, 27(3), 400-424.

World Bank (2019). *The Belt and Road Initiative: Economic, Poverty and Environmental Impacts*. Available at: <https://openknowledge.worldbank.org/entities/publication/16252360-1cf1-546e-9978-9e57b5f32cec> [Accessed March 10 2023].



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# EVOLUTION OF THE LEGAL STATUS OF WOMEN IN CONTRACTUAL RELATIONS: FROM DISCRIMINATION TO EQUALITY IN BUSINESS

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DOI: 10.5937/EEE24059P  
JEL: K38  
Review Scientific Paper

### ABSTRACT

*The fundamental principles of the European-continental legal systems, particularly regarding the status of natural persons, have their roots in Roman law. Roman law recognized a broad range of population categories, whose legal and business capacity, among other things, depended on the individual's social status within the family. Women held a specific legal status and were under the guardianship (tutela) or authority (manus) of a man, typically their father or husband. Their legal capacity was restricted, especially in terms of entering into contracts and other business dealings. The natural law school, which revived the ancient notion of inalienable natural rights (ius naturales), had a significant influence on the French bourgeois revolution, whose motto "liberté, fraternité, égalité" was embedded in the Declaration of the Rights of Man and of the Citizen. The principle of legal equality, which presupposes the equal application of legal norms to all, reflects one of the fundamental principles of the rule of law and is considered a key tenet of a just legal system. However, the Global Gender Gap Report for 2023, published by the World Economic Forum, shows that the gender gap in the field of entrepreneurship stands at 31.6%. According to these figures, it will take an additional 131 years to achieve full gender equality in entrepreneurship globally, indicating that despite significant legal reforms that have improved the position of women in business, full gender equality in this area has not yet been attained.*

### KEYWORDS

*contractual relations, legal capacity, discrimination*

## INTRODUCTION

"All are equal before the law and are entitled without any discrimination to equal legal protection" (The Universal Declaration of Human Rights).

The concept of equality before the law signifies that laws should be applied equally to all citizens, meaning that no one is above the law. This idea—which also reflects one aspect of the term "rule of law"—is the foundation of many current constitutions and is considered a fundamental principle of a fair and just legal system.

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The principle of legal equality, which presumes the uniform applicability of legal norms to all, was proclaimed by the Universal Declaration of Human Rights but has not always been upheld; it is the result of long-standing struggles. In the 17th and 18th centuries, Europe stood at a crossroads between the feudal and capitalist orders. One of the main obstacles to the emerging changes was the conservative legal system, which led to a revival of ancient thought regarding the existence of inalienable natural rights (*ius naturale*) that belong equally to all humans (Weston). Under the influence of the rationalist teachings of Descartes, Bacon, and Hobbes, modern natural law theorists grounded their theory of natural rights, unlike their predecessors, not in natural order (Aristotle, Cicero, Gaius, Ulpian) nor in divine gift (Thomas Aquinas), but in human reason (*ratio*) (Stroll et al., 2023). According to Hugo Grotius, Samuel Pufendorf, Charles Montesquieu, Jean-Jacques Rousseau, and Jean Domat, to achieve equality before the law, the law must be a form of written reason (*ratio scripta*) (Straumann, 2015).

The school of natural law had a significant influence on the French bourgeois revolution, whose motto "*liberté, fraternité, égalité*" was incorporated into the Declaration of the Rights of Man and of the Citizen. These principles guided the drafters of the French Civil Code and other major codifications of the 19th century (Peyre, 1949), leading to the recognition of legal capacity of the same scope and quality for all citizens.

## EVOLUTION OF THE LEGAL STATUS OF WOMEN

In early communities, women were highly valued and respected, primarily due to their naturally designated and irreplaceable role in the continuation of the species. With the discovery of the principles underlying reproduction, male dominance emerged, reducing the social role of women to a biological one—childbearing (Vezel, 1983).

One of the earliest legal codes in the ancient states of the East that regulated the legal status of women was the Sumerian Code of Ur-Nammu. The Code of Ur-Nammu is the oldest law code in history, issued by the Sumerian ruler of Mesopotamia, Ur-Nammu, the founder of the Third Dynasty of Ur around 2050 B.C. In some provisions of the Code, a woman is described as a "spirit of darkness" and a "promiscuous lover," and is exclusively held accountable for punishable acts of adultery and black magic (Festić, 1998).

The Code of Hammurabi (written in the last decades of Hammurabi's reign) recognized women's legal and business capacity. A woman could receive a gift of a field, garden, or house, which her descendants could not challenge, even after the death of her husband. Daughters were also equated with sons in matters of inheritance. However, a woman remained under considerable authority of her husband (Code of Hammurabi).

In antiquity, women in Egypt enjoyed the most favorable status. Men and women were equal before the law. Women could manage and dispose of private property, including real estate, acquired through inheritance, gifts, or purchase. Their status did not change upon marriage. The first Greeks who visited Egypt were scandalized by the rights Egyptian women enjoyed. Women were not forced into cohabitation with men, nor was the choice of partner imposed by their fathers, although marriage was valued. After marriage, a woman retained her surname, and there was a custom of "trial marriage," or cohabitation before marriage, which was preceded by some form of contract. Divorce was considered a personal matter, with grounds for divorce being so broad that any reason could justify ending a marriage (Matić, 2011).

Three millennia ago, Egyptian women could become pharaohs, military commanders, viziers, scribes, and high priests. Ahhotep, a female pharaoh, during the Hyksos occupation, unified Upper and Lower Egypt and took command of part of the army, suppressing a rebellion in the southern part of the country. For her efforts, she was awarded three golden flies, a distinction given only to generals and soldiers for



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exceptional merit, marking her entry into a military sphere previously reserved exclusively for men. During the reign of Pharaoh Hatshepsut, numerous temples were built and restored from Karnak to Luxor. Tuya, the wife of Pharaoh Seti I, wielded considerable influence at court during the reign of her son Ramses II, who erected a nearly three-meter-tall statue in her honor, demonstrating that elevated representations, often with a sacred meaning, were not reserved only for men in ancient Egypt. Discovered documents reveal that women held leadership positions in administrative institutions, with notable female officials, such as the vizier and judge Nebet (Matić, 2011).

Under the influence of Greek civilization and later Christianity, Egyptian women gradually lost their rights. Ptolemy IV Philopator (221-205 B.C.) reduced the status of Egyptian women to that of Greek women by imposing a male guardian for any legal transaction. This eradicated the equality between men and women in the land of the pharaohs, a core value of Egyptian civilization that had not been achieved in any other part of the world until World War I—and even today, when considering the spiritual realm. For example, positions such as pope, patriarch, rabbi, imam, and even regular clergy remain exclusively male, unlike in ancient Egypt, where women could occupy the role of high priest. Despite its extensive trade with Mediterranean countries, Egyptian society, where women held an exceptional status, unfortunately did not have a decisive impact on the development of Western civilization. Instead, the ideas of the ancient Greeks, transmitted through Rome and later Byzantium, formed the basis of European modern thought, as it took twenty centuries to decipher and translate Egyptian script.

## THE STATUS OF WOMEN IN ANCIENT GREECE AND ROME

In ancient Greece, despite many ideas that advanced civilization, the status of women was quite unfavorable. Decisions for women were made by their father (kyrios) or brother, and later by their husband or legal guardian, who managed their affairs and represented their interests. Unlike women in Egypt, Greek women did not choose their own husbands nor did they have equal status within marriage. They had no property rights, inheritance rights, voting rights, or influence over public and political life. A husband could dismiss his wife without significant cause, leaving her with only her dowry.

The first form of democracy that developed in the city-state of Athens did not guarantee equal rights for all. Voting rights were reserved for male citizens over the age of 18 who met property requirements, amounting to only about 10% of the total population. Women, children, slaves, foreigners, and resident aliens in Athens did not have voting rights. The laws of that time, established by Solon, mention women only in the context of family relations (Obrenić, 2014).

While men dominated the public sphere, the role of women was confined to managing the household and raising children, particularly daughters, preparing them to become mothers and homemakers. There were no socially recognized professions for which women needed to be educated or in which they could participate. Since women could not possess virtues, which were believed to be acquired through the study of philosophy—a pursuit reserved for men—learned philosophers often regarded women as inferior to men. However, there were exceptions. Socrates, unlike other sophists, engaged in conversations with women in public spaces. His student, Plato, not only viewed women as equals but also believed that there were no tasks that could be performed exclusively by men or exclusively by women. Accordingly, women could be rulers just like men, as they possess the same capacity for reason and need only to receive the same education and be freed from child-rearing and domestic duties



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(Radović, 2006). Above all, women must be educated just like men. It is also known that Pythagoras admitted women into his school, where they were considered equals to men.

In the works of Greek writers, women are often depicted as faithful wives and devoted mothers. Greek tragedies, which evolved from the cult of the god Dionysus, offer a gallery of female characters. Euripides is believed to be the first to raise the question of women's emancipation, introducing moral conflicts related to gender differences into poetry. However, the famous Dionysian theater was exclusively for men, with male actors portraying the heroines of Aeschylus, Sophocles, and Euripides using masks for female roles (Atanasijević, 2019). Some scholars (Kito, Morus) suggest that Athenian women might have been able to attend the theater. These conclusions are derived indirectly, through interpretations of Plato's critique of poetry, Aristophanes' *Frogs*, and similar sources (Kito, 1963).

Aristotle, whom some sociologists refer to as the founder of patriarchal theory, argued that men and women possess different capabilities, making them naturally suited for different roles—men to rule, and women to be subordinate.

Despite being the cultural center of the ancient world, Athens did not provide women with access to quality institutional education, leaving their status nearly equivalent to that of slaves. This was despite the city being named after Athena, a female goddess of wisdom and the arts, the protector of law and justice, and featuring numerous monuments to the Amazons. The most educated class of women in Athens were the hetairai—courtesans. They rejected marriage and were among the most respected women permitted to engage in extramarital relationships (alongside auletrides, concubines, and dicterides). Interestingly, they were the only women allowed to receive institutional education in so-called "schools for courtesans." Cultivated, witty, graceful, and elegant, hetairai provided not only sexual pleasure but also entertainment and intellectual companionship. Some of them were more renowned for their philosophical discussions than for their sexual services. Among those associated with hetairai were Athenian general and statesman Themistocles, the famous orator Demosthenes, Herodotus, Pericles, Sophocles, Alexander the Great, Ptolemy I, and many others (Dunderski, 2003). Statues of hetairai adorned public buildings, and temples were built in their honor. A hetaira also served as the model for Praxiteles (4th century B.C.) when he sculpted the Knidian Aphrodite, depicting her bathing naked in the sea—a work that marked the beginning of a new era in the representation of not only the male but also the female form (Prelević Plavšić, 2019).

Although Greek women lacked political rights and were not considered citizens, their status varied from one city-state (polis) to another. For example, Spartan women enjoyed more freedoms compared to Athenian women. Starting at the age of seven, Spartan girls were educated alongside boys, learning reading and writing skills (the oldest Greek and European poetess is the Spartan Megalostрата), as well as military skills. They were trained to replace their husbands on the battlefield if necessary. The Spartan legislator, Lycurgus, in the 9th century B.C., implemented laws to combat the isolation and withdrawal of women.

However, Aristotle, one of the greatest ancient philosophers, criticized this leniency towards women. He believed that it contributed to societal disorder and lawlessness, ultimately leading to the decline of Lacedaemon (Sparta) after prolonged military campaigns that kept men away from home.

In Roman law, which significantly influenced European continental legal systems and had its roots in Athenian law, women were *de jure* recognized as subjects of law. *De facto*, however, they often held the status of *personae alieni iuris*—persons under the authority of another, such as the *pater familias* (head of the family) or a husband (if the marriage included *manus*, meaning the husband's authority over his wife). Within the family, a woman held the status of a daughter (*filiae loco*). If she was not under her father's authority, unmarried, or divorced, she needed the consent of a guardian to participate in any





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legal transactions until A.D. 41 or 54, when the Lex Claudia abolished guardianship for all Roman citizen women, except for freedwomen.

Women typically entered into marriage at the age of twelve, marking the onset of reproductive maturity, at the discretion of the *pater familias*. Their primary roles in life were to be good mothers and devoted wives, committed to their families. As such, they often remained uneducated, and their legal status prohibited their involvement in the public sphere. Historical records do not indicate that any women practiced law professionally or studied it. A well-known quote reflects the resistance to women's equality: "If you allow them to become equal to men, do you think they will be satisfied? As soon as they are equal to us, they will become our rulers!" (Cato, as cited in Bogunović, 2012).

The myth of the Roman woman is woven into the very legend of the founding of Rome. The Vestal Rea Silvia bore divine twins, Romulus and Remus, who were then found and nursed by a she-wolf, enabling their survival. The goddess Justitia (Justice) was revered as the embodiment of fairness and righteousness. Interestingly, just as in ancient Greece, justice was personified through a female deity, while everyday life often subjected women to significant injustices.

No woman ever ruled the Roman Empire in her own right, except for the case of Galla Placidia (the daughter of the Roman Emperor Theodosius I and his second wife Galla), who served as regent for her son and governed the Western Roman Empire for twelve years during the first half of the 5th century A.D.

In Roman society, matrons (*mater familias*), the wives of *pater familias* (heads of households), and vestal virgins were highly respected due to their exemplary conduct. Vestals, young women who took vows of chastity and moral purity, served as priestesses of the goddess Vesta, responsible for maintaining the eternal flame symbolizing the endurance of the Roman state. In ancient communities where fire was difficult to obtain, it was crucial to preserve it in a single place where it would burn continuously (Bujkulić, 2009).

Vestals enjoyed complete legal emancipation—they were not subject to paternal authority (*patria potestas*) nor assigned a guardian (*tutela mulierum*), living under their own authority (*sui iuris*). However, their lives were closely monitored by the *pontifex maximus*, who could impose severe punishments, including death, for any moral transgressions. Vestals were bound by a strict vow of chastity; if they broke this vow, they were condemned to be buried alive in an underground chamber (as vestal blood could not be spilled), while any man involved was publicly whipped to death (Romac, 1973).

Despite the constraints, vestals held certain privileges that made their role significant in the social and political life of Rome. They had the power to annul certain magistrate decisions (*intercessio*), save a condemned person from execution, and safeguard legal documents of particular importance. During Sulla's dictatorship, the vestals saved the life of a young Julius Caesar. They interceded with emperors, such as advocating for the pardon of Messalina, wife of Emperor Claudius, who had been sentenced to death. In the midst of the civil war in 69 AD, Emperor Vitellius entrusted a letter intended for Vespasian's generals to the vestals. When a delegation was sent to negotiate with Septimius Severus during his military uprising in 193 AD, vestals accompanied senators. Just before his assassination in 44 BC, Julius Caesar entrusted his will to the vestals for safekeeping, a practice that became common after the reign of Augustus (Huseinspahić, 2011).

Some Roman women, however, did not accept the societal roles imposed upon them. Without legal avenues to influence political decisions, they often resorted to using their charms to manipulate men, who were not always their husbands. In the 1st century during the Principate, Agrippina, daughter of Germanicus and Agrippina the Elder, stood out as a powerful figure in Roman politics. Despite her determination and ambition, as a woman, she could not inherit the title of *princeps*. Agrippina is remembered as a ruthless figure who wielded her influence through seduction, including incestuous relationships, and through murder, often employing poison as her weapon of choice (Barrett, 1996).



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The ideal Roman woman was expected to embody chastity, morality, loyalty, and obedience—qualities that often conflicted with the aspirations of women from the upper echelons of society who sought greater involvement in public life. However, not all independent women were viewed negatively. For instance, Cornelia, daughter of Scipio Africanus and wife of Tiberius Gracchus, was respected for her education, wealth, and decision-making ability. Despite her independence, the Romans admired her primarily because she devoted herself to raising her children (including the famous Gracchus brothers, Gaius and Tiberius) as a widow and declined the marriage proposal of Ptolemy, the king of Egypt. Cornelia's reputation was built on her commitment to her roles as mother, wife, and daughter, rather than her pursuit of personal freedom, intellect, or ability (Dixon, 2007).

The inheritance of the ruling title in Rome placed women of the princeps family in the spotlight, making life at the imperial court more intriguing. Marriages within ruling families were carefully planned, as marriage to a princeps' daughter often implied a claim to the throne. To preserve the dynasty, members of ruling families sometimes married one another. It is believed that with Livia Drusilla, Augustus' second wife, a new era of governance began in which women held a significant place. Livia's character is surrounded by controversy. She has been accused of orchestrating the deaths of Marcellus, son of Mark Antony and husband of Octavian's daughter from his first marriage, as well as Octavian's two grandsons, Gaius and Lucius. Some sources even suggest, though without sufficient proof, that she poisoned Octavian with figs. Despite Tacitus' view of her as a disaster for the Julian-Claudian dynasty, Livia was eventually honored with the title of "Mother of the Fatherland." This title was a novelty in Roman political life and served as a counterpart to the title *Pater Patriae*, borne by Cicero, Julius Caesar, and Augustus himself. In addition to her exceptional beauty, Livia was undoubtedly intelligent, capable, and shrewd, often serving as an advisor to her husband Octavian, alongside whom she held the title of *Augusta*.

## THE ROLE OF WOMEN IN ANCIENT SLAVIC SOCIETY

The status of women in ancient Slavic families remains underexplored due to the limited availability of historical sources. Among the pagan Slavic tribes inhabiting the territories of present-day Russia, marriage customs originally involved the abduction of the bride (*umička*, *umikanije*), which later gave way to the practice of bride purchase (Nikolić, 2000). This indicates that a woman's consent for marriage carried little weight. While the family structure was patriarchal, the authority of the family patriarch over his members was less extensive than that in ancient Rome. Women, as was typical in most ancient legal systems, were excluded from inheritance (Nikolić, 2000). It was believed that since men fought for new territories and then cultivated the land, recognizing inheritance rights for women would mean transferring land to members of another clan through marriage.

Throughout antiquity, even when legal and business capacities were acknowledged for women, their role was largely confined to childbearing and childrearing, as caring mothers and faithful wives, excluded from political life and with limited educational opportunities beyond domestic skills. With little or no property and subordinate to men, women in ancient times had few choices. Only in Egypt did women rule independently. The most notable female pharaohs were Hatshepsut and Cleopatra. However, where the throne was inaccessible to them, women often exercised influence through their sons or husbands. Byzantine Empress Theodora (6th century) remains famous as a woman who embodied a real-life "Cinderella" story. Once a circus performer and courtesan, she became the most influential Byzantine empress after marrying Prince Justinian, the heir to the Byzantine throne and later emperor. Theodora championed legal reforms that granted women rights to property, inheritance, and divorce (Matotek, 2006).



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# THE ROLE OF WOMEN IN THE MIDDLE AGES

The Middle Ages, often considered a dark period in human history, were marked by the powerful influence of the Church. Since education was not widely accessible, the largely uneducated populace readily accepted the doctrines of the clergy, which served not only as the primary educators of the time but also occupied high social standing. Unlike antiquity, where there was a reverence for the body and sexuality—often embodied in female deities—the Middle Ages exhibited a disdain for the body, especially the female form, viewing it as susceptible to the lures of evil, or Satan. However, the development of cities, with the creation of new opportunities, professions, and trades, contributed to a certain degree of female emancipation, though equality with men in terms of rights and compensation was far from realized. Certain freedoms, though not in the sense of modern civil liberties, were enjoyed by noblewomen and a small circle of privileged-status women, while women of middle and lower classes remained under the strong influence of patriarchal authority.

Under the Church's influence in the 12th century, marriage ceremonies began to be conducted publicly, requiring the consent of both partners, which aimed to solidify the social position and importance of marriage. Conversely, prostitution flourished, and the failure of some rulers' attempts to suppress it even led Saint Augustine to conclude that suppressing prostitution would lead to unrestrained lust corrupting society (Lewinsohn, 1959). Recognizing the fight against prostitution as futile, in some regions, brothels were established under Church patronage. Reports of the Templars' annual expenses indicate that, at one point, they supported thirty thousand prostitutes in a single year (Lewinsohn, 1959).

However, the Inquisition did not concern itself with the "sinners" who engaged in vice in brothels alongside respectable citizens. Their focus was on lustful women who supposedly made pacts with the devil. Thus, with ecclesiastical and papal approval, witch hunts began throughout Europe in the 14th and 15th centuries, peaking in the 16th and 17th centuries. With the passage of a law in 1532 during Emperor Charles V's reign, witch hunts took on a legal form and became a matter for the state. There is no single explanation for what many consider one of the greatest crimes against women (80-90% of those persecuted and condemned were women). In addition to pre-existing phenomena—mental illnesses, drug use, ancient beliefs—the reasons for the hunts include some women's knowledge in medicine and contraception, the disdain learned doctors had for folk medicine, midwives, and various healers, the attribution of blame to women for crop failures, livestock deaths, disasters, diseases, and deaths, and, according to some, the sexual fantasies of celibate church inquisitors (Küng, 2005).

Paradoxically, the greatest opportunities for personal development for women were found within the walls of monasteries. Aristocratic women sought refuge in monasteries from unwanted marriages and pregnancies, or their departure was motivated by the desire to prevent the dissipation of family wealth. Women of lower social classes found an escape from poverty and social exclusion in monasteries. Entry into monastic life did not sever family ties, and the adherence to physical and spiritual purity afforded nuns greater respect and status in society. Mastery of reading and writing skills enabled nuns to have their voices heard beyond the convent walls.

As in previous periods, there were women whose ambitions went beyond the socially imposed and often marginalized roles of mother and housewife. One such woman was Trotula de Ruggiero, the founder of the first medieval center for scientific research outside the influence of the Church. Trotula was the most renowned female physician of her time and beyond, as part of the group known as *Mulieres Salernitanae* (Tuttle, 1976).

Trotula lived in Salerno, a city home to the famous Salerno Medical School (*Schola Medica Salernitana*), the first and most influential medical center of the Middle Ages. There, she taught medicine and



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conducted research, focusing particularly on women's medicine and gynecology. Her works, such as *De passionibus mulierum ante in et post partum* (On the Diseases of Women Before, During, and After Childbirth), became key references for physicians and midwives throughout Europe, contributing to the improvement of knowledge about women's health.

What made Trotula especially significant was her emphasis on the importance of women's health as a distinct field of medicine, at a time when most medical teachings were centered on men. Her texts highlighted the use of herbal remedies, proper nutrition, and hygiene as essential for the well-being of women. Through her work, Trotula established herself as one of the pioneers in medical science and feminist thought, despite the cultural constraints of the medieval era.

Her legacy remains an inspiration today, as an example of a woman who, despite the norms and limitations of her time, managed to dedicate herself to science and leave a lasting impact on the history of medicine.

## FROM DISCRIMINATION TO EQUALITY IN ENTREPRENEURSHIP

The Global Gender Gap Report for 2023, published by the World Economic Forum, shows that the gender gap in entrepreneurship stands at 31.6%. While this is a slight improvement of 0.3 percentage points compared to the previous year, progress is slow and uneven. According to the report, it will take an additional 131 years to achieve complete gender equality in entrepreneurship globally. This report also highlights the negative impact of the COVID-19 pandemic on women's entrepreneurship, especially in sectors that were hardest hit by the crisis, such as tourism, hospitality, and retail (World Economic Forum).

One of the key obstacles faced by women entrepreneurs is the lack of access to financial resources, which limits their ability to start, develop, and sustain their businesses. A World Bank study indicates a global financial gap of \$1.5 trillion that affects women entrepreneurs worldwide. In other words, they have fewer opportunities to access loans, grants, equity, and other financial services compared to men, due to an imbalance stemming from gender-based discrimination, legal barriers, social norms, and a lack of adequate collateral and financial education.

Further research shows that the lack of financial support directly affects the success and sustainability of women-led businesses. According to the Global Entrepreneurship Monitor for 2020/2021, women entrepreneurs are less likely to receive loans or investments compared to men. Limitations in accessing finances make it difficult for women entrepreneurs to invest in the development of their businesses, acquire equipment, or expand into new markets. As a result, their competitiveness in the market may be weakened, and their potential for growth and success is constrained.

The International Finance Corporation (IFC) also suggests that women entrepreneurs often face additional challenges when trying to obtain financial support. These challenges include demands for additional collateral, unfair interest rates, or limited access to networks and contacts that are essential for accessing financial resources. These factors further complicate women's ability to secure the necessary funds to start or expand their businesses.

A case study from Mymensingh, Bangladesh, illustrates that issues such as lack of capital, low profits, insufficient training, and inadequate agricultural machinery pose obstacles for women in those areas, making it difficult for them to achieve economic independence (Md. Shajahan et al., 2022).



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The data presented indicate a need for a comprehensive approach that focuses on reducing gender imbalances and ensuring equal access to financial services for women entrepreneurs. This entails reducing gender-based discrimination, increasing financial literacy, providing appropriate collateral, and supporting networks that enable access to financial resources. The goal is to create an environment where women have more equitable conditions for entrepreneurship, which will contribute to their success and economic development.

The World Economic Forum's "Global Gender Gap Report 2022" reveals that women entrepreneurs face significant challenges regarding education. Women have less access to educational resources, including primary, secondary, and higher education, compared to men. This inequality in access to education makes it difficult for women to acquire the necessary skills and knowledge to run successful businesses. The lack of education can limit their ability to understand the market, keep up with innovations, and effectively tackle business challenges.

The Global Entrepreneurship Monitor Report on Women's Entrepreneurship 2019/2020 provides detailed data on the types of entrepreneurial activities in which women are more or less represented. This source offers insight into the existence of gender-specific patterns in entrepreneurship and differences in activity choices.

A study by UN Women concluded that women's entrepreneurship in Serbia is still not sufficiently developed and utilized, with a low number of businesses owned and managed by women, as well as low participation of women in entrepreneurial activities compared to other countries in the region and the EU.

## CONCLUSION

Women operate in a less favorable entrepreneurial environment characterized by legal, social, and cultural restrictions, which significantly limits their opportunities and choices. According to a World Bank study, many countries still implement legal and regulatory mechanisms that discriminate against women entrepreneurs, such as restrictions related to property ownership rights, inheritance, contracts, and mobility. These barriers affect women's ability to own, control, and utilize assets, which are crucial for entrepreneurship.

Additionally, women entrepreneurs face social and cultural obstacles, including gender stereotypes, biases, norms, and expectations, which significantly impact their confidence and behavior, as well as their ability to take risks and self-assurance—key elements of entrepreneurship. Women entrepreneurs are often constrained by the external environment that shapes their opportunities and choices in entrepreneurship. They do not enjoy the same freedom, autonomy, and support as men in pursuing their entrepreneurial goals. Furthermore, they face increased challenges in balancing work and family obligations, which can significantly affect their well-being and achievements, especially for young women entrepreneurs.

Women's entrepreneurship represents a powerful driving force for economic and social development. According to the World Bank, there are between 8 and 10 million small and medium-sized enterprises in developed countries that have at least one female owner. These businesses actively contribute to economic growth, generate new jobs, reduce poverty, and enhance social inclusion. According to the European Institute for Gender Equality, gender equality in entrepreneurship is crucial for achieving sustainable development goals and European priorities for growth and employment.



## Conference Proceedings

### REFERENCES

- Atanasijević, K. (2019). Žene u Euripidovim tragedijama, Žene u Eshilovim i Sofoklovim tragedijama. Etika Feminizma. Ogledi br. 11, Helsinški odbor za ljudska prava, Beograd.
- Barrett, A. (1996). Agrippina, Sex, Power and Politics in Early Empire. Routledge, London.
- Bogunović, M. (2012), Žena u rimskom pravu – subjekt ili objekt prava? Zbornik radova Pravnog fakulteta, Novi Sad, 46(2), 539-550.
- Bujkulić, Ž. (2009). Forum romanum, rimska država, pravo, religija i mitovi. Zavod za udžbenike, Beograd
- Code of Hammurabi. Zakonik Hammurabija. Available at: <http://ucionicaistorije.files.wordpress.com/2011/11/d185d0b0d0bcd183d180d0b0d0b1d0b8d198d0b5d0b2-d0b7d0b0d0bad0bed0bdd0b8d0ba.pdf> (Retrieved: 25.08.2024)
- Dixon, S. (2007). Cornelia, Mother of Gracii. Routledge, New York.
- Dunderski, S. (2003). Svetlo u tami pedagoškog maskulinuma (shvatanja o vaspitanju žena u pedagoškim učenjima u prošlosti). Tampograf, Novi Sad
- European Institute for Gender Equality (2016). Gender in entrepreneurship. European Institute for Gender Equality (EIGE), Vilnius.
- Festić, R. (1998). Stari kodeksi, Editio Iuristica. Vijeće postdiplomskog studija Pravnog fakulteta, Sarajevo.
- file:///C:/Users/User/Downloads/ti\_pubpdf\_mh0216899enn\_pdfweb\_20170124125308.pdf
- Global Entrepreneurship Monitor. (2019/2020). Women's Report. Available at: <https://www.gemconsortium.org/report/gem-2019-2020-global-report> (Retrieved 25.08.2024)
- Global Entrepreneurship Monitor. (2020/2021). Women's Report. Available at: <https://www.gemconsortium.org/report/gem-20202021-global-report> (Retrieved 25.08.2024)
- Huseinspahić, A. (2011), Tutela mulierum i pravni položaj žene u starom vijeku. Anali Pravnog fakulteta Univerziteta u Zenici, 4(8), 213-236.
- International Finance Corporation (2006). An Innovative Financing Program for Women Entrepreneurs. Washington, D.C. Available at: [https://www.ifc.org/wps/wcm/connect/news\\_ext\\_content/ifc\\_external\\_corporate\\_site/news+and+event/s/news/she-ventures](https://www.ifc.org/wps/wcm/connect/news_ext_content/ifc_external_corporate_site/news+and+event/s/news/she-ventures) (Retrieved 26.08.2024.)
- International Labour Organization (2014). Women's Entrepreneurship Development. Geneva. <https://www.ilo.org/empent/areas/womens-entrepreneurship-development-wed/lang--en/index.htm>
- Kito, H. D. F. (1963). Grci. Matica srpska, Novi Sad.
- Küng, H. (2005). Women in Christianity. Continuum Press, London.
- Lewinsohn, R. (1959). Historija seksualnosti. Zora/Naprijed, Zagreb.
- Matić, M. (2011). Položaj žene u starom Egiptu. Strani pravni život, 55(3), 207-226.
- Matotek, V. (2006). Prava žena kroz povijest. Matica Hrvatska, Zagreb.
- Md. Shajahan, K., Sahati, W. Z., Radović-Marković, M. (2022). Women empowerment through agricultural technology: Case study of Mymensingh-Bangladesh. International Review, 3-4, 57-66.



## Conference Proceedings

- Nikolić, D. (2000). Drevnorusko slovensko pravo, drugo izdanje. Pravni fakultet, Beograd.
- Obrenić, D. (2014). Pravo glasa žena. Neko je rekao feminizam? Kako je feminizam uticao na žene XXI veka. Heinrich Böll Stiftung, Regionalna kancelarija za Jugoistočnu Evropu, Novi Sad.
- Peyre, H. (1949). The Influence of Eighteenth Century Ideas on the French Revolution. *Journal of the History of Ideas*, 10(1), 63–87.
- Prelević Plavšić, S. (2019). (R)evolucija ženskih prava – od lica alieni iuris do nordijskog paradoksa. *Evropsko zakonodavstvo*, 68(67), 278-299.
- Radović, V. (2006). Pedagoška i filozofska misao o ženi i vaspitanju ženske dece od antičke Grčke do početka 20. veka. *Pedagoška stvarnost*, 52(7-8), 665-681.
- Romac, A. (1973). Izvori rimskog prava. Narodne novine, Zagreb.
- Straumann, B. (2015). Roman Law in the State of Nature. Cambridge University Press, Cambridge.
- Stroll, A., William Levi, A., Wolin, R. (2023). Philosophy of nature. Encyclopaedia Britannica, Inc., Chicago
- The Universal Declaration of Human Rights (1948). United Nations, New York. Available et: <https://www.un.org/en/about-us/universal-declaration-of-human-rights>. (Retrieved 25.08.2024.)
- Tuttle, E. F. (1976). The "Trotula" and old dame trot: a note on the lady of Salerno. *Bulletin of the History of Medicine*, 50(1), 61-71.
- Vezel, U. (1983). Mit o matrijarhatu. Prosveta, Beograd.
- Weston, B. (2023). Natural law transformed into natural rights. Encyclopaedia Britannica, Inc., Chicago. Available et: <https://www.britannica.com/topic/human-rights/Natural-law-transformed-into-natural-rights>. (Retrieved 25.08.2024)
- World Bank (2017). Women's Entrepreneurship. Washington DC. Available et: <https://www.doingbusiness.org/content/dam/doingBusiness/media/Special-Reports/Womens-Entrepreneurship.pdf> (Retrieved: 25.08.2024)
- World Bank (2018). Global Findex Database 2018. Washington DC. Available et: <https://globalfindex.worldbank.org/> (Retrieved 25.08.2024.)
- World Bank (2021). Women, Business and the Law 2021. Washington DC. Available et: <https://openknowledge.worldbank.org/server/api/core/bitstreams/b2274591-b8fd-5636-ac36-> (Retrieved: 26.08.2024.)
- World Economic Forum (2022). The Global Gender Gap Report 2022. Geneva. Available et: [https://www3.weforum.org/docs/WEF\\_GGGR\\_2022.pdf](https://www3.weforum.org/docs/WEF_GGGR_2022.pdf) (Retrieved: 25.08.2024.)
- World Economic Forum (2023). Global Gender Gap Report 2023. Geneva. Available et: [https://www3.weforum.org/docs/WEF\\_GGGR\\_2023.pdf](https://www3.weforum.org/docs/WEF_GGGR_2023.pdf) (Retrieved 26.08.2024.)



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# LEGAL AND ETHICAL ASPECTS OF BUSINESS WITH A VIEW TO THE ISSUE OF LANGUAGE

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DOI: 10.5937/EEE24060R

JEL: K12, K31, M21

Review Scientific Paper

### ABSTRACT

*The legal scholar and critical theorist Jeanne Lorraine Schroeder applied a unique interdisciplinary approach to the philosophy of law which uses linguistically driven Lacanian psychoanalysis, more precisely the theory of four discourses, as well as critical theories about the relationship of ideology and critique, to examine values, subjective roles and tendencies in scholarship which in jurisprudence correspond to the four discourses: the master's, hysteric's, university's and the analyst's. Through this approach, she investigates, among other issues, the relationship of morality with positive law and policy. Our thesis in this paper is that we can analogously apply Schroeder's perspective to business and economics, announcing potential innovations in psychoanalytically and linguistically informed interdisciplinary studies in the philosophy of business. Besides the most relevant subjective roles, we look at how this approach applies to some of the most prominent theories on the social responsibility of businesses. Towards the end, we address the language of marketing in advertising and other forms of promotion to see how our novel interdisciplinary approach may lead to improvements in consumer advocacy and much more effective moral criticisms of marketing policies.*

### KEYWORDS

*interdisciplinary studies, business, law, socio-linguistics, ethics, morality, consumer advocacy, ideology, critique, psychoanalysis, four discourses*

## INTRODUCTION

Due to its nature which is more normative in essence, jurisprudence is a field of work and scholarship in which there is a greater need for detailed discussions of ethics and morality than there is in business and economics. Regardless, both disciplines involve many important open questions, some of which may potentially be dangerous blind spots when it comes to their relationship with morals and ethics. In this paper, we suggest that the interdisciplinary approach taken by the law professor and critical theorist Jean Lorraine Schroeder in her work *Four Lacanian Discourses or turning the Law Inside Out* (Schroeder, 2008) can shed light on issues of the moral and the ethical, not only in studies and practice of law to which the author applies it, but also for analogous phenomena in the field of business.

We shall first present her theory of Four discourses as she applies it to jurisprudence, maintaining our focus on questions of morality, followed by our own suggestions about possible analogous

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applications in business. We will particularly aim to contextualise the business – consumer relations and apply this approach to some known moral problems and dilemmas in business, with a special focus on the language of marketing. After describing a possible Schroederian approach to the posed ethical dilemmas, we shall draw general conclusions about the potential for academic and practical implementations of the presented hypothesis.

Schroeder's philosophy of law relies on Lacanian psychoanalysis, namely the theory of four discourses, to propose that many legal phenomena, especially roles of various participants in legal processes, correspond to one of the four discourses described by the French psychoanalyst Jacques Lacan: the Master, the University, the Hysteric and the Analyst. Her starting point is to designate legal positivism, especially the strict descriptivist approach of H.L.A. Hart, as an iteration of the repressive master discourse. A more practical example of a master in jurisprudence would be a judge presiding over a court process and applying the positive law, while legal counselors may speak either as Analysts or a Hysterics, depending on what they're currently providing for the client - *counseling proper* or *advocacy*. After a short rundown of Schroeder's theory with a special focus on how it envisions the relationship of law and morality, we shall attempt to provide some preliminary hypotheses on how it may be analogously applied to business relationships.

In terms of subjective roles in the field of business, we shall first quickly point out the obvious relevance of the relationship between owners and company management as Masters on the one side, and workers as potential Hysterics on the other. However, we shall dwell much longer on another essential duality – that of the business and the consumer. Here, special focus will be placed on relations that pertain to consumer advocacy as an instance of the discourse of the hysteric, which will open up some possibilities for more effective critiques of anti-consumer practices. After describing the roles of other three discourses, we shall relate the hypothesis about the economic application of the four discourses to some of the most widespread concepts of social responsibility of businesses. This include the views of Andrew Carnegie, Milton Friedman and the somewhat more compatible contractarian theory of business ethics.

After these general considerations, through ethically controversial examples from the history of marketing, including a simple case of misleading advertisement, but also an infamous and deleterious case of exploitation of consumer vulnerability, we shall attempt to illustrate how the language used in marketing, particularly in advertisement and other forms of promotion, affects the values, subjective roles and corresponding academic approaches in business that correspond to each of the four discourses.

The conclusion will point out some caveats and emphasize the importance of interdisciplinary studies which rely on jurisprudence, business, economics, linguistics, philosophy, psychoanalysis and other related disciplines for posing and answering these critical questions.

## LAW, MORALITY AND THE FOUR DISCOURSES

One question that stands out in post-World War II philosophy of law is the question of the legal status of inhumanely immoral laws. In this discussion, mostly motivated by the atrocities of The Second World War, Gustav Radbruch was one of the earliest and most famous advocates of the view that extremely immoral and violent legal acts ought to be deemed illegal. While having many conceptual predecessors that appeared in writing at various times in history, including St Augustin's maxim: *Lex iniusta non est lex*, - *An unjust law is no law at all*, the difficult task that history laid in front of Radbruch urgently required a drastic yet immediately applicable solution to the problem of unjust laws. Under the premise that pure positivism can assert validity of positive law merely by showing "sufficient power behind it to



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prevail”, Radbruch concludes that a purely positivist approach is “in and of itself wholly incapable of establishing the validity of statutes” (Radbruch, 2006).

Ultimately, he reaches his famous formula: “The positive law, secured by legislation and power, takes precedence even when its content is unjust and fails to benefit the people, unless the conflict between statute and justice reaches such an intolerable degree that the statute, as ‘flawed law’, must yield to justice” (Radbruch, 2006).

However, despite being seen as many as an apt response to an extremely difficult dilemma, the opposing camp of positivist descriptivism, a prominent representative of which was H. L. A. Hart, promoted the view that, put in simplest terms, *law is law*. They do not deny that laws indeed often do accord with common ethical positions of the day while moral questioning ought to be a critical corrective on both legislation and application of the law.

However, they, from their perspective which limits legal scholarship to a descriptive analytic role, claim that none of it does or should affect a law’s status as being legal. His project of strictly descriptivist jurisprudence relies on the separation thesis, which distinguishes “firmly and with the maximum of clarity, law as it is from law as it ought to be” (Hart, 1985). With such radically opposing views gaining prominence, a famous debate on the issue ensued between Hart and Lon Fuller in 1958. Fuller adopted a position closer to Radbruch’s view and criticised Hart, among other things, as having an inconsistent approach to the distinction between normative and descriptive claims. Criticising Hart’s separation thesis as potentially leading to immorality, Fuller finds his approach particularly frustrating since it “purports to merely describe, when it not only plainly prescribes, but owes its prescriptive powers precisely to the fact that it disclaims prescriptive intentions” (Fuller, 1958).

In order to better understand Hart’s controversial theories and their ideological motivation, many years later Jeanne Lorraine Schroeder formulated a critique that probed deeper into the driving forces behind such rationalisations. Observing Hart as an author through the lens of Lacanian psychoanalysis and critique of ideology, she recognised in his work symptoms of what will later be shown to be Lacan’s master’s discourse, using this recognition as a starting point to formulate a more complex and speculative philosophy of law by analyzing its relation to the other three discourses.

Her central critique is that Hart’s separation thesis *as is* renders the supposed corrective role of morality effectively powerless, among other reasons, due to Hart’s insufficient reflection on how that corrective role would actually affect any aspect of the legal system within Hart’s descriptivist vision of law and jurisprudence. While questioning what is even the meaning of “morality” in Hart’s work upon closer inspection, she applies her lens of feminist Lacanian psychoanalysis to recognize in Hart a repressive masculine tendency to “[immure] virgin morality behind convent walls to preserve her from temptation (Schroeder, 2008).

As we alluded, Schroeder sees this positivist angle *law is law*, along with Hartian exclusion of morality from effective discussion, as a particular case of what Lacan dubbed the master’s discourse. Unfortunately, the scope of this article does not allow us to reflect in depth at the signifiers which constitute the psycholinguistic structure of the four discourses, namely the master signifier, the barred subject, knowledge and product / truth. For present purposes, it will suffice to describe each of the discourses – Master’s, University’s, Hysteric’s and Analyst’s - in terms of values, subjective roles and streams of scholarship which embody each of them in law and jurisprudence according to Schroeder’s theory (with the aim of later describing analogous phenomena in business). As a practical example of the master discourse in the legal profession, Schroeder claims that Hart’s descriptivism also imposes the effects of its master’s discourse on the subjective role of the judge in the court of law.



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In Hart's view, the discretion of judges ought to be strictly minimized, with no discretion applied in a "core of easy cases where law is determinate ... surrounded by a penumbra of hard cases in which a judge will be forced to use her discretion" (Hart, 1961). Schroeder sees this as another case of Hart's theory engaging in repression, namely that, just like morality, most of judge's discretion is expelled by the master discourse as *objet petit a* (object cause of desire). The master discourse "creates itself" (Schroeder, 2008) by expelling the signifier of desire that Lacan named *object small a*, which „can function as the object cause of the discourse's desire precisely because it is missing". Schroeder lays bare the problems with Hart by warning us about Lacan's point that the master simultaneously desires and represses their own desire, in this case "morality *per se*" being both the true desire and the repressed product of the legal positivist master (Schroeder, 2008).

In this Lacanian constellation dominated by the more immediate and imposing desires of the master, the most immediate critic of the master comes from the hysteric. As a synthesis of Freud's idea on neurosis and Hegel's master – slave dialectic, Lacan posits the figure of the hysteric as a psychoanalyzed equivalent of the Hegelian slave. The hysteric "rants and raves against the master" (Schroeder, 2008), but in the end "the Hysteric is no anarchist, the Law is her desire." A crucial insight here is that, while presenting his Seventeenth Seminar in which Lacan introduced the four discourses for the first time, he told the excited Parisian students engaged in 1968 protests that „What you aspire to as revolutionaries is a master. You will get one" (Lacan, 2007). In accordance with her views on the Hysteric's discourse as "true critique" which doesn't initiate "revolution or the impossible search for perfection, but the possibility of imperfect reform" (Schroeder, 2008), she advises a partial acceptance of Hart's positivism, but importantly mediated by the external critique of the hysteric or the other discourse which may provide a criticism of the pure letter of the law, the analyst's discourse.

However, since the *objet petit a* functions in the hysteric's discourse as its hidden truth, also unconscious, but positive driving force, rather than its expelled and repressed product, it is the hysteric which can provide the most immediate, subjective and intimate critique of the master while she speaks to him as the barred subject, the "wretched" void of subjectivity itself. Thus, only those directly affected by the mastery of the positive law can initially inspire a genuine quest for its critique, leading Schroeder to conclude that the hysteric is always the initial bearer of "morality as critique", with the analyst providing more *post facto* reflections on the contradictions of master's desire as the master's true inversion. Schroeder's attitude towards Hart's separation thesis is that the separation should certainly be maintained, with clear distinction between positive law and morality as the master's and the hysteric's discourse respectively, but not at the cost of effective exclusion of morality from the discussion, which is why the hysteric, often perceived as a psychosexually feminist figure, should be given special attention as such.

As was pointed out, the discourse of the analyst is another discourse that critiques the ideology of the master, while the university discourse supports the master by providing justifications and rationalizations, something master is "not allowed" to do. Schroeder sees this discourse as primarily embodied in jurisprudence, not by any kind of legal scholarship, but precisely by the kind of scholarship that is excessively oriented on legislation and policy as almost omnipotent forces.

As presented, Schroeder's theory recognizes two discourses as aligned with the defense of dominant ideology, masculinity and obsessional neurosis – the unconditional, self-contained master and the conditional, knowledge driven university, while the other two discourses, the hysteric and the analyst, are seen as aligned with the critique of ideology, femininity and hysterical neurosis. In the rest of this paper where we attempt to apply the presented theory to business phenomena, a special focus will be placed on the roles of the master and the hysteric, the latter of which is particularly important for the actualization of the aforementioned moral criticism of the letter of the law.



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### FOUR DISCOURSES AND MORALITY IN BUSINESS

If we attempt to analogously apply this jurisprudential relationship of the master and the hysteric to business, perhaps the most obvious potential application is the employer-employee relationship. We can potentially see values, subjective roles and scholarship that are focused on the desires of the management and the owners as a form of master's discourse, perhaps labor organization through unions as that of a hysteric etc. However, it would perhaps be even more beneficial to the study of business as such if we focus on another key relationship of power within the economy – the relationship between businesses and consumers.

First it should be pointed out that, in contrast with hysterical subjects of legal processes or employees, consumers do possess a greater power of choice. However, as we shall see in the following section, that power may become much more malleable and relativised than what an idealised model of rational agents may suggest. Although not speaking from that discourse as often as defendants in court or employees, we may expect consumers to be in that position whenever business decisions are made at their expense. In that sense, one aspect of the work of consumer organizations that is crucial here is consumer advocacy. One possible difference with Schroeder's legal advocacy as hysteria is that, unlike in legal proceedings where it is usually highly inadvisable for one to represent (ie advocate) for one's self, we are expected to make decisions of consumers on our own on a regular basis. That is why, when this paper mentions the potentials of consumer advocacy, we also include self-advocacy by individuals and small local groups of people.

In the position of the master we may see businesses themselves and values such as maximisation of profit, or, in the subsequently examined field of marketing, the necessity or *compulsion* for the consumers to keep buying. As we shall see in the case of the infamous Nestle scandal, as natural as it is for businesses to desire and need paying customers, such mastery and compulsion can lead to devastating effects if left unchecked.

Another discourse which will be better illustrated in the following section is the discourse of the university. In parallel to Schroeder's critique of scholarship and politics that are strictly oriented on creating laws and government policies, we may recognise the university discourse in business actors who are focused on government policies, but here we can equally include private, autonomous business policies. In the following section we shall argue for the recognition of another form of this discourse - it is also embodied in the consumer oriented aspects of marketing, such as market research, promotion and advertisement. All of these functions obviously correlate to university's general ideological function of justifying and bolstering the master's position of authority.

Besides consumer organizations and individuals engaged in consumer (self-) advocacy, the function of consumer advocacy may also be taken up by speculative and critical scholars who introduce critique in either business studies proper or in interdisciplinary studies, inserting questions of vital consumer interest and moral gravity into the academic discussion on business. They may also aid this function by giving guidance or a platform to consumer organizations and consumer self-advocacy. All the while, within this paradigm at least, they should accept that true consumer advocacy is not there to supplant business decision makers, but to supplement them, as Schroeder advises for hysterics in jurisprudence (Schroeder, 2008). It crucially should not supplement businesses as a subordinate factor - a servant to a master - but as a separate entity, partially, but not absolutely opposed to it, aiming to be a radical agent of "imperfect reform" (Schroeder, 2008).

Another role that both speculative and critical scholars, but also consumer organizations may embody would be that of an analyst. In parallel to Schroeder's view on law, counseling is a function of the analyst



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and in this we see the opposite situation to that of the hysteric – scholarship may be in advantage when fulfilling this role over consumer organizations. In any role, the goal of analyst's counseling should be to speak as *objet petit a* and be the inversion of the subject in the master position who represses and expels this object while simultaneously chasing it. That is, they should hold a mirror to business and illustrate where their institutionalized desires lead and how they conflict.

The general question that is of outmost importance for all of these relationships is that of the social responsibility of businesses. One such concept that became extremely influential came from Andrew Carnegie in his famous essay *The Gospel of Wealth* (Carnegie, 1889), where social responsibility is defined through principles of charity and stewardship. While charity is mainly about the wealthier and more fortunate members of the society helping out those less fortunate by donations to charitable institutions, stewardship represents the “duty of entrepreneurs to, through enlargement of their own wealth and prudent investment, enlarge the overall social wealth“ (Carnegie, 1889).

Albeit commendable in some ways, a more accute analysis of this concept and its implied power dynamics reveals a certain paternalistic slant to Carnegie's philanthropy. Regardless of how empathetic in some of its intentions, at no point does Carnegie's leave any room for the “less fortunate“ to express their voice or wield any tangible social power. Despite the fact that Carnegie was a world class industrialist and about as highly situated as one could be in the social hierarchy, this aspect of *justification* of mastery reveals that Carnegie is not talking from the discourse of the master. In fact, these justifications, along with grand solutions that blur the line between the regular state within institutions and extraordinary interventions, remind us the most of Schroeder's view on policy promotion and policy scholarship as within the discourse of the university.

In order to find a perspective on social responsibility of business that speaks from the master's dicourse itself, we need to look no further than Milton Friedman. In his view, the primary social responsibility of every business is to maximise profits (Friedman, 1970). Donations by corporations for any public interests, common goods etc are seen as unfair *taxation* on shareholders and employees, while the maximisation of profit reduces the responsibilities to efficient production of goods and services (Friedman, 1970). This approach preemptively represses all demands for recognition of any other / other and demands unconditional recognition of the business's mastery to do as they please, clear signs of the voice of master's discourse.

A newer approach to this crucial issue that may potentially be better harmonised with our Schroederian-Lacanian project is the idea of contractarian business ethics. Seeing “value creation in its various forms“ (Vučković, 2006) as the primary goal of a business operation already surpasses previous two theories by challenging the central position of the master signifier of money. Seeing profits and social merit of a business as results of other goals rather than the main goal (Vučković, 2006) extends much needed contextual flexibility and leaves a better opening for psychoanalytic reflections on desire and need. Approaching the problems of business and management as a form of “interpersonal communication“ (Vučković, 2006) is another key feature of contractarian business ethics that shows potential to communicate better with Lacanian views on intersubjectivity. However, contractarian business ethics in our view still does not reflect enough on power imbalances and conscious or unconscious desire for subordination of the other. That is why in the future we should aim for additional critical interpretations of the relationship between this ethical theory and the two critical discourses, particularly that of the hysteric.

After setting the stage with basic actors and roles, as well as the most general theories on social responsibility, we will move on to more specific and practical examples taken from the history of marketing and talk about the crucial topic of the language of marketing as it pertains to the business - consumer relationship. But before we go on, we shall revise and summarize by presenting a table of



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symbolic values (Table 1), subjective roles and relevant approaches in scholarship which correlate with the four discourses – both in Schroeder’s work on law, as well as in our propositions on business application:

Table 1. A summary of the key instances of four discourses in law and business

Discourse	Law	Business
Master	the letter of the positive law, judges, descriptivist positivist scholarship	maximization of profit, shareholders, top management
University	policy projects, policy oriented legal scholarship	market research, advertisement, economic scholarship oriented towards business and/or government policy
Hysteric	legal advocacy, speculative and “true” doctrinal scholarship of law	consumer (self-)advocacy, labor politics, speculative scholarship & interdisciplinary studies in business ethics
Analyst	legal counseling, analytic scholarship	analytic, historical and philosophical studies in business & economics

## CRITIQUING THE LANGUAGE OF MARKETING

After introducing these general pointers, we shall ask the question how the language of marketing can be more effectively subordinated to the moral criticisms of negatively affected consumers by applying the theory of the four discourses. In his succinct textbook on business and morality, Željko Vučković quotes John Galbraith as saying that “advertising is by its nature manipulative” and that it always entails a “creation of consumers’ needs” (Galbraith, 1958). A particularly cynical example that is pointed out in the textbook is the typical case of promoting sales of dangerous goods such as weapons, alcohol and tobacco under an aspirational but trite advertising slogan such as *Be free* (Vučković, 2006). Here we see something particularly important about the way that language of marketing functions, especially in promotion and advertising: in regard to the master’s discourse in marketing, the master signifier is not directly and strictly reserved for the “masters of business”.

Instead, it usually applies manipulative language to assert an illusion of consumer’s mastery as a decision maker, while simultaneously assisting and legitimizing the manipulative process of manufacturing perceived consumer needs and desires. Here at least a part of the function of the signifier *free* is to create an illusion of consumer mastery while the opportunistic language and studies of consumer behavior that allow for such an illusion represent the knowledge (S2) of the university discourse. Effectively, consumer oriented aspects of marketing such as promotion and advertising act to reserve real, effective mastery as the domain of the message sender, i.e. business as a master, thus performing their ideological role as instances of university discourse.

Such common situations of illusory advertising in this and many other cases rely on the fact that government regulation can never exhaustively regulate such messaging without gravely affecting freedom of speech and other rights. However, there are far worse historical examples of marketing manipulation that came at a significant cost to consumers, which not only raised questions of morality, but also became a cause for belated legal regulation of certain promotional activities. In particular, we will analyze the infamous and long lasting Nestle’s 20th century campaign to promote baby formula in



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Africa. With intent to increase the sales of their baby formula, Nestle engaged in a campaign of promotion that became infamous and raised many concerns about the morality of such campaigns. It is already somewhat questionable that promoters went directly to maternity hospitals, where new mothers would be found in a particularly sensitive and susceptible state, in order to present them with leaflets which showed richer white women using Nestle baby formula, strongly implying that that's the baby food of choice for modern women (Vučković, 2006). However, this problematic power dynamic was far exacerbated by the fact that, as a move of obvious manipulation and illusionary authority, Nestle's promoters walked around hospitals in white coats (Vučković, 2006).

One of the most egregious consequences of this campaign were numerous situations where African mothers' conviction about the superiority of the substitute over mother's milk led them to dilute the formula, as they could not afford the recommended amounts, which directly lead to child malnourishment (Vučković, 2006). The seven years boycott over these dubious practices, initiated by African NGOs, stopped in 1984 when Nestle was finally forced to cease these deeply morally questionable practices by the World Health Organisation's International Code of Marketing of Breast-Milk Substitutes which was enacted four years prior (WHO, 1980). Thus, a pretty egregious case of consumer exploitation was stopped only after a boycott which lasted several years was aided by explicit international policy, in the meantime leaving a moral vacuum as regulation was not keeping up with exploitative business practices.

It is indeed very important to acknowledge the necessity and the beneficial effect of the policy solution ultimately enacted by the WHO and also to speak even more highly of the consumer advocacy embodied in the boycott. However, if we aim for consumer advocacy to be truly critical of such business behavior, we must not lull ourselves into thinking that occasional enactments of such specific policy changes will be enough to tame the kind of mastery that was exhibited in African clinics. The idea: *now we have a better policy and that is that* is the kind of conclusion that the master would like us to reach, and certainly a conclusion of which the university forces will attempt to convince us.

What is required in the long run is moral and political vigilance to recognize possible abhorrent behavior and react to it as soon as possible, which is why the boycotters and their actions should be given more focus in our reflections than the WHO itself. Between the recognition of the moral problem and committing to the reaction, an in-depth analysis would be well advised if feasible, especially for the critics who are in the position of the analyst. However, hysterics and their voicing of real problems and suffering often cannot afford in-depth analyses and we should be ready to listen to - and avoid participating in the ideological repression of - people in such positions, even when available information is scarce and their level of organization is lackluster.

A large problem for any project aiming to advance consumer advocacy today is the issue of promoting the relevant messages in the current media landscape. If a cigarette brand is promising us freedom and enjoyment while an advocacy group is promising only lessons in responsibility, a severe socio- and psycho-linguistic limitation is placed on the ability to immediately capture the imagination of the intended audience, exacerbated in the modern era by the shortening of average audience attention span. In this situation, we might say that the ubiquitous psychological phenomenon of loss aversion applies even to our short term mood. This requires the difficult endeavor which is balancing the aesthetic appeal and economics of attention in promotion and advertisement with the social responsibility and the gravity of the message.

Unfortunately, here we reach the limit when it comes to analyzing further socio-linguistic implications of marketing language, as probing into the forms which determine the content of both ideological and critical messages would require us to extensively engage with signifiers which constitute discourses and their mutual positions, something we have already excluded from this work for the sake of brevity. While the issue of scope precludes us from delving any deeper into



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this sensitive issue and proposing extensive solutions, we may point out that these are the questions which deserve at least some attention within socio- and psycho-linguistic critiques of marketing strategies for the sake of the strengthening of consumer advocacy.

## CONCLUSION

Hopefully, we have shown that Jeanne Lorraine Schroeder's intriguing interdisciplinary project, using the psychoanalytic theory of four discourses to introduce a vital critique of desires and ideologies to the philosophy of law, may potentially be applied in a tentatively analogous manner to philosophy and interdisciplinary studies of business.

While consumer (self-)advocacy as an instance of the discourse of the hysteric proved to be the key critical process standing in parallel to of legal advocacy through representation and speculative scholarship in Schroeder's theory, we have seen that the discourse of the master informs phenomena such as management, maximization of profit, minimizing consumer awareness and exploiting their vulnerabilities. The discourse of the university showed its face in marketing techniques of consumer manipulation, in misplaced academic and practical trust in business and/or government policy, but also in philanthropic attitudes to the social responsibility of business. Finally, the position of the analyst was mainly seen in speculative and critical scholarship and brief allusions to the processes counseling. An analysis of the factor of language in marketing was only given in broad strokes, but we hope that some potential for further developments is present and apparent.

We should note that J. L. Schroeder approached her interventions in philosophy of law, not only as a feminist critical theorist using psychoanalysis to critique social structures and ideologies, but also as a competent legal scholar. Perhaps the main deficiency of this paper is the lack of input of colleagues with expertise business and economics, a lack which we hope to amend in any future extensions of this endeavor. And beyond that, we hope to spark a conversation which will eventually ask the question which further disciplines of social theory and practice, beyond business and jurisprudence, may benefit from this interdisciplinary approach to social critique and analysis through the lens of the four discourses.

## REFERENCES

- Carnegie, A. (1889). The Gospel of Wealth. The Pall Mall Gazette, 1-2.
- Friedman, M. (1970). The Social Responsibility of Business is to Increase its Profits. The New York Times Magazine, 5.
- Fuller, L. (1958). Positivism and Fidelity to Law – A Reply to Professor Hart. Harvard Law Review, 632.
- Galbraith, J. (1958). The Affluent Society. Houghton Mifflin, Boston.
- Hart, H. L. A. (1961). The Concept of Law. Oxford University Press, Oxford.
- Hart, H. L. A. (1985). Positivism and the Separation of Law and Morals. Harvard Law Review, 594.





## Conference Proceedings

Lacan, J. (2007). *The Seminar of Jacques Lacan: Book XVII, The Other Side of Psychoanalysis* (trans. Russell Grig, ed. Jacques-Alain Miller). Norton & Company, New York.

Radbruch, G. (2006). Statutory Lawlessness and Supra-Statutory Law. *Oxford Journal of Legal Studies*, 26(1), 6-7.

Schroeder, J. L. (2008). *The Four Lacanian Discourses Or Turning Law Inside-Out*. Birkbeck Law Press, Cavendish.

Vučković, Ž. (2006). *Biznis i moral*. Cekom Books, Novi Sad.

World Health Organization (1980). *International Code of Marketing of Breast-Milk Substitutes*. World Health Organization, Geneva.



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# PERSONS WITH DISABILITIES IN THE LABOR MARKET IN THE REPUBLIC OF SERBIA

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DOI: 10.5937/EEE24061C

JEL: J38, M26

Review Scientific Paper

### ABSTRACT

*This paper explores the concept of persons with disabilities in the context of the labor market in the Republic of Serbia, defining their rights and challenges. It analyzes the legal framework, including key legal acts that regulate this area, such as the Law on Professional Rehabilitation and Employment of Persons with Disabilities. Data from two population censuses and four annual reports from the National Employment Service are examined to present trends in employment and the participation of persons with disabilities. Based on the findings, the paper offers recommendations for improving institutional support and more effective implementation of legal mechanisms. The conclusion emphasizes the importance of greater inclusion of persons with disabilities in the workforce and the need for stronger cooperation between government bodies, employers, and organizations advocating for the rights of persons with disabilities.*

### KEYWORDS

*persons with disabilities, labor market, employment, Republic of Serbia, legal framework*

## INTRODUCTION

The position of persons with disabilities in the labor market of the Republic of Serbia is a complex issue that requires a multidisciplinary approach. Persons with disabilities face numerous challenges when attempting to integrate into the workforce, and these challenges are often the result of a combination of social, economic, and legal factors. Although there is a legal framework supporting the employment of persons with disabilities, such as the Law on Professional Rehabilitation and Employment of Persons with Disabilities, practice shows that many of these laws are not effectively implemented, leading to a high unemployment rate among this population (Molović, 2023).

One of the key issues is discrimination, which manifests itself through physical barriers, a lack of accessibility to workplaces, and through societal prejudices and stereotypes. Research has shown that persons with disabilities often experience stress due to these obstacles, further complicating their integration into the workplace (Butković, 2023). Additionally, employers' perceptions of the abilities of persons with disabilities play a significant role in their employment. Many employers are unaware of the advantages that hiring persons with disabilities can bring, leading to missed opportunities for

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creating more diverse and inclusive work environments (Avdić, Kuduzović, 2023). The inclusion of persons with disabilities in the labor market has positive effects on economic development and social cohesion. When included in financial activities, the pressure on social protection systems and public finances is reduced, improving the country's economic condition.

In many cases, employers face additional costs when adapting workplaces, which can be discouraging. However, research has shown that the long-term benefits of hiring persons with disabilities, such as increased productivity and reduced employee turnover, often outweigh the initial costs (Molović, 2023). Through the employment of persons with disabilities, companies and organizations demonstrate their commitment to social responsibility and respect for human rights. In light of these challenges, it is crucial to develop strategies that will facilitate better integration of persons with disabilities into the labor market. This includes strengthening institutional support, educating employers about the benefits of employing persons with disabilities, and implementing programs that will ease access to jobs (Mastilo et al., 2019). Additionally, a collaboration between various stakeholders, including the government, employers, and non-governmental organizations, can contribute to the creation of a more inclusive work environment that allows persons with disabilities to reach their full potential (Zulić et al., 2019).

## NATIONAL LEGISLATION

The legal framework of the Republic of Serbia in the area of employment of persons with disabilities is extensive and provides significant support through various measures and mechanisms. All of this aims to ensure equality, enhance work capabilities, provide professional rehabilitation, and fully integrate persons with disabilities into the workforce and social life, focusing on ensuring equal opportunities and inclusion in the work environment.

### **1. The Constitution of the Republic of Serbia**

The Constitution of the Republic of Serbia (Official Gazette of the Republic of Serbia, No. 98/2006 and 115/2021) contains provisions that directly impact the realization of the rights of persons with disabilities in the area of employment and labor relations. Article 21 prohibits any form of discrimination, whether direct or indirect, on any grounds, including disability, and guarantees equality for all before the law and equal legal protection. Article 60 ensures the right to work for every citizen, the free choice of occupation, and a fair and favorable working environment. It particularly emphasizes the right to special protection at work and the working conditions for persons with disabilities following the law.

### **2. Law on the Prevention of Discrimination Against Persons with Disabilities**

This law (Official Gazette of the Republic of Serbia", no. 33/2006 and 13/2016) adopted in 2006 and revised in 2016, aims to ensure equality and equal rights for persons with disabilities in all areas of social life, including labor relations. The Law on the Prevention of Discrimination Against Persons with Disabilities regulates various aspects of employment and labor relations, with a particular focus on preventing discrimination and ensuring equal opportunities. Article 22 defines what is considered discrimination in the employment of persons with disabilities, while Article 23 outlines the situations considered discriminatory. Additionally, the law addresses discrimination within the employment relationship in Article 24. A particularly severe form of discrimination, including harassment, insult, and humiliation of employees with disabilities by employers or superiors, is provided for in Article 26. These provisions clearly emphasize the employer's obligation to ensure fair conditions for the employment and work of persons with disabilities, taking measures to remove barriers and provide adequate working conditions.



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### **3. Law on Professional Rehabilitation and Employment of Persons with Disabilities**

Adopted to improve the position of persons with disabilities in the labor market and ensure their equality in employment, the Law on Professional Rehabilitation and Employment of Persons with Disabilities (Official Gazette of the Republic of Serbia, No. 36/2009, 32/2013, and 14/2022 - Other Law) recognizes two types of employment:

1. Employment under general conditions refers to employment without any adjustments,
2. Employment under special conditions requires modifications to the workplace and work processes.

The law mandates that employers with at least 20 employees must hire a specific number of persons with disabilities. Specifically, employers with 20 to 49 employees are required to hire at least one person with a disability, while employers with 50 or more employees must hire at least two persons with disabilities. If an employer fails to meet this obligation, they are required to pay an amount equal to 50% of the average wage per employee in the Republic of Serbia for each person with a disability they have not employed. This sanction encourages employers to comply with the prescribed quotas and actively seek and employ persons with disabilities, thereby reducing discrimination in the labor market and contributing to the economic independence and social inclusion of persons with disabilities.

Article 32 provides that employers who hire a person with a disability without work experience for an indefinite period are entitled to a salary subsidy for 12 months, covering 75% of the total salary costs. Additionally, employees with disabilities undergoing professional rehabilitation are entitled to 100% salary compensation during their rehabilitation period, and their employment relationship cannot be terminated due to absence caused by professional rehabilitation. Organizations implementing measures to encourage employment and professional rehabilitation are required to ensure equal conditions and access to all rights for persons with disabilities, ensuring their inclusion and integration into the workforce.

### **4. Labor Law**

The Labor Law (Official Gazette of the Republic of Serbia, No. 24/2005, 61/2005, 54/2009, 32/2013, 75/2014, 13/2017) provides general provisions related to labor relations, including the protection of the rights of persons with disabilities. The law prohibits discrimination based on disability and obliges employers to take measures to adapt the workplace to the needs of persons with disabilities.

### **5. Law on Social Protection**

The Law on Social Protection (Official Gazette of the Republic Serbia, No. 24/2011 and 117/2022) provides a framework for social assistance and support for persons with disabilities, including measures that facilitate their employment and inclusion in social life.

### **6. Regulation on the Detailed Method, Costs, and Criteria for Assessing Work Capacity and Employment or Job Retention Opportunities for Persons with Disabilities**

Employment of persons with disabilities in the Republic of Serbia is regulated by a series of legal and sub-legal acts. One of the important documents that govern this area is the Regulation on the Detailed Method, Costs, and Criteria for the Assessment of Work Capacity and the Possibility of Employment or Maintaining Employment for Persons with Disabilities (Official Gazette of RS, No. 36/2009, 36/2010, and 97/2013), which was adopted based on Article 9, paragraph 6 of the Law on Professional Rehabilitation and Employment of Persons with Disabilities. According to this Regulation, the assessment of work capacity and the possibility of employment or maintaining employment for persons with disabilities is conducted in a way that ensures respect for personal dignity and the protection of personal data in all stages of the process.



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The process begins by submitting a request to the relevant organizational unit of the National Employment Service (NES), which receives, registers, and forwards the request for further processing. The assessment is carried out by the Expert Commission of the Pension and Disability Insurance Fund of the Republic of Serbia, composed of a medical expert of the appropriate specialty, a social worker, a special educator-defectologist, a psychologist, and an occupational medicine specialist. They jointly consider medical, social, and other criteria to provide an objective and comprehensive evaluation. The medical documentation required for the assessment includes specialist findings, diagnostic tests, laboratory results, and a psychologist's report.

Additionally, other necessary documentation includes a social survey, a certificate of social protection rights, proof of professional qualifications or work experience, and a job description. Based on the assessment, the National Employment Service (NES) issues a decision on the assessment of work capacity and the possibility of employment or maintaining employment. If a person disagrees with the decision, they have the right to appeal. The criteria for assessing work capacity involve considering the consequences of physical, sensory, mental, or psychological impairments or diseases, as well as social, psychological, and other factors that affect work ability and employment opportunities.

The Commission determines the ability of a person with a disability to enter the labor market and perform specific tasks, either independently or with support. The assessment is conducted using a scale ranging from 0 to 5, where 0 indicates no difficulties or barriers to work and 5 means that difficulties and barriers are very significant and greatly affect work capacity. This scale helps the Commission determine specific measures and professional rehabilitation activities needed to enable employment or maintain employment. The assessment of work capacity for persons with disabilities is performed according to established criteria that include the degree of difficulties and barriers in performing tasks. The criteria are defined in three levels: 0 indicates no difficulties, while 3 indicates complete or multiple difficulties that prevent the person from being employed or maintaining employment. The costs of work capacity assessment for unemployed persons and those employed in professional rehabilitation enterprises are covered by the National Employment Service (NES). In the case of employed persons submitting a request for assessment, the costs may be borne by the applicants themselves or their employers.

## PERSONS WITH DISABILITIES IN THE LABOR MARKET

In the 21st century, two population censuses were conducted in the Republic of Serbia, in 2011 and 2022, providing significant data on the presence of persons with disabilities. According to the 2011 census, they made up about 8% of the population, while the 2022 census shows a decrease in this percentage, now standing at around 5.5% of the total population (Table 1).

Table 1. Comparative Display of Census Data

Census of Population	2011.	2022.
<b>Total number of inhabitants</b>	7 186 862	6 526 707
<b>Number of persons with disabilities</b>	571 780	356 404
Percentage of total population	7,96%	5,46%
<b>Persons with unknown disability status</b>	119 482	109 343
Percentage of total population	1,66%	1,68 %



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<b>Number of persons with disabilities of working age</b>	220 088	104 077
Percentage of total persons with disabilities	38,49%	29 %
Percentage of total population	3,06%	1,59 %

The percentage of potentially economically active population among persons with disabilities according to the first census was 38.5%, while based on the 2022 census, it stands at 29%. We can conclude that, according to the most recent census, 1.6% of the population of the Republic of Serbia, considering age-related factors, represents a category of hard-to-employ individuals or those who cannot access employment.

Based on reports from the National Employment Service (hereinafter referred to as NES) for the years 2016, 2017, 2019, and 2020, we gain a clearer view of the presence of persons with disabilities in the labor market (Table 2). The average number of persons registered in the NES register during this period was 20,991 individuals, and if we compare this data with the information obtained from the 2022 census, we observe that approximately 20% of persons with disabilities of working age are registered with the labor market. This fact indicates that a large number of persons with disabilities are not included in formal mechanisms for job searching, which could be a consequence of various factors such as insufficient information, fear of discrimination, or lack of support in this process.

Table 2. The overview of the registry status of persons with disabilities in the National Employment Service (NES) register

Report of the NES	2016.	2017.	2019.	2020.
<b>Number of persons with disabilities</b>	22 528	22 254	19 959	19 226
<b>Average number of unemployed persons</b>	15 659	14 905	13 517	13 204
<b>Work-related disabilities</b>	2 980	2 428	1 537	1 252
Work-related disabilities, second degree	235	185	129	113
Work-related disabilities, third degree	2 745	2 243	1 408	1 139
<b>Work ability assessment</b>	11 161	11 821	10 560	10 107
First degree	9 737	10 340	9 224	8 811
Second degree	887	845	703	676
Third degree	537	636	633	620

Further analysis of these reports shows that the unemployment rate for persons with disabilities averages 68%, but a declining trend in this percentage has been observed. Considering the current legal regulations, persons categorized as work-disabled at the third degree and persons whose work ability assessment is at the third degree cannot be employed. This fact reduces the unemployment rate for persons with disabilities to about 56% of the total registered number. It can be concluded that the average employment rate for persons with disabilities was only about 10% in the previous period. These data indicate that the employment rate for these individuals is still very low, even after adjusting for those who cannot be employed due to a high degree of disability. On the positive side, the fact that there is a trend of decreasing unemployment is encouraging, and it may be a result of efforts to implement inclusion policies in the labor market.



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# RECOMMENDATIONS

The recommendations for improving institutional support and more efficient implementation of legal mechanisms for the employment of persons with disabilities cover several key aspects related to the legal framework, employer education, and the development of digital technologies that can facilitate access to the labor market.

First, it is necessary to strengthen and better implement the legal framework. Although the laws already provide basic support, practice shows that additional measures are needed to ensure full implementation of the rights of persons with disabilities. In this regard, it would be useful to form special working groups within relevant ministries to monitor the implementation of legal provisions and identify challenges faced by employers and persons with disabilities.

Second, it is necessary to improve the understanding of legal provisions among employers. Research has shown that many employers are not sufficiently informed about the rights and opportunities provided by the Law on Professional Rehabilitation and Employment of Persons with Disabilities (Krstić, Protić, 2017). Organizing educational seminars and workshops for employers can contribute to a better understanding of legal obligations and the benefits of employing persons with disabilities. Additionally, it is recommended to establish platforms for the exchange of experiences and best practices among employers who already employ persons with disabilities, which can serve as motivation for others (Avdić, Kuduzović, 2023).

Third, it is important to develop and implement programs that will facilitate access to jobs for persons with disabilities. Digital technologies play a key role in this process. The introduction of information and communication technologies that are adapted to the needs of persons with disabilities can significantly improve their accessibility to the labor market (Masliković, Krstić, 2018). For example, the development of applications that make it easier to search for jobs and provide information about the rights of persons with disabilities can contribute to their greater inclusion.

Fourth, it is necessary to strengthen the institutional capacities that support the employment of persons with disabilities. This includes strengthening cooperation between state institutions, non-governmental organizations, and employers to create conditions for a more inclusive working environment (Molović, 2023). In this regard, it is recommended to form working groups that will deal with employment issues for persons with disabilities and provide support in developing policies that will facilitate their integration.

Finally, it is important to work on raising public awareness about the rights and opportunities of persons with disabilities. Campaigns aimed at changing the perception of persons with disabilities and their abilities can contribute to reducing stigma and prejudice, which will facilitate their employment (Avdić, Kuduzović, 2023). Involving the media and public figures in these campaigns can further amplify their impact.

# CONCLUSION

The research on the position of persons with disabilities in the labor market in the Republic of Serbia highlights the existence of legal frameworks that support their professional rehabilitation and employment. However, the analysis of data from the population census and annual reports from the



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National Employment Service shows that persons with disabilities still face numerous challenges in employment, including high unemployment rates and lack of institutional support. Although reports in recent years have recorded some progress in reducing the unemployment rate among persons with disabilities, they also indicate that the implementation of laws is often not effective enough, limiting their opportunities to be integrated into the workforce. For instance, data shows that a large number of persons with disabilities do not register on the labor market due to a perceived lack of support, which is a significant barrier to their work integration.

To improve the position of persons with disabilities, it is crucial to strengthen institutional capacities and improve collaboration between government bodies, employers, and organizations working on the rights of persons with disabilities. Reports from the National Employment Service emphasize the need for employer education on the benefits of employing persons with disabilities and for the implementation of additional support programs, which would ensure more effective application of existing laws. The implementation of these policies and the development of new programs would contribute to greater work integration and social inclusion of persons with disabilities.

Moreover, an important step toward a more inclusive labor market is creating a supportive environment that promotes diversity and acceptance. Employers, with financial and logistical support measures, could participate in awareness-raising campaigns about the potential of persons with disabilities, which would reduce prejudices and encourage a culture of inclusion. With such measures, resistance to workplace adaptations would decrease, and easier access to employment for persons with disabilities would be facilitated, contributing in the long run to building a society in which all members have an opportunity for equal participation and contribution.

## REFERENCES

- Avdić, B., Kuduzović, E. (2023). Recruiters and human resource managers' perception of the employment of persons with disabilities. *Multidisciplinary Approaches in Education and Rehabilitation*, 5(5), 93-109.
- Butković, M., Butković, I. (2023). Invisible among us. *Jahr*, 14(1), 45-67.
- Constitution of the Republic of Serbia. Official Gazette of RS, No. 98/2006 and 115/2021.
- Krstić, N., Protić, J. (2017). Law on Professional Rehabilitation and Employment of Persons with Disabilities through the Lens of Serbian Employers. *Business Economics*, 65(7-8), 480-493.
- Law on Prevention of Discrimination against Persons with Disabilities. Official Gazette of RS, No. 33/2006 and 13/2016.
- Law on Professional Rehabilitation and Employment of Persons with Disabilities. Official Gazette of RS, No. 36/2009, 32/2013, and 14/2022 - amended law.
- Labor Law. Official Gazette of RS, No. 24/2005, 61/2005, 54/2009, 32/2013, 75/2014, 13/2017 – Constitutional Court decision, 113/2017, and 95/2018 - authentic interpretation.
- Marković, M. M. (2014). Persons with Disabilities in Serbia. Statistical Office of the Republic of Serbia.
- Masliković, D., Krstić, N. (2018). Digital Technology and Inclusion: Dependence and Difficulties. Proceedings of the International Scientific Conference "Sinteza", Singidunum University, Beograd, pp. 97-102.





## Conference Proceedings

Mastilo, B., Vuković, B., Šeatović, S., Čalasan, S. (2019). Aggressive behavior among women with intellectual disabilities receiving institutional long-term care. *Biomedical Research*, 10(1), 47-55.

Molović, M. M. (2023). Opportunity for equality: analysis of quotas for employment of persons with disabilities in Serbia and the countries of the region. *Foreign Legal Life*, 67(3), 551-565.

Population Aged 2 and Older by Disability Status, Gender, Age, and Type of Settlement (May 18, 2024). Statistical Office of Serbia, Retrieved from: <https://data.stat.gov.rs/Home/Result/3104020901?languageCode=sr-Cyrl>.

Rulebook on Detailed Procedure, Costs, and Criteria for Assessing Work Capacity and Employment or Retention of Employment for Persons with Disabilities. Official Gazette of RS, No. 36/2009, 36/2010, and 97/2013.

Report on the Work of the National Employment Service for 2016 (May 26, 2024). NES, Retrieved from: [https://www.nsz.gov.rs/live/digitalAssets/7/7780\\_izve\\_\\_taj\\_o\\_radu\\_za\\_2016.\\_godinu\\_2.pdf](https://www.nsz.gov.rs/live/digitalAssets/7/7780_izve__taj_o_radu_za_2016._godinu_2.pdf).

Report on the Work of the National Employment Service for 2017 (May 26, 2024). NES, Retrieved from: [https://www.nsz.gov.rs/live/digitalAssets/9/9467\\_\\_izvestaj\\_o\\_radu\\_i\\_-\\_xii\\_2017.pdf](https://www.nsz.gov.rs/live/digitalAssets/9/9467__izvestaj_o_radu_i_-_xii_2017.pdf).

Report on the Work of the National Employment Service for 2019 (May 26, 2024). NES, Retrieved from: [https://www.nsz.gov.rs/live/digitalAssets/14/14387\\_izvestaj\\_o\\_radu\\_nsz\\_-\\_i\\_-\\_xii\\_2019.\\_godine.pdf](https://www.nsz.gov.rs/live/digitalAssets/14/14387_izvestaj_o_radu_nsz_-_i_-_xii_2019._godine.pdf).

Report on the Work of the National Employment Service for 2020 (May 26, 2024), NES, Retrieved from: [https://www.nsz.gov.rs/live/digitalAssets/15/15758\\_izvestaj\\_o\\_radu\\_nsz\\_za\\_2020.\\_godinu.pdf](https://www.nsz.gov.rs/live/digitalAssets/15/15758_izvestaj_o_radu_nsz_za_2020._godinu.pdf).

Social Protection Law. Official Gazette of RS, No. 24/2011 and 117/2022 – Constitutional Court decision.

Zulić, M., Jovanović, N. B., Hájková, V. (2019). Predictors of social participation in children with cerebral palsy in primary schools in the Republic of Serbia. *Pedagogical Reality*, 64(1), 3-22.



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# EMPOWERING SYRIAN REFUGEE WOMEN ION TÜRKIYE: ECONOMIC AND SOCIAL INTEGRATION THROUGH KITCHEN COLLECTIVES

Rojda Şükran Karas<sup>1</sup>

DOI: 10.5937/EEE24062S

JEL: F22, J15, L26

Review Scientific Paper

### ABSTRACT

*In the context of Syrian migration to Turkey, inequalities against women have become a significant problem. Approximately half of Syrian refugees are women and children. Although Turkey is trying to provide health services and basic rights to refugees, many refugee women still face difficulties due to language barriers and complicated registration processes. This situation increases the risk of sexual assault and exploitation. Feminism and empowerment theories play important roles in social work practices. Collective kitchen projects implemented to empower refugee women contribute to their socio-economic development. This study focuses on the empowerment of Syrian immigrant women through these mechanisms.*

### KEYWORDS

*economic empowerment, kitchen collectives, participatory action research (PAR), social entrepreneurship, Syrian refugee women.*

## INTRODUCTION

Entrepreneurship is a dynamic and evolving field, and new types of entrepreneurs and entrepreneurship emerge as society, technology, and the economy change (Radović-Marković, Yildirim, Omolaja, 2023). Social entrepreneurs create businesses that are dedicated to solving social problems, such as poverty, environmental issues, or healthcare access. They measure their success not only by profits but also by the social impact they have on society (Radović Marković, 2009). Mutual empowerment arises from communication with others, but individual actions, psychological attributes along with the removal of social, political, legal and economic obstacles generate social empowerment (Salamzadeh, Radović-Marković, Ghiat, 2022).

Inequalities against women, which are directly linked to the patriarchal structure, have also been one of the most important problems in the women's movement within the Syrian migration to Turkey. In this context, care has been taken to conduct various studies, but despite the developments, the socio-economic situations of refugee women continue to be a sexist problem in Turkey. In addition, achieving equality in this sense continues to be one of the important challenges (Keysan, Şentürk, 2021).

This complex problem that Turkey faced with the beginning of the civil war in Syria in 2011 was fueled by the deepening of the crisis in Syria and the increase in the number of refugees settling in Turkey. In the process, Turkey became the country hosting the largest refugee population in the world (Doğangün

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et al., 2019). The refugee population in our country lives in different provinces or rural areas. On the other hand, 45.6% of Syrian refugees in Turkey are women, and more than half are 17 years of age or younger. This data shows that the majority of Syrian refugees are women or children. Turkey is a country that guarantees basic rights to Syrian refugees, provides them with health services, and aims to meet their needs based on social services in parallel and tries to provide Temporary Protection Status for refugees (Dursun, Nizamoğlu, 2021). Although refugee women can access basic services and rights, many refugee women still have difficulty accessing services due to language barriers, complicated registration processes and strict registration requirements. In addition, the forced migration crisis has created various types of vulnerabilities and insecurity for refugee women, including social security and economic inequality. Labour insecurity and socio-economic inequality are still chronic problems in Turkey. The problem is exacerbated by the inclusion of women and refugee women. Lack of knowledge about how support mechanisms provided to refugees work and language barriers make refugee women extremely vulnerable to sexual assault and exploitation, making it difficult to receive support in such cases (Karakartal, 2019).

Feminist theories and empowerment are important perspectives for micro, mezzo and macro social work practices. Both contribute to critical awareness of individual and socio-political contexts by advancing human rights and social justice (Yuliati, 2021). The concepts of feminism and empowerment play a role in addressing unequal access to power and resources. These theories place particular emphasis on the disadvantaged and unjust social workers are forced to serve. They add another dimension to practice by guiding holistic assessment and intervention for disadvantaged groups. As mentioned above, refugee women face various forms of gender inequality because they are women and refugees (Jabbar and Zaza, 2016). These situations can be physical, psychological, social and economic, and need to be examined in terms of women's strengths, weaknesses and social and political experiences.

Today, social workers work intensively in public and civil society institutions and organizations to help women confront their problems and to empower them (Yalim, Critelli, 2023). Social workers are aware of the needs, problems and strengths of the client group they work with. However, there is a need for holistic policies and services that consider individual needs and characteristics, respond to the advice of professionals in the field, and implement human rights and social justice principles by focusing on refugees. These policies and services also aim to empower women. Kitchen collectives are also among these empowerment efforts. Kitchen collectives are among the popular areas where women find their own practice and support socio-economic development. These practices have become important tools for refugee women's empowerment practices (Karakartal, Kaylı, 2023). This study also focuses on the empowerment of Syrian immigrant women in our country through kitchen collectives.

## **THE SOCIO-ECONOMIC CONTEXT OF SYRIAN REFUGEE WOMEN IN TÜRKIYE**

Syrian women living outside refugee camps differ in terms of their socio-economic status. Although there are Syrians who have bought beautiful houses with the investments they brought from Syria, most of them continue to live in houses with inappropriate conditions due to high or inappropriate rents. When rented housing is examined, it can be seen that most of them are places where basic needs cannot be met, such as basements, stores, and warehouses. It is also noticeable that the houses where people live are mostly old and inadequate, most of them are in shantytowns, many of their components are missing, and they do not comply with hygiene conditions. Syrian women and their families deal with general problems related to housing; non-compliance with health regulations, lack of energy resources for heating, inadequacy for a crowded life, and excessively high rents (Caro, 2020).



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As stated in many reports and studies, domestic violence, early marriages and polygamy are frequently observed among Syrians living in and outside the camps in Turkey. Şimşek (2020) reports that most Syrian refugee women in Turkey are married and state their level of education as primary school, literate or illiterate. They state security, political views, economic reasons and health conditions as reasons for fleeing Syria and state that they need psychological support (Mirici, 2018). On the other hand, more than 90% of refugees evaluate the treatment they receive from Turkish citizens positively and most of them are satisfied with the health services provided to them. And interestingly, almost half of them state that they would not want to work even if given the opportunity. In this context, it can also be said that the socio-economic levels of refugees are complex and not provable (Sonakalan, 2021).

According to the AFAD (2022) report, 76% of Syrian women in Turkey do not have a gainful occupation or formal work experience, leaving them vulnerable to low-wage and informal employment. Language barriers, legal restrictions, and traditional gender roles further hinder their ability to integrate into the Turkish labor market (Genç and Öztürk, 2016; (Vučeković, Radović-Marković, Djukanović, Duković, Dragojević, 2021; Radović Marković, 2007). Many women are often forced into the manufacturing sector, agricultural work, and precarious jobs such as house cleaning through informal networks that often offer little job security. As can be understood from the situational assessment, most refugee women do not have a command of Turkish and are primary school graduate housewives aged 21-40 with more than 5 children. It is also understood that they marry and become mothers at an early age (Körümez et al., 2022).

This demographic characteristic is an indication that Syrian women desperately need social, economic, and psychological support. There are very few opportunities to build a new life in a new socio-cultural environment, and when educated refugee women seek employment, it can be said that they have great difficulty adapting to their new host country due to the different content of their education. When the expectations of Syrian refugee women in Turkey are examined, it is revealed that most of them tend to return to Syria when the war in their country ends, and they want a better education for their children and a good and permanent job for their husbands during their stay in Turkey (Adıgüzel, Tanyaş, 2020). A small portion of these women want a job for themselves, and the rest expect their husbands or the Turkish government to support their families. The reason why Syrian refugee women do not want to stay in Turkey in the future is due to various reasons such as living conditions or the educational opportunities offered to their children. Although it is possible to say that most Syrian refugee women want to return to their homeland when the war in their country ends, it is considered necessary to develop projects for refugee women who want to gain their own economic independence (Ökten, Ökten, 2022).

## **KITCHEN COLLECTIVES: A MODEL OF ECONOMIC AND SOCIAL EMPOWERMENT**

Kitchen collectives are a social and economic empowerment model that has gained popularity in Turkey, especially in recent years. This model contributes to the strengthening of local economies by encouraging solidarity and cooperation among communities (Avelino et al., 2022). In these new collective formations, commensality, defined as “eating at the same table”, has a long history of research and has been accepted as one of the milestones of human civilization. Kitchen collectives help individuals united around the same goal and establish bonds beyond the goal. A distinction is made between daily commensality and exceptional commensality (Masson et al., 2018). There are three main dimensions and importance of the characteristics of both exceptional and daily commensality. The first of these is that eating together is considered interactive as an act of communication between participants; the second is that shared meals require a normative dimension, “the staging of norms performed by



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diners and control over these norms”; Finally, communality includes a symbolic dimension that embraces the diverse meanings attributed to eating together in different societies (Marovelli, 2019).

Kitchen collectives do more than just feed people; they also develop social relationships and increase social solidarity. This model also helps to create more sustainable food systems. These collectives provide numerous prospects for economic and social empowerment. Opportunities include empowering women economically and contributing to local economies, as well as improving social capital through increased community solidarity and cooperation. Kitchen collectives can help individuals and societies transition to a healthier and more sustainable future (Kapoor, 2019).

### Women to women refugee kitchen

Participation in refugee kitchens is one intervention that has the potential to address the concerns listed above for refugee women. Refugee kitchens are community-based cooking programs designed to enhance food preparation abilities. Typically, refugee kitchen participants are taught budgeting, menu planning, food cleanliness, cooking skills, and nutrition instruction. Refugee kitchens offer frequent meetings of participants who cook and share food. The key distinctions between these organizations and other food aid programs are their collaborative, participatory nature, as well as their ability to increase social skills and support (Ghattas et al., 2017).

The evidence on the impact of refugee kitchens comes almost entirely from initiatives undertaken in low-income communities in high-income countries (Canada, Australia, and Scotland), and it emphasizes their role in boosting self-sufficiency, social integration, employment opportunities, and mental health. Refugee kitchens have been successful in increasing social interaction by providing a safe environment and reducing social isolation. The addition of an income-generating component to refugee kitchens has transformed them into social enterprises, allowing women living in traditionally patriarchal nations like ours to express agency in a restrictive environment. That example, in Syrian refugee camps, as in many Arab nations, social conventions limit women's employment opportunities and may require approval from their spouses or fathers (Koyama, 2015). This culture is maintained even if displaced. Thus, where formal employment is limited, especially among married women, it has been argued that home-based self-employment provides a safe environment in which women can challenge their traditional roles and become productive members of the household. The refugee kitchen model extends the concept of home-based entrepreneurship to the community level, where it creates income-generating potential and creates a sense of social support without challenging traditional social norms (Sahyoun et al., 2019).

### Zahter kitchen

Migration is not a simple spatial movement, but a process in which the tradition of the country one arrives at the end of the journey are carried over. Over time, every individual who experiences the phenomenon of migration engages in activities aimed at earning money in the areas they purchase. In our country, Syrians are trying to survive by opening ethnic restaurants that reflect their own culinary culture. For example, in Kilis, where refugees live intensively, there is an increase in the number of restaurants belonging to Syrians (Üstübcü, 2020).

In regions where Syrian immigrants intensively maintain a food and beverage culture, the number of businesses operating in the food and beverage sector has increased considerably. Especially when the scope of activities of Syrian male refugees in the labor market in these regions is considered, they can be considered as an independent working group. In women, the working groups are mostly based on



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services for housework and the rate is quite low. As an area where women operate, refugee kitchens can also be seen as a reflection of the culture created by food. Food culture or culinary habits that go beyond food are political. This occurs in economic, environmental, religious and cultural contexts. Zahter cuisine is also a formation that fits these definitions (Uluk, 2023).

Migration is of course a concept that causes changes in people's culinary traditions, but also in the food habits of the new country. However, in addition to change, old habits are also lost due to various reasons after migration. In such culinary formations, while trying to keep the lost values alive, socio-economic empowerment is provided from the perspective of women. Studies have determined that Syrian food is a local, important and popular food, and at the same time, it reminds those who eat it of a traumatic separation from home, and at the same time gives refugees the feeling of being at home, a forward-looking feeling. It has also been determined by studies that nutritional practices remain a feature of food (Şahin, Elbeyli, 2022).

### Sun of hope food initiative

Syrian and Turkish women founded the Sun of Hope Food Initiative in conjunction with the International Migrant Solidarity Association. The Women's Housing Assembly and Solidarity Centers host a culinary collective where women sell products like tomato paste and traditional Turkish sauces. The initiative is structured so that Syrian and Turkish women can work together to support refugees. This builds a connection between local communities. The Sun of Hope food program highlights the ability of culinary collectives to function not only as an economic lifeline, but also as a tool for social unity. By working with Turkish women, Syrian members of this collective gain valuable social capital that helps them live more effectively in Turkey (Genç, Öztürk, 2016).

## PARTICIPATORY ACTION RESEARCH AND CREATIVE DRAMA AS EMPOWERMENT TOOLS

Participatory action research design has transformative aims, which are achieved via the creative theater technique (Sonn et al., 2013). Because creative drama is a participant-centered teaching style that necessitates complete and active engagement. The goal of participatory action research is to enable full and meaningful participation. As a result, participatory action research is the most appropriate study design for meeting the essential requirements of the creative drama approach. As a result, participants in creative theater can modify their own experiences using fictitious worlds. Conducting participatory action research using the creative theater technique has created an environment in which participants can generate their own answers to the injustices they face. This atmosphere closely resembles the nature of participatory action research (Vitsou, Kamaretsou, 2020).

This research design is commonly used in processes where a group of people with common concerns identify the situation that is causing these concerns, and then conduct research together to change and develop this situation, produce knowledge and experience, and make the produced experience and information available to others in similar situations. The study group determines this common concern. The common issue may be clear from the start of the investigation, or it may emerge later in the inquiry. Participatory action research seeks to enhance or increase the group's critical consciousness by producing and analyzing knowledge that can help shift thoughts and facts (Kaptani, Yuval-Davis, 2008).



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# THE ROLE OF KITCHEN COLLECTIVES IN SOCIAL AND ECONOMIC EMPOWERMENT

Culture describes the characteristics that define and identify a society. These factors represent the features that distinguish one country from others. With these features, culture serves as an identity aspect. In this framework, aspects of culture should be examined in terms of cultural identity (Sahyoun et al., 2019). Identities are the result of social structures. They are more powerful sources of meaning than roles because of the self-construction and individualization processes they include. While identity organizes meaning by expressing the symbolic definition that the social actor gives to the purpose of his activity through its traits, roles also reveal its function. For many social actors, meaning is structured around an identity that frames others and is maintained over time and location. Food and cooking hold a specific significance in these meaningful organizations. Food culture evolves through the incorporation of the natural environment, religious beliefs, cultural accumulations, socioeconomic and ethnic variations, educational levels, cultural legacy, and tastes (Connely et al., 2011).

Food has an important social function in society, and almost all societies spend time eating together and according to certain rituals; certain rituals and ceremonies are indicators of this social function and social integration. In this sense, food is also a symbol of social integration and solidarity; it is seen in an instrumentalized form (Finnis, 2017). One of these uses is catering services. Some foods and the places where they are consumed are linked to the social status of the individual. Individuals choose foods and places where they can eat according to their status.

This choice is often determined within the framework of a balance of power. Power is being able to do what they want independently of others. Regardless of its source (charisma, tradition, law), those in power are in a privileged position and develop ways to maintain their position. This unequal relationship is valid not only for those who hold political power, but also for economic power, which is an important tool. There are differences in power-based differentiations in the social structure. This manifests itself in the quality of the food consumed and the amount consumed. This occurs in a wide variety of areas, including what foods to eat and who to eat them with (Beşirli, 2019).

## Economic empowerment through collective action

Syrian refugee women confront a variety of problems, including limited access to education, healthcare, and job. Syrian refugee women face additional challenges as a result of their refugee status, such as language barriers, a lack of legal documentation, and limited access to resources. To address these issues, several initiatives have been launched to economically empower Syrian refugee women (Dursun, Nizamoğlu, 2021).

Kitchen collectives provide a more accessible mode of work. According to Avolio Alecchi and Radović Marković (2013), these programs empower women to utilize their existing abilities, such as cooking and food preparation, while also allowing them to manage job and family duties. Working in these collectives, women share production costs, split profits, and manage food sales logistics, allowing them to develop their operations in ways that would be unthinkable on their own. In this regard, kitchen collectives function similarly to social enterprises, with revenues returned in the group to fund future projects or assist women in distress (Topçu, 2020).



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### Social integration and solidarity

Durkheim, the creator of sociology and a pioneer of social integration, focused on explaining social order and unity and identifying values and symbols to reintegrate modern communities. Durkheim believed that achieving social integration requires a balance between individuals and society. Moral principles, religion, and law serve as fundamental values and symbols to ensure this balance. These components promote social integration and the individual's ability to function in society. The individual's incapacity to be in harmony with society and contribute to the establishment of balance leads to social isolation and reinforces the impulse for suicide (Yontar and Çağlıcan, 2019).

As a result, the social integration process includes a flow in accordance with social norms and values, where the spirit of solidarity prevails, and all members of the society share the responsibilities brought about by integration. The failure of this process leads to the differentiation and exclusion of the minority group and increases the risk of the process ending in social fragmentation. The cultural integration of social media development with the local people is considered as one of the indicators that facilitates the process of establishing social networks among immigrants and their effectiveness in terms of immigrants.

This solidarity network among immigrants plays an important role in managing the initial processes after migration and prevents negative socio-economic conditions. It is thought that since these ethnic networks do not lead to isolation among immigrants, immigrants have an important role in informing the local people, benefiting from the knowledge and experiences of other immigrants and thus facilitating cultural integration (Aydoğdu Kuzucu, 2023).

### THE CREATION OF "SINIRSIZ MUTFAKLAR KADIN GİRİŞİMİ"

The "Sınırsız Mutfaklar Kadın Girişimi" which was launched as a new initiative by Syrian, Iranian, Nigerian, and Turkish women within the association on September 1, 2020, was designed with the goal of establishing a common kitchen with local women who became unemployed during the pandemic and immigrant women from various communities such as Syrian, Iranian, African, and so on. The women hope to foster a shared culinary culture by making their own cultural cuisine, winter products, canned food, pickles and jams, and educating one another.

The project's goal is to promote social harmony and employment through the development of dialogue and solidarity skills among women from various languages, ethnicities, and religious systems. 9 women (Turkish, Syrian, Iranian, and Nigerian) who met twice a week during the pandemic began producing winter dishes (Tomato Sauce, Menemenlik Sauce, Breakfast Sauce, Eggplant Puree, and Pepper Paste) in compliance with hygiene norms and fully natural, with no additions. These things are available for purchase. As of January 2021, an intensive social media effort and sales plan were prepared for the sale, and the "Sınırsız Mutfaklar Kadın Girişimi" project was carried out with individual assistance from women in the Şişli City Council Women's Assembly. Because tomatoes are already in their early season, it was decided to produce pickles from winter vegetables and jam from fruits during the winter months. Following the pandemic, this work was repurposed into a women's restaurant where women collaborated to create foods from all over the world (UGKDD, 2024).





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# LEGAL AND STRUCTURAL BARRIERS

It has been noticed that there are no legal barriers to immigrants' access to essential rights and services within the limits of their legal status; yet there are some issues that arise from both the provision of services and the immigrants who use them. Immigrants under temporary protection and those who have obtained Turkish citizenship have positive attitudes. They believe that the locals' attitudes are restrictive. It has been noticed that social aid not only strengthens immigrants monetarily, but it also improves the integration process by preventing social marginalization (Aydoğdu Kuzucu, 2023).

Due to the geographical limitation that Turkey placed on the Geneva Convention in 1961, it stated that it would only include people seeking asylum in Turkey from Europe as refugees, and for this reason, a significant portion of non-European migration to Turkey has remained outside the legal regulation. With Europe's attitude towards migration, a major problem of unregistered immigrants has recently emerged in Turkey. This situation has also negatively affected Turkey's ability to create a holistic integration policy (Yıldırım, 2020).

While kitchen collectives provide an important avenue for economic empowerment, Syrian refugee women in Türkiye still face significant legal and structural barriers that hinder their full integration into the formal economy. The 2016 legislation allowing Syrian refugees under temporary protection to apply for work permits was a step in the right direction, but in practice, the process remains lengthy and bureaucratic (Genç and Öztürk, 2016). Moreover, many sectors, such as healthcare and education, are closed to foreign workers, limiting the employment opportunities available to Syrian women. Additionally, Syrian women often face discrimination in the labor market.

Gender-based violence, harassment, and exploitation are common in both formal and informal employment settings (Baklacioğlu, 2017). Without proper legal protections, many Syrian refugee women are forced to work in unsafe conditions or are underpaid for their labor. These challenges are further compounded by language barriers, which prevent many women from accessing information about their rights or navigating the legal system (ORSAM-TESEV, 2015). To overcome these barriers, it is essential that the Turkish government, along with international organizations and civil society groups, provides greater support for Syrian women refugees. This support could take the form of language education, legal aid, and access to financial resources for small business development. By addressing these structural issues, Türkiye can better integrate Syrian women refugees into the formal economy and help them to contribute more fully to society.

## CONCLUSION

Immigrants in Turkey face challenges accessing essential rights and services despite the absence of legal barriers based on their status. Those under temporary protection and Turkish citizens generally perceive local attitudes as restrictive. Social aid enhances both the economic stability of immigrants and their integration into society. However, Turkey's geographical limitation on the Geneva Convention has left many non-European migrants unregulated, complicating integration efforts. Syrian refugee women encounter significant obstacles in gaining employment, despite a 2016 law enabling work permits for those under temporary protection. Legal and structural barriers persist, limiting their access to many sectors, while discrimination and unsafe working conditions are prevalent. Language difficulties exacerbate these challenges. Collaborative efforts between the Turkish government, international



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organizations, and civil society are crucial for providing support such as legal aid and language education to better integrate these women into the economy.

Culture encompasses the defining characteristics of a society, distinguishing one country from another, and serves as a key aspect of identity. Identities arise from social structures and carry significant meaning through self-construction and individualization. While identity conveys the symbolic meaning of activities, roles indicate their function. For many, identity shapes meaning consistently across time and place. Food and cooking play a vital role in these cultural identities, with food culture developing through various influences, including the environment, religion, socioeconomic factors, education, and cultural heritage. Food serves a critical social function, reflecting social integration and solidarity through communal eating rituals and ceremonies. Catering services exemplify this, as food choices and dining venues often correlate with individual social status, influenced by power dynamics. Those in privileged positions, whether through charisma, tradition, or law, maintain their status, creating inequalities reflected in the quality and quantity of food consumed. This power differentiation extends to various aspects of eating, including food selection and dining companions. In this context, collective kitchen activities are very advantageous formations for women refugees, and their numbers need to be increased in order to ensure both sociological and economic development.

## REFERENCES

- Adıgüzel, S. Ö., Tanyaş, B. (2020). Suriyeli mülteci kadınların göç deneyimleri: Zorunlu göç, gündelik yaşam ve uyum üzerine nitel bir çalışma. *Kadem Kadın Araştırmaları Dergisi*, 6(2), 173-210.
- Avelino, F., Dumitru, A., Cipolla, C., Kunze, I., Wittmayer, J. (2022). Translocal empowerment in transformative social innovation networks. In: *The economics of social innovation* (pp. 103-125). Routledge, London.
- Avolio Alecchi, B., Radović Marković, M. (2013). *Women and entrepreneurship: female durability, persistence and intuition at work*. Gower Publishing Limited & Routledge, London.
- Aydoğdu Kuzucu, S. (2023). Sosyal yardım yararlanıcısı göçmenlerin sosyal bütünleşmeye yönelik algı ve beklentileri: Konya örneği, Master's thesis, Karamanoğlu Mehmetbey Üniversitesi.
- Baklacıoğlu, N. (2017). Gender-Based Violence Among Refugee Women in Türkiye: Legal and Social Perspectives. *Refugee Rights Journal*.
- Beşirli, H. (2019). Sosyo-Kültürel Bir Unsur Olarak Yiyecek ve Mutfak. In: *1st International Symposium on Agriculture and Food in Turkish World* (p. 111).
- Caro, L. P. (2020). Syrian refugees in the Turkish labour market: A socio-economic analysis. *Sosyoekonomi*, 28(46), 51-74.
- Connelly, S., Markey, S., Roseland, M. (2011). Bridging sustainability and the social economy: Achieving community transformation through local food initiatives. *Critical Social Policy*, 31(2), 308-324.
- Doğangün, H. G., Ecevit, F. Y., Keysan, A. Ö., Şentürk, B. (2019). Türkiye'deki Sivil Toplum Kuruluşlarının Kadınlara Yönelik Güçlendirme Politikaları: Suriyeli Göçmen Kadınların Deneyimleri.
- Dursun, G., Nizamoglu, S. (2021). Türkiye'de İşgücü Piyasalarında Suriyeli Kadın Mülteciler: Konfeksiyon Endüstrisi Örneği. *Dokuz Eylül Üniversitesi Sosyal Bilimler Enstitüsü Dergisi*, 23(4), 109-130.



## Conference Proceedings

- Finnis, E. (2017). Collective action, envisioning the future and women's self-help groups: A case study from South India. *Indian Journal of Gender Studies*, 24(1), 1-23.
- Genç, H. D., Öztürk, D. (2016). Türkiye'deki Suriyeli Kadınlar: Mevcut Durumları, Sorunlar ve Çözüm Önerileri. *Liberal Düşünce Dergisi*, 21(84), 67-91.
- Ghattas, H., Jamaluddine, Z., Choufani, J., Btaiche, R., Reese-Masterson, A., Sahyoun, N. R. (2017). A Community-Based Intervention Improves Economic, Social and Food Security Outcomes of Refugee Women-The Healthy Kitchens Experience. *The FASEB Journal*, 31, 313-316.
- Jabbar, S. A., Zaza, H. I. (2016). Evaluating a vocational training programme for women refugees at the Zaatari camp in Jordan: women empowerment: a journey and not an output. *International Journal of Adolescence and Youth*, 21(3), 304-319.
- Kapoor, S. (2019). Entrepreneurship for economic and social empowerment of women: A case study of a self help credit program in Nithari Village, Noida, India. *Australasian Accounting, Business and Finance Journal*, 13(2), 123-142.
- Kaptani, E., Yuval-Davis, N. (2008). Participatory theatre as a research methodology: Identity, performance and social action among refugees. *Sociological Research Online*, 13(5), 1-12.
- Karakartal, H. (2019). Toplumsal cinsiyete dayalı olarak ötekileştirilen mülteci kadınların hak temelli sivil toplum çalışmalarıyla güçlendirilmesi. 10. Uluslararası Sivil Toplum Kuruluşları Kongresi.
- Karakartal, H., Kaylı, D. S. (2023). Feminist sosyal hizmet bakış açısından kadın mülteciler. *Sosyoloji Dergisi*, (46), 243-263.
- Keysan, A. Ö., & Şentürk, B. (2021). Sorunlar ve Beklentilerin Algılanmasında Kadın Mülteciler ve Sivil Toplum Kuruluşları. *Sosyoekonomi*, 29(48), 343-376.
- Koyama, J. (2015). Constructing gender: Refugee women working in the United States. *Journal of Refugee Studies*, 28(2), 258-275.
- Körükmez, L., Daniş, D., Karakılıç, İ. Z. (2022). Zorunlu göç bağlamında Suriyeli kadınların ücretli işgücüne katılımında toplumsal cinsiyet müzakeresi. *Alternatif Politika*, 14(2), 201-228.
- Marovelli, B. (2019). Cooking and eating together in London: Food sharing initiatives as collective spaces of encounter. *Geoforum*, 99, 190-201.
- Masson, E., Bubendorff, S., Fraïssé, C. (2018). Toward new forms of meal sharing? Collective habits and personal diets. *Appetite*, 123, 108-113.
- Mirici, İ. H. (2018). Syrian refugee women's profile and their expectations in their host country: a case study in Turkey. *Quality & Quantity*, 52(Suppl 2), 1437-1443.
- ORSAM-TESEV. (2015). Türkiye'deki Suriyeli Mültecilerin Sosyo-Ekonomik Durumları.
- Ökten, A., Ökten, S. (2022). Geçici Koruma Altındaki Suriyelilere Yönelik Sosyo-Ekonomik Algı Araştırması: Gaziantep Örneği. *Sosyal Bilimlerde Yeni Yaklaşımlar*, 30.
- Radović-Marković, M., Yildirim, K., Omolaja, M. (2023). Resilience And Empowerment Women in Business During the Covid 19 Pandemic in Serbia. *Journal of Entrepreneurship and Business Resilience*, 1-2, 12-21.
- Radović Marković, M. (2009). *Women Entrepreneurs: New opportunities and challenges*. Indo-American Books, Delhi.



## Conference Proceedings

- Radović Marković, M. (2007). The Change of Women's Roles through the Centuries: Confrontation of Tradition with New Challenges. In: *The Perspective of Women's Entrepreneurship in the Age of Globalization* (pp. 3-13). Information Age Publishing, Charlotte.
- Sahyoun, N. R., Jamaluddine, Z., Choufani, J., Mesmar, S., Reese-Masterson, A., Ghattas, H. (2019). A mixed-methods evaluation of community-based healthy kitchens as social enterprises for refugee women. *BMC public health*, 19, pp. 1-11.
- Salamzadeh, A., Radović-Marković, M., Ghiat, B. (2022). Women's Entrepreneurship in Algeria (Chapter 3), In: *Women Entrepreneurs in North Africa-Historical Frameworks, Ecosystems and New Perspectives for the Region*, World Scientific Publishing Company.
- Sonakalan, G. (2021). Göçmen İlişkileri Ağı Işığında Suriyeli Dul Kadınların Türkiye'de Hayata Devam Edebilme Mekanizmaları. *Göç Araştırmaları Dergisi*, 7(1), 118-139.
- Sonn, C. C., Grossman, M., Utomo, A. (2013). Reflections on a participatory research project: Young people of refugee background in an arts-based program. *Journal for Social Action in Counseling & Psychology*, 5(3), 95-110.
- Şahin, K., Elbeyli, M. (2022). Suriyelilerin yemek kültürüne kamusal alandan bakmak: Kilis örneği. *Antropoloji*, (43), 80-88.
- Şimşek, D. (2020). Integration processes of Syrian refugees in Turkey: 'Class-based integration'. *Journal of Refugee Studies*, 33(3), pp. 537-554.
- UGKDD, (2024). Gerçekleştirmiş Olduğumuz Atölyeler ve Projelerimiz. Available at: <https://www.ugkdd.org/gerceklestirmis-oldugumuz-atolyeler-ve-projelerimiz/> [Accessed: 24.10.2023]
- Uluk, H. A. (2023). Göç Bağlamında Yemeğin Rolü Nasıl Değerlendirilir? *Moment Journal: Journal of Cultural Studies*, 10(1), 134-154.
- Üstübcü, A. (2020). Türkiye'de Zorunlu Göç ve Toplumsal Cinsiyet: Suriyeli Mülteciler Hakkındaki Veriler Üzerine bir Değerlendirme. *Kadın/Woman 2000*, 21(2), 85-106.
- Vitsou, M., Kamaretsou, A. (2020). Enhancing peer relationships in a class of refugee children through drama in education: An action research. *Yaratıcı Drama Dergisi*, 15(2), 337-354.
- Vučeković, M., Radović-Marković, M., Djukanović, B., Duković, S., Dragojević, A. (2021). Gender Aspects of Working from Home in Serbia. *Journal of Women's Entrepreneurship and Education*, No. 1-2, pp. 18-36.
- Yalim, A. C., Critelli, F. (2023). Gender roles among Syrian refugees in resettlement contexts: Revisiting empowerment of refugee women and needs of refugee men. In: *Women's Studies International Forum* (Vol. 96, pp. 102670). Pergamon, Oxford.
- Yıldırım, S. G. (2020). Suriyeli kent mültecilerinin sosyal kültürel ve ekonomik entegrasyonu (Küçükçekmece ilçesi örneği), Doctoral dissertation, Sakarya Üniversitesi Turkey.
- Yontar, İ., Çağlıcan, S. (2019). Kentsel Sürdürülebilirlikte Toplumsal Dayanışma ve Bütünleşme Kültürü: İzmir Üzerine Bir Araştırma. *Hitit Üniversitesi Sosyal Bilimler Enstitüsü Dergisi*, 12(2), 290-322.
- Yuliati, R. (2021). Oppression To Empowerment: Syrian Refugee Women in Warga's Other Words For Home. *CaLLs: Journal of Culture, Arts, Literature, and Linguistics*, 7(1), 28-38.



## Conference Proceedings

# DIGITAL REVOLUTION AND CHALLENGES FOR EUROPEAN LEGISLATION

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DOI: 10.5937/EEE24063G

JEL: F13, F14, F17, K12

Review Scientific Paper

## ABSTRACT

*The paper delves into the profound impact of the digital revolution on the European Union's legislative framework, with particular attention to the Digital Directives Package. It examines how the rapid acceleration of digital market dynamics necessitated the introduction of the Directive (EU) 2019/770, which addresses contracts for the supply of digital content and services, and Directive (EU) 2019/771, which governs contracts for the sale of goods. The analysis highlights the significance of these directives in enhancing the functionality of the Digital Single Market, promoting innovation, and ensuring robust consumer protection across EU member states. The paper underscores the EU's proactive stance in adapting its legal structures to meet the challenges of the digital era, ensuring that the regulatory environment keeps pace with technological advancements. By harmonizing rules across the single market, these directives not only foster cross-border trade but also safeguard consumer rights, laying the groundwork for a more integrated and competitive digital economy.*

## KEYWORDS

*digital single market, digital single act, contracts for the sale of goods, contracts for the supply of digital content*

## INTRODUCTION

The development of digital technologies and the digital revolution has affected every aspect of our lives, from our private life habits to the way we do business. As a result, there was a need to create a legislative framework for contemporary trends, not only at the national but also at the global level. Some of the key challenges of the digital era faced by legislators, with an emphasis on European ones, include data protection, intellectual property rights, cyber security, the digital divide and competition. To address these challenges, European legislation needs to be agile and adaptive. In order to maintain citizens' trust in the legislative framework, the legislator should keep pace with rapid changes in technology and ensure the promotion of innovations and thus the protection of citizens' rights.

This involves close collaboration between policy makers, businesses and citizens to create a digital ecosystem that benefits everyone. The European Union responded in a timely manner to the challenges (Synodinou et al, 2020) of the digital revolution in several ways: including public policies and a legal

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framework aimed at creating a single digital market, which created the foundations for promoting innovation and competitiveness and protecting the rights and privacy of citizens (Turillazzi, 2022).

With the initiative to create the Digital Single Market, the European legislator created a single market for digital goods, services and content in 27 EU member states regulated by uniform rules. The DSM removes barriers to cross-border digital trade and creates a level playing field for European businesses, consumers and citizens across the single market.

Also, by answering the digital revolution challenges, the European Union has introduced several regulations aimed at regulating digital services and platforms, including the General Data Protection Regulation (GDPR), the Digital Markets Act, and the Digital Services Act.

In the segment of business and competitiveness, the digital revolution has also transformed the sale of goods. With the advent of e-commerce and other digital platforms, the sale of goods has become more complex, as transactions can occur across international borders and involve various parties, such as intermediaries and payment processors. As a result, regulating contracts for the sale of goods in this digital landscape presents several challenges such as contract formation, authentication, jurisdiction, consumer protection and data privacy.

This paper analyses the framework and importance of adequate regulatory framework and the necessity of the on-time reaction in time when today is yesterday and tomorrow is now. It is structured in four chapters and after the introduction, paper analyses the Digital Single Market and European legislation that ensures the balancing of competing interests, including the need to facilitate e-commerce, protect consumers, and ensure that contracts are enforceable across borders and legal systems.

## **THE EUROPEAN DIGITAL SINGLE MARKET AND DIGITAL SERVICES ACT (DSA)**

The European Digital Single Market (DSM) is an initiative of the European Union that aimed to create a single market for digital goods, services and content in the 27 EU member states. The ultimate goal of the DSM was to remove obstacles in cross-border digital trade and to create uniform legal rules for companies, consumers and citizens across the European Union.

It is precisely the promotion of economic growth, innovation and competitiveness in the digital sector and the simultaneous protection of consumer rights and privacy that DSM creates for its residents. With its structure and regulation, DSM has a direct impact on economic growth and member states as its key component, and at the same time provides benefits to consumers. By removing obstacles in cross-border digital trade and expanding the market, i.e. enabling greater accessibility to the customer market and increasing competitiveness, DSM directly affects the growth of the economy of the single European market. New opportunities have also been created for digital start-ups and entrepreneurs, which can drive innovation and job creation.

As Inglese (2019) states "The protection of consumers has been one of the key areas to guarantee the smooth functioning of the internal market of the European Union" and it is DSM that provides consumers with large number of benefits from the digital goods and services, at lower prices and with higher quality. It can also ensure that consumers are protected from fraudulent or harmful digital content or practices.

Also, harmonized legal framework and deregulation as one of the features within the DSM improves the efficiency of cross-border digital transactions, reducing costs and time needed for businesses to enter



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the new markets. This benefit both small and large businesses by reducing administrative burdens and creating a more streamlined environment for digital trade.

Finally, the DSM promotes digital innovation by providing a larger pool of data and resources for digital start-ups and businesses to draw from. It also encourages collaboration and innovation across different industries and sectors, which can drive innovation in areas such as health care, education, and energy.

Analysing the facts above, it is clear that the DSM is an important European element of adequate answer to the digital era challenges since it ensures economic growth, promotes innovation and competitiveness in the digital sector while ensuring that consumers and citizens are protected. By creating a single market for digital goods, services, and content, the European legislator also created a more efficient, innovative, and inclusive digital environment for all EU citizens and businesses.

In order for the single digital market to function on a legal basis, the European legislator passed a single act that regulates activities within that market, but also outside its framework.

In December 2020, the European Commission issued the Digital Services Act (DSA), a legislative proposal for a single market of digital services (Turillazzi et al. 2022).

The European Digital Services Act aims to regulate digital services, such as social media platforms, online marketplaces, and search engines, to ensure their accountability, transparency, and responsibility in protecting the rights of users and fostering innovation.

With the aim of providing an adequate response to the challenges of the digital revolution, such as the previously mentioned spread of misinformation, hate speech and illegal content, and preventing healthy competition on the digital market, the DSA constitutes a legislative entity and legal protection (Digital Services Art. 9.).

It is the DSA that forms the basis of the requirement for digital service providers to take measures to prevent the spread of illegal content (for example, terrorist propaganda and hate speech). Also, all digital service providers must ensure the protection of personal data and the provision of effective legal protection mechanisms for users who have been harmed by their actions (Digital Services Act, Par., P. 9.).

Under the Article 21., DSA also proposes the creation of a Digital Services Coordinator within the EU (for a maximum period of five years), who is responsible for coordinating the enforcement of the DSA across member states and ensuring that digital services providers comply with their obligations.

The DSA came into force on 16 November 2022. and its adoption is seen as a crucial step in the regulation of the digital market in the EU (also Katulić et al, 2023).

## DIGITAL DIRECTIVES PACKAGE (DDP)

International trend has led "towards adopting new (ex ante) rules and/or revising existing legal frameworks, most notably competition law frameworks, with a view to tackling a range issues observed on digital markets comprising the products and services of large online platforms" (Akman, 2022). In order to reduce legal uncertainty and promote cross-border digital trade, the Digital Single Market is based on harmonized legal framework for digital services and content, which makes it easier for businesses to navigate regulations and standards across different member states.



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### **Directive on contracts for the supply of digital content and services<sup>1</sup>**

The European Union has introduced harmonised regulatory framework to regulate contracts for the supply of digital content, including the Directive on contracts for the supply of digital content and services (DCD).

The DCD in its content analyzes and regulates in detail Subject matter and purpose (Art. 1), Definitions (Art. 2.), Scope (Art. 3.), Level of harmonisation (Art. 4), Supply of the digital content or digital service (Art. 5.), Conformity of the digital content or digital service (Art. 6.)

Subjective requirements for conformity (Art. 7.), Objective requirements for conformity (Art. 8.), Incorrect integration of the digital content or digital service (Art. 9.), Third-party rights (Art. 10.) Liability of the trader (Art. 11.), Burden of proof (Art. 12.), Remedy for the failure to supply (Art. 13.), Remedies for lack of conformity (Art. 14.), Exercise of the right of termination (Art. 15.), Obligations of the trader in the event of termination (Art. 16.), Obligations of the consumer in the event of termination (Art. 17.), Time limits and means of reimbursement by the trader (Art. 18.), Modification of the digital content or digital service (Art. 19.), Right of redress (Art. 20.), Enforcement (Art. 21.) Mandatory nature (Art. 22.), Amendments to Regulation (EU) 2017/2394 and Directive 2009/22/EC (Art. 23. Transposition (Art. 24.), Review (Art. 25.), Entry into force (Art. 26.).

As it is stated in the Art. 1. DCD covers the supply of both digital content and digital services. It means that the DCD applies to contracts between businesses and consumers for the supply of digital content as well as contracts for online services.

The Directive applies to "digital content that is supplied to the consumer directly in digital form (for example by downloading or streaming) and to digital content that is supplied on a tangible medium, where the tangible medium is merely the carrier of the digital content."

DCD Art 3(3) and it "does not apply to goods with what are now termed "digital elements", that is, essential embedded or interconnected software: these will fall within the new Directive on Sale of Goods" (Beale, 2022).

According to Art 4 and Recs 3-9, the Directive is a "full harmonisation" Directive and Member States may not provide either less or more stringent measures of consumer protection. The Directive permits Member States to have different rules on one issue only (Beale, 2022).

Under the DCD, the trader shall supply the digital content or digital service to the consumer without undue delay after the conclusion of the contract (Art. 5.). In order to conform with the contract, the digital content or digital service shall, in particular, where applicable: be of the description, quantity and quality, and possess the functionality, compatibility, interoperability and other features, as required by the contract; be fit for any particular purpose for which the consumer requires it and which the consumer made known to the trader at the latest at the time of the conclusion of the contract, and in respect of which the trader has given acceptance; be supplied with all accessories, instructions, including on installation, and customer assistance as required by the contract; and be updated as stipulated by the contract (Art. 7.)

In addition to complying with any subjective requirement for conformity, the digital content or digital service shall: be fit for the purposes for which digital content or digital services of the same type would normally be used and be of the quantity and possess the qualities and performance features. The trader shall ensure that the consumer is informed of and supplied with updates, including security updates that are necessary to keep the digital content or digital service in conformity (Art. 8). Under the same Article

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<sup>1</sup> Directive (EU) 2019/770 of the European Parliament and of the Council of 20 May 2019 on certain aspects concerning contracts for the supply of digital content and digital services





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it is stated that “Where the contract provides for a continuous supply of digital content or digital service over a period of time, the digital content or digital service shall be in conformity throughout the duration of that period and unless the parties have agreed otherwise, digital content or a digital service shall be supplied in the most recent version available at the time of the conclusion of the contract.”

Any failure to achieve conformity that arises from the incorrect integration of digital content or a digital service into the consumer's digital environment shall be considered a lack of conformity of that digital content or service. This is particularly the case when the integration was carried out by the trader, or under the trader's responsibility, or when the consumer undertook the integration based on instructions provided by the trader, and those instructions were inadequate or flawed. In such circumstances, the responsibility for the non-conformity lies with the trader, especially when the consumer's incorrect integration can be traced back to the trader's failure to provide clear, precise, and accurate guidance (Art. 9).

This provision is crucial in ensuring that consumers are protected when they rely on the trader's expertise or instructions for integrating digital content or services into their personal digital environments. It emphasizes the trader's duty to ensure that all instructions provided are comprehensive and free from errors that could lead to integration failures. When these conditions are not met, the digital content or service is deemed non-conforming, and the trader may be held accountable for any resulting issues, ensuring that consumer rights are upheld in the digital marketplace.

In Article 11, DCD regulates “the trader shall be liable for any failure to supply the digital content or digital service” The burden of proof with regard to whether the digital content or digital service was correctly supplied in accordance shall be on the trader. Where the trader has failed to supply the digital content or digital service, the consumer shall call upon the trader to supply the digital content or digital service (Art. 13.).

In the case of a lack of conformity, the consumer shall be entitled to have the digital content or digital service brought into conformity, to receive a proportionate reduction in the price, or to terminate the contract, under the conditions in Article 14.

The Directive also includes provisions that protect the personal data of consumers, which is becoming increasingly important in the digital era. Suppliers must obtain explicit consent from consumers to use their personal data, and must provide clear and transparent information about how the data will be used. (Art. 16.)

Beale (2022) points out some gaps in Directive, like the question of damages that is entirely left to Member States. According to him damages for loss of enjoyment and strict versus fault-based liability are the areas that may be problematic.

Generally speaking, the Directive is particularly important in the digital era because its set of rules is aimed for protecting consumer rights, promoting innovation, encouraging cross border trade and protecting personal data. Also, it sets out specific requirements for the quality and performance of digital content and services, and provides consumers with clear and enforceable rights in case of non-conformity.

Finally, the Directive harmonizes the legal framework for the supply of digital content and services across the EU that can be encouraging for the suppliers who are hesitant to expand their businesses if they face different legal frameworks in different countries.



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### **Directive on certain aspects concerning contracts for the sale of goods<sup>1</sup>**

As stated in Directive's Proposal, E-commerce is a key driver for growth within the internal market. However, its growth potential was and still is far from being fully exploited. Changing market structure and the rise of online platforms (Busch et al., 2019.) showed a need for new legal framework that define contract formation, authentication, consumer protection and data privacy.

When analysing Directive on contracts for the supply of digital content and services and Directive on certain aspects concerning contracts for the sale of goods, we can see that more or less, "their subject-matter is essentially the same (conformity of goods, digital content or digital services with the contract, remedies in the event of a lack of such conformity, modalities for the exercise remedies) but, the directives are complementary and do not overlap." (Rutecka, 2022)

The Sale of Goods Directive is applicable "to sales contracts between a consumer and a seller". Art. 2. p.1. defines sales contract as "any contract under which the seller transfers or undertakes to transfer ownership of goods to a consumer, and the consumer pays or undertakes to pay the price thereof" and a consumer as "any natural person who, in relation to contracts covered by the Directive, is acting for purposes which are outside that person's trade, business, craft or profession" In Art 2. p. 2. and in p. 3. of the same Article seller is defined as "any natural person or any legal person, irrespective of whether privately or publicly owned, that is acting, including through any other person acting in that natural or legal person's name or on that person's behalf, for purposes relating to that person's trade, business, craft or profession, in relation to contracts covered by the Directive".

And as Rutecka (2022) continues it applies to "digital content or digital services which are incorporated in or interconnected with goods, and are provided with the goods under the sales contract, irrespective of whether such digital content or digital service is supplied by the seller or by a third party. In case of doubt as to whether the supply of incorporated or interconnected digital content or an incorporated or interconnected digital service forms part of the sales contract, the digital content or digital service will be presumed to be covered by the sales contract."

Also, it applies "to the sale of any kind of "smart" equipment, such as a smartphone, smart TV or smart watch. Digital content can be pre-installed upon the conclusion of the sales contract or, where that contract so provides, can be installed subsequently. Once such installation is provided for in the contract, it will be covered by the Sale of Goods Directive" (Rutecka, 2022).

Directive (EU) 2019/771 on certain aspects concerning contracts for the sale of goods aims to harmonize and improve the legal framework for contracts for the sale of goods across the EU and in Art. 4. it defines level of harmonisation: "Member States shall not maintain or introduce, in their national law, provisions diverging from those laid down in this Directive, including more, or less, stringent provisions to ensure a different level of consumer protection, unless otherwise provided for in this Directive".

The seller shall deliver goods to the consumer which are "by the description, type, quantity and quality, possess the functionality, compatibility, interoperability and other features, as required by the sales contract; are fit for any particular purpose for which the consumer requires them and which the consumer made known to the seller at the latest at the time of the conclusion of the sales contract, and in respect of which the seller has given acceptance; are delivered with all accessories and instructions, including on installation, as stipulated by the sales contract; and are supplied with updates as stipulated by the

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<sup>1</sup> Directive (EU) 2019/771 of the European Parliament and of the Council of 20 May 2019 on certain aspects concerning contracts for the sale of goods, amending Regulation (EU) 2017/2394 and Directive 2009/22/EC, and repealing Directive 1999/44/EC.



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sales contract" (Art. 5. and 6.). The seller is responsible to the consumer for any defects or non-conformities in the goods that are present at the time of delivery. This liability extends to any issues that become apparent within two years from the date of delivery. According to Article 10, if a lack of conformity surfaces within the first year after the goods have been delivered, it is presumed that the defect existed at the time of delivery unless proven otherwise or unless such a presumption is inconsistent with the nature of the goods or the specific defect in question (as stated in Article 11).

Should any non-conformity arise, the consumer has the right to have the goods brought into conformity. This can be done through repair or replacement, at the consumer's choice. Additionally, the consumer may opt for a proportionate reduction in the price of the goods or, in more severe cases, may choose to terminate the contract entirely (as outlined in Article 13). This ensures that the consumer is protected and has multiple avenues to remedy the situation should the goods fail to meet the agreed-upon standards.

Article 14. explains how "Repairs or replacements shall be carried out free of charge; within a reasonable period of time from the moment the seller has been informed by the consumer about the lack of conformity; and without any significant inconvenience to the consumer, taking into account the nature of the goods and the purpose for which the consumer required the goods." The reduction of price shall be proportionate to the decrease in the value of the goods which were received by the consumer compared to the value the goods would have if they were in conformity. (Art. 15.) In case of termination of the sales contract, the consumer shall exercise the right to terminate the sales contract by means of a statement to the seller expressing the decision to terminate the sales contract.

When the consumer chooses to terminate the entire sales contract, or a portion of it relating to specific goods delivered under the contract, the consumer shall return the goods to the seller at the seller's expense. Upon receiving the returned goods, or upon receiving proof from the consumer that the goods have been sent back, the seller is obligated to promptly reimburse the consumer for the price paid for those goods. (Article 16)

The directive came into force on 11 June 2019 and it is applicable to contracts concluded on or after 1 January 2022.

## CONCLUSION

The digital revolution has fundamentally transformed our society, economy, and daily lives, but it has also introduced a range of challenges for European legislation. Among the most pressing issues are data privacy, intellectual property rights, and cybersecurity. To address these challenges and foster a cohesive digital economy, the European Union launched the Digital Single Market initiative. This strategic effort aims to remove barriers to cross-border digital trade, creating a level playing field for businesses, consumers, and citizens across the EU, thereby enhancing competitiveness.

Central to this initiative are two key pieces of legislation: the Digital Content Directive (Directive (EU) 2019/770) and the Sale of Goods in the Digital Era Directive (Directive (EU) 2019/771). These directives provide a harmonized and predictable legal framework for the sale and supply of digital content, digital services, and goods within the European Union.

The directives establish clear rules and standards for the supply of digital content and services, offering robust consumer protection and promoting fair competition in the digital economy. Before these directives, the European consumer law framework lacked specific regulations governing the supply of digital content and services, leaving gaps that these new laws now fill. As part of the broader legal



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framework for the digital era, these directives ensure that the digital economy operates transparently and fairly, safeguarding consumers when purchasing digital content, services, and goods online.

However, the successful implementation and enforcement of these regulations will continue to pose challenges that must be addressed over time. Ensuring compliance across the diverse and rapidly evolving digital landscape of the EU will require ongoing efforts, cooperation among member states, and adaptation to new technological developments.

## REFERENCES

Akman, P. (2022). Regulating Competition in Digital Platform Markets: A Critical Assessment of the Framework and Approach of the EU Digital Markets Act (December 1, 2021). 47 *European Law Review*, 85.

Beale, H. (2022). Digital content directive and rules for contracts on continuous supply. *Journal of Intellectual Property, Information Technology and E-Commerce Law*, 12 (2), 96-110.

Busch, C. et al. (2016). The Rise of the Platform Economy: A New Challenge for EU Consumer Law, 5 *Journal of European Consumer and Market Law* 3 (C.H.Beck).

Gongeta, S., Sudarić, Ž., Klepica, D., (2021) Certain aspects concerning contracts for the sale of goods in European legislation. Book of Papers 6th International Scientific and Professional Conference (pp. 263-271). Gregurec, I. (e.), Croatian Direct Marketing Association, Varaždin.

Lisičar, H., Katulić, T., Jurić, M. (2023). Online Audiovisual Content, Video Sharing Platforms and Regulation under DSA and AVMSD. 46th MIPRO ICT and Electronics Convention, Opatija, Proceedings, pp. 1478-1483.

Schrepel, T., (2021). Smart Contracts and the Digital Single Market Through the Lens of a 'Law + Technology' Approach (October 21, 2021). European Commission, Brussels.

Senftleben, M., Angelopoulos, C. (2020). The Odyssey of the Prohibition on General Monitoring Obligations on the Way to the Digital Services Act: Between Article 15 of the E-Commerce Directive and Article 17 of the Directive on Copyright in the Digital Single Market. Cambridge, Amsterdam.

Synodinou, T-E, Jougleux, P., Markou, C., Prastitou, T. (2020). EU Internet Law in the Digital Era: Regulation and Enforcement (1st. ed.). Springer Publishing Company, Berlin.

Technopolis, GNKS Consult (2022). New technologies and new digital solutions for improved safety of products on the internal market. Publication for the committee on Internal Market and Consumer Protection, Policy Department for Economic, Scientific and Quality of Life Policies, European Parliament, Luxembourg.

Turillazzi, A. et al., (2022). The Digital Services Act: An Analysis of Its Ethical, Legal, and Social Implications.

Directive (EU) 2019/770 of the European Parliament and of the Council of 20 May 2019 on certain aspects concerning contracts for the supply of digital content and digital services, pp. 1–27.

Directive (EU) 2019/771 of the European Parliament and of the Council of 20 May 2019 on certain aspects concerning contracts for the sale of goods, amending Regulation (EU) 2017/2394 and Directive 2009/22/EC, and repealing Directive 1999/44/EC OJ L 136, 22.5.2019, pp. 28–50.



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Regulation (EU) 2022/2065 of the European Parliament and of the Council of 19 October 2022 on a Single Market For Digital Services and amending Directive 2000/31/EC (Digital Services Act) OJ L 277, 27.10.2022, pp. 1–102

Rutecka, D. (2022). The Digital Content Directive and the Sale of Goods Directive: when to apply which?: Available at: <https://www.schoenherr.eu/content/the-digital-content-directive-and-the-sale-of-goods-directive-when-to-apply-which/> [Accessed: 24.05.2024]



## Conference Proceedings

# EFFECTIVENESS OF ALTERNATIVE MECHANISMS FOR FINANCIAL SUPPORT OF PROMISING TECHNOLOGIES

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DOI: 10.5937/EEE24064S

JEL: A10, I23

Review Scientific Paper

### ABSTRACT

*The main task of this article is to study the problem of the effectiveness of the main mechanisms of financial support for promising technologies and to determine the main ways of increasing their effectiveness. This work highlights three main mechanisms of financial support for promising technologies: funding of research by the corporate sector; direct state funding of promising research; funding of research thanks to grant support; and a comparative analysis of the mentioned support mechanisms is carried out. It is shown that the main disadvantages of research funding by the corporate sector, as a mechanism of financial support for the development of new promising technologies, are, firstly, the possibility of financial support exclusively for those scientific studies that have commercial potential; secondly, the presence of strict restrictions on the free dissemination of information on the results of research conducted by the research units of corporations. At the same time, direct state funding of promising research, which opens up the opportunity for funding research and further implementation of technologies that for one reason or another do not arouse interest in business, also has its own shortcomings. The main ones are: a limited list of research that can receive direct state funding (dictated, mainly, by the need to ensure the technological leadership of the country and its security); low efficiency in the use of financial resources allocated for research and the impossibility of using this mechanism to reveal the full potential of relevant technologies. Unlike the two previous mechanisms of financial support for promising technologies, research funding through grant support allows solving the problem of expanding the list of research that can receive the necessary financial support. However, this mechanism of financial support for promising technologies is characterized by a low level of efficiency in the distribution of funds and the efficiency of their use. It has been proven that ensuring proper support of most promising technologies requires the creation of favorable conditions for the most effective integrated application of all considered support mechanisms.*

### KEYWORDS

*technologies, efficiency, transaction costs, bureaucratic procedures.*

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# INTRODUCTION

Support for new promising technologies is an objective necessity dictated by the following reasons. The first such reason is the inability of the scientific team to complete, without external financial support, the entire cycle of research, which is necessary to bring the new technology to a state where it can find its practical application. Another reason is the slow pace of implementation observed for certain categories of new technologies in the absence of external financial support. In a number of cases, these processes are conditioned by certain institutional barriers that can be eliminated thanks to the reform of the current formal rules (Abramov, 2023a, Abramov, 2023b). However, such measures can only weaken the mentioned problems, and the main reason for their appearance is the insufficient funding of relevant scientific research and the lack of sufficient financial resources and rapid deployment of relevant technologies. The latter gives special relevance to the determination of the effectiveness of the main mechanisms of support for promising technologies and the search for ways to increase the overall efficiency of the support system for promising technologies.

The interest shown in new technologies, both from the side of scientists and from the side of ordinary citizens, is quite understandable and justified. After all, nanotechnology (Roco, 2005, Bae, Lim, Shin et al., 2013, Roco, Harthorn, Guston, et al., 2011), quantum technology (Coenen, Grunwald, 2017), Digital transformation (Nadkarni, Prügl, 2021, Zhai, Yang, Gao et al., 2023; Danaeafard, Kazemi, Karimi, 2024), artificial intelligence (D'Amato, 2024) and many other technologies promise to fundamentally change our daily lives in the near future. The researchers focus on issues such as: governing emerging technologies (Ghazinoory, Fatemi, Saghafi, et al., 2023, Schwarz-Plaschg, 2018, Beumer, 2019), emerging technologies and ethics (Gouvea, Linton, Montoya, et al, 2012), the role of society in the development of technologies (Schuijjer, Broerse, Kupper, 2021, Hällström, 2008, Jansma, Dijkstra, de Jong, 2021), risk governance (Malakar, Lacey, Bertsch, 2022; Roco, Bainbridge, 2005), the connection of technologies with current social problems (Mooney, 2006) and other problems (Roco, Bainbridge, 2013). However, despite close attention to all aspects of the development and implementation of new promising technologies, the problem of the effectiveness of alternative mechanisms for financial support of promising technologies remains insufficiently researched.

The purpose of this article is to identify the main mechanisms of financial support for promising technologies and to determine the main ways of increasing their efficiency. Next, we will sequentially consider the following main mechanisms for supporting new promising technologies: funding of research by the corporate sector; direct state funding of promising research; research funding thanks to grant support.

## FUNDING OF RESEARCH BY THE CORPORATE SECTOR

In today's world, an extremely large number of new technologies not only find their practical application thanks to the efforts of powerful corporations, but also originate in research units belonging to these corporations. This is due to the fact that in many industries, competitiveness is determined not only by the corporation's ability to recognize the potential of a new technology in time and implement it faster than its competitors, but also by the ability to effectively limit competitors' access to the corresponding technology by obtaining exclusive rights to its use. The latter is possible either by acquiring a patent or an exclusive license from an independent developer of a new technology, or by conducting independent research. Although corporations actively use both opportunities to secure exclusive rights to use promising technologies, conducting independent research has a number of indisputable advantages. Thus, conducting independent research in principle makes it impossible for competitors to buy a patent,



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which is a common phenomenon in the case of purchasing technology from an independent developer. In addition, the presence of its own research unit not only narrows the range of possible areas of research on which the employees of this unit can work to those studies that, from the point of view of the management of corporations, are the most promising for practical use, but also increases the probability of creating such a variant of a new technology that best meets the needs of the corporation and the conditions in which it must work.

However, conducting independent research by a corporation as a way to increase competitiveness and ensure technological leadership has its drawbacks. So, it is quite obvious that the success of the research division of the corporation depends significantly on the professionalism of the employees of this division. On the other hand, during the creation of a research unit, the responsible managers of the corporation have only indirect tools for determining the professionalism of its future employees, which significantly increases the level of transaction costs of measurement that the corporation faces. The choice of prospective areas of research is also a significant problem. In contrast to the purchase of ready-made technology, the effectiveness of which in many cases is already proven, at the beginning of one's own research, the practical value of their future results is unknown. Accordingly, the wrong choice of research areas can result in significant financial losses for the corporation. However, the biggest disadvantage of this strategy is the risk of losses in the event that competitors manage to quickly cope with conducting all the necessary research and obtain a patent for a new technology.

Thus, powerful corporations are, on the one hand, directly interested in conducting cutting-edge research through their own research units, and, on the other hand, these corporations have enough financial resources to independently finance most such research. This creates favorable conditions for the support of a certain category of promising technologies thanks to the financing of relevant research mainly by the corporate sector.

The main advantages of this support mechanism for new promising technologies are:

- Firstly, the high efficiency of the use of financial resources allocated for the development and implementation of new technology;
- Secondly, a high percentage of the introduction of new technologies;
- Thirdly, high rates of research work.

The high efficiency of the use of financial resources allocated by the corporation for the development and implementation of new technology is due to purely practical considerations of the corporation's management. After all, the financing of scientific research by the corporation will be justified only if the expected profit from the implementation of the results of the scientific research work will exceed the costs of its implementation. Therefore, it is obvious that the corporation will finance only those research works that meet this requirement. If the corporation still decides to finance a certain research, then it will obviously try to do it with the lowest costs, because its future profit will depend on it. This also explains the high percentage of introduction of new technologies, because the corporation finances research precisely for the opportunity to be the first to use the corresponding technology. Only the emergence of a more competitive alternative technology can force a corporation to abandon the introduction of a new technology.

The high pace of scientific and research work carried out by the research divisions of corporations is due to the fact that in order for the corporation to be able to secure competitive advantages, it must not only conduct appropriate research with the lowest costs, but also complete it earlier than its competitors. After all, many competing corporations in the hope of securing competitive advantages conduct similar studies. And even if the winner in this race does not secure exclusive rights to use the resulting





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technology, in most cases the first-to-market corporation can hope to win most of the contracts for the supply of the new product. As a result, corporations that complete their research later may not recoup the money spent on conducting their research.

The main, and most obvious, drawback of this mechanism for supporting new promising technologies is the extreme limitation of the range of research that can arouse interest on the part of corporations. As noted earlier, the main reason that motivates large corporations to create their own research units and finance relevant research is the desire to be the first to receive a new technology that will provide them with a competitive advantage. That is, the result of the research should be the creation of a fundamentally new or improved product that will be in demand among consumers, or the cost reduction of already existing goods, thanks to the improvement of production technology. Obtaining these results is the purpose for which corporations are willing to spend their financial resources.

The latter significantly limits the range of research that can be financed by the corporate sector. After all, any corporation will spend its financial resources only on those areas of research that, preferably, correspond to the field of activity of this corporation and, necessarily, are promising from the point of view of achieving the specified goal. The emergence of technologies that do not meet the specified requirements, thanks to financing by the corporate sector, can happen either as a side result of the main research, or as a result of a strategic miscalculation of the corporation's management, which overestimated the practical significance of the future results of certain studies.

Another significant drawback of this mechanism for supporting new promising technologies is the presence of significant restrictions on the free dissemination of information regarding the results of research funded by large corporations. Indeed, as stated earlier, the main purpose of a corporation conducting its own research is to secure a competitive advantage. Therefore, the corporation may not be interested in publishing the results of its research units, even in cases where, for one reason or another, it is not going to use them.

The consequences of such restrictions may be a slowdown in the pace of technology development. After all, in order to prevent the leakage of information, the staff of the laboratory belonging to this or that corporation is forced to manage only by their own forces without the help of other researchers. Moreover, restrictions on the publication of research results may affect the efficiency of the use of financial resources by the corporate sector. After all, a very common situation is when several laboratories belonging to different competing companies work in isolation on the same problem, not having the opportunity to exchange ideas and research results, and therefore being forced to go through all stages of research independently, often repeating the mistakes of their colleagues.

## **DIRECT STATE FUNDING OF PROMISING RESEARCH**

Direct state funding is an equally powerful source of funding for scientific research and further implementation of new technologies into practice. It should be noted that the state can take part in the financing of scientific research and the further implementation of new technology in two fundamentally different ways: by participating in already existing funds or by creating separate state funds that should allocate grants for certain scientific research (indirect state funding). Or through the creation of certain state structures, which must both conduct relevant research and implement relevant projects (direct state funding). The first of the mentioned approaches to state support of promising technologies is fundamentally no different from the case of non-state funds financing certain areas of scientific research,



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which will be discussed below. Therefore, we will focus exclusively on the second approach to state support for promising technologies — direct state financing.

The main and indisputable advantage of this mechanism for supporting promising technologies is the possibility of financing research and the further implementation of technologies that, for one reason or another, do not arouse interest in business. The latter can be caused both by the impossibility of practical application of the obtained preliminary research results and the extremely high level of costs associated with the implementation of the relevant projects. Thus, space or nuclear technologies were able to develop and find practical application only thanks to direct state financing of relevant projects under the control of specially created state structures. And only later, after these technologies were properly developed and demonstrated their commercial potential, big business joined their financing.

At the same time, the main advantage of direct state funding as a mechanism for supporting the development of promising technologies is closely related to its main drawback: the significant limitation of the list of potential areas of research that can receive funding from this source. After all, in the case of direct state funding, the choice of directions for research and relevant projects for implementation is dictated solely by the desire to demonstrate the country's technological leadership (space program at the initial stages of its development) or ensure its defense capability (nuclear program). In addition, the choice to implement this or that mega-project is the result of political decisions that are influenced not only by the desire to ensure the prestige of the country or its defense capability, but also by many other factors, including the desire of the pro-government political force to be re-elected in the upcoming elections. As a result, relevant political decisions regarding the selection of this or that megaproject for its further implementation will be compromised, which may negatively affect the ability to choose the most promising technologies even from such an extremely limited list.

Another characteristic shortcoming of direct state funding is the low efficiency of using financial resources allocated for research. Undoubtedly, as with any other mechanism for supporting promising technologies, in the case of direct state funding, the research program will be formed by scientists, and not only success in achieving the set goal will depend to a large extent on how optimally this program will be drawn up, but also and the efficiency of the use of financial resources. However, no less important factors that will determine, in this case, the efficiency of the use of financial resources are the procedure for agreeing the list of necessary equipment and the procedure for allocating financial resources for its purchase, existing rules for selecting possible suppliers of the agreed equipment and the procedure for holding tenders. And, unlike the previous mechanism, these issues will be resolved by authorized officials in accordance with the current (not always effective) formal rules and current public procurement policy. The latter can be the cause not only of slowing down, due to the need to go through unnecessary bureaucratic procedures, the pace of scientific and research works financed directly from the state budget, but also the cause of inefficient use of financial resources. After all, an official, even compared to a hired manager of a large corporation, is much less interested in achieving the set results, which can negatively affect both the terms of delivery of the necessary equipment and its quality, as well as the working conditions of the scientific team.

The last, but no less significant shortcoming of direct state funding is the impossibility of using this mechanism to reveal the full potential of relevant technologies. This is due to the fact that state bureaucratic structures are much less sensitive to the needs of end consumers and market requirements. Therefore, state officials will try first of all to ensure the accelerated development of those aspects of these technologies that correspond to the interests of the direct customers – the ruling political forces. The remaining aspects of the practical use of these technologies, if they will be implemented thanks to direct state funding, will be implemented much later. The opposite situation will be observed in the case of financing of these technologies by the corporate sector. Yes, the everyday, convenient and already



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imperceptible advantages brought to us by the development of space technologies and the Internet were realized only after the commercialization of these technologies. However, despite this shortcoming, direct government funding allows relevant technologies to reach such a level of development when the prospects for their commercial use become obvious and the corporate sector is included in their financing.

Thus, it is necessary to recognize that direct state funding, as a mechanism for supporting promising technologies, will be effective only if favorable conditions are created in time for the start of commercialization of the corresponding technology and more active financing and implementation of further developments by the private sector. Direct state funding will allow support for those promising technologies in which the corporate sector is not interested in financing, or there are no corresponding financial opportunities. And at later stages, when the relevant technologies reach the necessary level of development, financing by the corporate sector will contribute to the fullest disclosure of the potential of these technologies. Only in this case will all the advantages of both support mechanisms for promising technologies be realized.

## RESEARCH FUNDING THANKS TO GRANT SUPPORT

Overcoming the common problem of the previous two mechanisms for supporting promising technologies — a significant limitation of the list of potential areas of research that can be further developed thanks to these support mechanisms — is possible thanks to the wider use of such a mechanism as research funding by various state and non-state funds.

Today, state and non-state funds that support various scientific research with the help of grants are becoming an important source of funding for scientific research, and in some cases, for further practical use of their results. The main feature of the operation of most state and non-state funds, thanks to which it becomes possible to expand the list of possible areas of research, is that when making a decision on the allocation of a grant for financial support of one or another research, as a rule, the commercial value of the expected research results is not taken into account. Thanks to this, even those studies that do not arouse the interest of the corporate sector can receive funding. Of course, a significant part of non-governmental foundations specializes in supporting only those researches that correspond to its main purpose (for example, the fight against global warming, or the preservation of certain ecosystems). However, thanks to the large number of foundations, each of which specializes in its own research area, their support covers almost all possible areas of research. Because of this, the immediate topic of the research will have little effect on the overall probability of winning a grant to fund it.

The main drawback of this approach to supporting promising technologies is the efficiency of the use of financial resources allocated to finance relevant research. In general, two dimensions of this problem can be distinguished:

- efficiency of allocation of funds, and
- efficiency of their use.

The first dimension of the problem of the efficiency of the use of financial resources is that the limited financial resources belonging to one or another fund must be distributed among a certain number of studies. At the same time, it is obvious that, first of all, funding should be allocated to the most promising research, the results of which can be translated into new, more effective technologies. Accordingly, the level of efficiency of the distribution of funds will directly depend on the ability of the fund's representatives to accurately determine the prospects of those studies that can be financed by this fund.



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However, the complexity of such an assessment can vary enormously between studies. Thus, the potential of some studies can be revealed even at the early initial stages of research. For example, if a certain group of researchers is working on a fundamentally new technology for accumulating and storing electricity, which is much more efficient than existing technologies, then, given the presence of an already fully formed and extremely capacious market for secondary chemical current sources, it is quite obvious that, in if successful, the relevant new technology will find wide application and have a positive impact on the economic development of society. As a rule, this is true for research that promises to translate into a new technology that meets the following criteria:

- firstly, a capacious market has already been formed for the corresponding technology;
- secondly, this technology is a more effective alternative to the already existing technology.

However, studies whose potential can be easily determined are an absolute minority. In addition, they attract the attention of relevant corporations interested in the fastest possible implementation of the future technology and/or obtaining exclusive rights to its use, and such research, as a rule, does not require funding from other sources. For the vast majority of studies, it is extremely difficult, or even impossible, to predict the prospects for the application of relevant technologies. The consequence of this may be the allocation of funds for conducting research, the results of which may be translated into technologies that will lose in their effectiveness to existing alternative technologies, or will not be able to find any practical application at all. The considered problem is undoubtedly an extremely difficult problem that has no solution, because it is connected with the fundamental impossibility of predicting the future. However, this problem is a universal problem that is common to almost all existing mechanisms for supporting promising technologies, and therefore cannot be considered a shortcoming of this mechanism for supporting promising technologies.

A much more specific problem is the problem of the effectiveness of the use of allocated funds. Although in the case of grants, the collective of researchers can dispose of allocated financial resources more freely than, for example, in the case of direct state funding, the functioning of the grant system is also associated with numerous bureaucratic procedures. However, in this case, the main difficulties arise at the stage of applying for a grant. After all, achieving success in receiving a grant largely depends on how correctly the application is prepared and the rest of the many requirements are met. Obviously, this leads to an increase in the level of transaction costs of bureaucratic procedures, with which scientists hoping to receive a grant to finance their own research have to deal. Evidence of the high level of these costs can be the emergence of such specialists as grant managers, whose main duty is precisely the formation of a package of documents for applying for a grant and further support of the received grant.

The specified features of the grant system will have negative consequences for the effectiveness of this mechanism for supporting promising technologies. Thus, some researchers will be forced to give up trying to get a grant altogether, especially those who have no previous experience in getting grants, because for them the probability of getting a grant will be minimal, or the level of transaction costs of bureaucratic procedures will exceed the amount of the grant. If the grant application is still submitted, in case of success, part of the allocated financial resources will go to pay the grant manager. Even if researchers do not use the services of a grant manager, they will still have to spend their time (which could be spent on research) going through the relevant bureaucratic procedures.



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# CONCLUSION

Thus, each of the mechanisms for supporting promising technologies that we have considered has significant limitations that significantly narrow the scope for their effective application. Such limitations are mainly caused by too narrow a range of problems, the research of which can be facilitated by a separate support mechanism, or by limited opportunities for funding research. Accordingly, none of these mechanisms can become a universal mechanism that would be able to provide support for any promising technology. Because of this, effective support of promising technologies becomes possible only if a comprehensive support system is used, which not only includes all the considered mechanisms for supporting promising technologies, but also creates the proper conditions for their most effective application. At the same time, to ensure the effectiveness of such a system, it must be taken into account that a significant part of technologies, in its development, goes through several stages, at each of which, the most effective will be its own mechanism for supporting promising technologies.

# REFERENCES

- Abramov, F. (2023a). Institutional Factors of the Appropriateness of Facilitating the Implementation of Promising Technologies. IEEE 4th KhPI Week on Advanced Technology, Kharkiv, pp. 1-5.
- Abramov, F. (2023b). Institutional Measures to Stimulate the Development of High-technology Industries. IEEE 18th International Conference on Computer Science and Information Technologies, Lviv, pp. 1-4.
- Bae, S.H., Lim, J.S., Shin, K.M. et al. (2013). The innovation policy of nanotechnology development and convergence for the new Korean government. *Journal of Nanoparticle Research*, 15, 2072.
- Beumer, K. (2019). Nation-Building and the Governance of Emerging Technologies: the Case of Nanotechnology in India. *Nanoethics*, 13, 5–19.
- Coenen, C., Grunwald, A. (2017). Responsible research and innovation (RRI) in quantum technology. *Ethics and Information Technology*, 19, 277–294.
- D’Amato, K. (2024). ChatGPT: towards AI subjectivity. *AI & Society*, 1-27.
- Danaeefard, H., Kazemi, S.H., Karimi, M. (2024). Exploring the Challenges of Digital Transformation in the Iranian Public Sector: A Qualitative Study. *Public Organization Review*, 24(3), 1077-1103.
- Ghazinoory, S., Fatemi, M., Saghafi, F. et al. (2023). A Framework for Future-Oriented Assessment of Converging Technologies at National Level. *Nanoethics*, 17(8), 1-28.
- Gouvea, R., Linton, J.D., Montoya, M. et al. (2012). Emerging Technologies and Ethics: A Race-to-the-Bottom or the Top? *Journal of Business Ethics* 109(4), 553–567.
- Hällström, N. (2008). What Next? Climate change, technology and development. *Development* 51(3), 375–381.
- Jansma, S.R., Dijkstra, A.M., de Jong, M.D.T. (2021). How Can I Contribute? Citizen Engagement in the Development of Nanotechnology for Health. *Nanoethics*, 15, 211–227.
- Malakar, Y., Lacey, J., Bertsch, P.M. (2022). Towards responsible science and technology: How nanotechnology research and development is shaping risk governance practices in Australia. *Humanities and Social Sciences Communications*, 9(1), 1-13.



## Conference Proceedings

- Mooney, P. (2006). Hype and Hope: A past and future perspective on new technologies for development. *Development*, 49(4), 16–22.
- Nadkarni, S., Prügl, R. (2021). Digital transformation: a review, synthesis and opportunities for future research. *Management Review Quarterly*, 71(2), 233–341.
- Roco, M.C. (2005). The emergence and policy implications of converging new technologies integrated from the nanoscale. *Journal of Nanoparticle Research*, 7(2), 129–143.
- Roco, M.C., Bainbridge, W. (2005). Societal implications of nanoscience and nanotechnology: Maximizing human benefit. *Journal of Nanoparticle Research*, 7(1), 1–13.
- Roco, M.C., Bainbridge, W.S. (2013). The new world of discovery, invention, and innovation: convergence of knowledge, technology, and society. *Journal of Nanoparticle Research*, 15(9), 1946.
- Roco, M.C., Harthorn, B., Guston, D. et al. (2011). Innovative and responsible governance of nanotechnology for societal development. *Journal of Nanoparticle Research*, 13(9), 3557–3590.
- Schuijjer, J.W., Broerse, J.E.W., Kupper, F. (2021) Citizen Science Fiction: The Potential of Situated Speculative Prototyping for Public Engagement on Emerging Technologies. *Nanoethics*, 15, 1–18.
- Schwarz-Plaschg, C. (2018). The Power of Analogies for Imagining and Governing Emerging Technologies. *Nanoethics*, 12, 139–153.
- Zhai, H., Yang, F., Gao, F. et al. (2023). Digital Transformation and Over-Investment: Exploring the Role of Rational Decision-Making and Resource Surplus in the Knowledge Economy. *Journal of the Knowledge Economy*, 15(3), 14103-14134.



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# QUALITY SYSTEM MANAGEMENT FOR ACHIEVING BUSINESS EXCELLENCE

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DOI: 10.5937/EEE24065Z  
JEL: I31, M11, M20  
Review Scientific Paper

### ABSTRACT

*The comprehensive, integrated concept of quality management in the enterprise economy is the latest instance of the evolutionary process of development of quality management, known as the concept of business excellence. This concept relies heavily on total quality management; it, however, includes models of business excellence that aim to concretize and operationalize the concept itself. These models are the cornerstone for company evaluation, on the basis of which business strengths and weaknesses can be identified. This paper analyzes the elements and significance of the business excellence model, as well as its presence in small and medium-sized enterprises. The model of business excellence includes certain criteria on the basis of which company management can perform self-evaluation. They are also the basis for assessing business excellence in the quality award process. As there are a number of quality awards within business excellence, the criteria for these quality awards (Deming Award, Malcolm Baldrige, Australia, European Quality Award) are awarded.*

### KEYWORDS

*business excellence, business performance, quality, EFQM, TQM, small and medium enterprises, quality award, RADAR.*

## INTRODUCTION

The business excellence of today's organizations is exposed to turbulent changes that affect them and their internal structuring, in the way of management and achieving competitive advantage. Organizations are therefore forced to change their business philosophy and learn to live in an environment where change is the only constant. In order to achieve satisfactory business success, they must have modern management, which is focused on doing business with overall quality management. Companies that have included quality management in their business system become recognizable and represent a dominant factor of competitive advantage. Organizations with this type of business have a product-service with a guarantee, reduce costs, improve communication with business partners while gaining global recommendations.

Constant changes in the business of the organization have a positive effect on the new business relationship that leads the organization to better business success. By uniting organizations, the market

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opens up more and more and trade liberalization is accepted through the reduction (elimination) of barriers. This approach to the business of international trade organizations and all intermediary services influences organizations to adapt to existing conditions and face competing organizations.

from this that the competitiveness of the company requires a great struggle in the existing space in terms of technological innovation, knowledge, quality and management.

Companies must reject conventional business practices and create the necessary conditions for continuous business improvement through innovations that represent a source of continuous improvement. Innovations, for their successful implementation, require an entrepreneurial spirit, which domestic companies do not lack.

The motive of every company in the business world is success. Traditionally, this word was associated with the realization of the greatest possible profit for the owners of the company. Today, a larger number of users are interested in the success of the company, and in addition to the owner, the needs and expectations of all stakeholders must be met.

Business excellence represents great business success compared to concrete, i.e. quality management of a company that results in the achievement of the desired business performance. Therefore, business excellence is one of the highest positioned goals in the hierarchy of goals of organizations located in the existing environment. The business functioning of the organization represents the aspiration of the company to improve its business and achieve business with better business success, compared to the previous one.

Organizations that have implemented the Total Quality Management (TQM) model in their business system, which conditions the organization for better and faster business success. These and similar organizations with recognizable product quality are considered international manufacturers with a standard.

It is a fact that such organizations that operate with implemented management quality have a well-organized process activity with managerial skills. These kind of process activities are the basic characteristic of domestic small and medium-sized enterprises. In addition, the lack of international experience is a major limiting factor for the internationalization of these companies. Domestic small and medium enterprises are faced with the challenge of adapting to the conditions of modern market operations

## **THE CONCEPT OF BUSINESS EXCELLENCE IS AIMED AT IMPROVING THE COMPETITIVENESS OF COMPANIES**

Competitive advantage is generally used to describe the relative characteristics of a company versus its competitors. Given that the EFQM model is one of the most modern forms of measuring business performance, its use for the purpose of strengthening the competitive position is justified. Using the EFQM model to achieve and maintain a competitive advantage is reflected through the concept of dynamic capability, which this model forces. The art of applying a dynamic capability before the competition, more consistently, more insightfully and in an unpredictable way, creates and sustains an organization's competitive advantage.

Business excellence enables greater flexibility and the ability to adapt to the market situation, and thus enables the retention of the achieved development position with a competitive advantage. Innovation, learning and creativity give the company the ability to integrate, build and reshape its potentials in response to continuous changes in the environment. Thus, excellence becomes a means of securing distinctive competence and transforming it into a competitive advantage.





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As the ability to adapt to changes in the environment and align the company's resources with external needs is key to the evolution and survival of the organization, it is inevitable that the implementation of the concept of business excellence should be set as a priority. Business excellence then becomes an important part of enabling superiority, comparing with other organizations in the subject area.

### **APPLICATION OF THE PRINCIPLES OF BUSINESS EXCELLENCE IN THE SMALL AND MEDIUM SIZED ENTERPRISES IN MONTENEGRO**

Small and medium-sized enterprises should know that the modern economy does not recognize profit as the main goal, but as a consequence of well-designed and managed business. The interests of interested parties in products as well as social communities are always in the first place, so with patience and smart investment, the interest of everyone, especially the owner, can be satisfied. That is why it is necessary for small and medium-sized companies to have a clear picture of the organization and to choose the areas that need to be improved and determine with which activities to start work on continuous implementation of improvements and regular checking of results.

Doing business with business excellence for small and medium-sized enterprises means constant performance improvement, which helps them to move forward rapidly with good results. Organizations with business excellence have the ability to be more flexible and to adapt more quickly to the current situation in the subject area while preserving the achieved position with a competitive advantage. Organizations are more capable and ready to limit the adverse effects of the environment and to strengthen the elements of flexibility by minimizing the costs of responding in conditions of an unstable and unfavorable environment.

Organizations with business excellence emphasize a constant desire to improve to higher level criteria. It is business excellence that advocates an organizational structure with conflict-free synergy among the organization's product-providing functions

Consistently following the principles of business excellence allows companies to improve their position in a given environment by finding new sources of competitive advantage. Great opportunities open up for companies, such as strengthening their market position, creating new partnerships, expanding their assortment, attracting new staff, etc.

The implementation of the European model of business excellence encourages innovation and stimulates continuous changes to ensure the survival and growth of companies in a dynamic environment.

Heraclitus' saying, which is several tens of centuries old, "everything changes, only changes are constant" best describes modern business conditions, the only thing being that in this case, the ability to change must be based on the ability to innovate. Modern conditions and rapid changes require organizations to react faster in all business segments, in order to ensure competitive advantage and constant improvement at all levels, as well as constant increase in interest group satisfaction. The only way for companies to succeed in such conditions is to encourage and ensure the introduction of innovations and innovative ventures as intensively and comprehensively as possible. It is necessary to react faster than your rivals in order to create a sustainable competitive advantage. The EFQM model of business excellence exactly forces such a way of doing business through its principles. Constancy of change and learning leads organizations to improve business performance and is an integral part of the philosophy of business excellence. This fact is of particular importance for creating a competitive



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advantage and an important factor that significantly affects the economic power of small and medium-sized organizations.

The implementation of the European model of business excellence for small and medium-sized organizations represents the choice of the right strategy for achieving a competitive advantage. In this way, innovation is strengthened, which is of essential importance for the growth and development of the organization. That is why management and employees' commitment to innovative and continuous improvements of all, even the smallest details of business, is the only correct path to stable results.

Organizations with business excellence support sustainable development, establish a strategy, work effectively with partners, optimally use resources and focus on increasing the knowledge of employees. The application of acquired knowledge and the improvement of all processes is the basis for increasing the productivity of the entire business, which ultimately leads to the improvement of the quality of the entire business of the company. Such enterprises achieve the ability to process information more efficiently, which makes effective decisions and has a higher probability of achieving success in the market.

Continuous process improvement plays a key role in achieving business excellence. By creating efficient processes and using business excellence factors, it improves the work of the organization. This happens through a continuous circular process of work improvement, on the basis of which we receive information about the degree of improvement of the work process. There is always plenty of room for improvement in the area of reliability, performance, efficiency of production systems; for example, all unnecessary equipment can be eliminated and the consumption of energy and materials can be rationalized.

Business excellence is focused on the improvement of performance, where constant harmonization reduces rework, scrap, user complaints, which results in a significant reduction in costs. Also, by achieving the excellence of the system, the number of external errors is also reduced because the production is carried out according to international standards. Reaching the maturity stage of quality management, i.e. stages of business excellence ensure defect-free operations. Zero defect is achieved not only in the production process, but in the entire business, it works well and has a preventive effect on defects and quality. The quality important for the success of the entire organization is considered here. Then the condition of Crosby's claim that "quality is free" is fully met, i.e., the costs of quality become lower than the investment in achieving it.

Modern theory and practice knows several types of management tools and models that serve the same purpose, successful management of the company and its translation into the desired state, improvement of all dimensions of business activity, identification of weak operational performance and design of programs to improve financial and non-financial performance. They contribute to the improvement of the achieved results while observing the overall operations of the organization in much more detail, as well as observing the success of the organization depending on the type and type of tool.

The European model of business excellence is complementary with various tools for the reason that it was not conceived as a tool for "process improvement", so this deficiency is eliminated by integrating with modern management tools for improving the performance of the organization's processes, such as: the Balance Chart method, Lean production, Six Sigma concept, supply chain management, Prism performance and InCaS concepts. Various tools are used to improve one or more individual areas of business, while the excellence model aims to establish a program of continuous improvements, and objectively assess the level of excellence of business entities. All these tools have their strengths and weaknesses, and by combining them with the business excellence model, the shortcomings are eliminated, and the advantages are emphasized.



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New times demand new answers, as well as survival and development, regardless of the territorial affiliation of the companies. In developed countries in the world, the basic principles of business are already being applied in order to achieve world-class business. The choice of one of the world's models of business excellence is most often influenced by geographical location. Montenegro's territorial affiliation to Europe naturally encourages domestic companies to use the European model. The research indicated that the nine criteria of the EFQM model can be used in Montenegro and that they have the same weight (relative importance) when evaluating the overall success of a company as is the case in other developed countries. In doing so, the specificities of the domestic market, capabilities or differences between local market conditions or other facts should be taken into account.

The advantage of this fact is that domestic organizations have the opportunity to compare themselves with companies from developed countries and thus understand their position when applying for one of the international quality awards.

Application of the principle of business excellence contributes to greater efficiency and strengthening of the market position of companies through a higher level of quality of products/services, reduction of costs due to the elimination of errors and reduction of non-compliance, as well as raising the level of competence of employees. By consistently providing greater value, the company gains satisfied stakeholders. By applying the principles of business excellence, the company shows interest groups in the best way that it takes care of them and their needs. Taking care of interest groups means responding in a timely manner and meeting their needs. The overall goal of excellent companies is their satisfaction.

Getting to know the principles and philosophy of the business excellence model, and especially the EFQM model, makes it significantly easier for companies to ensure customer satisfaction. Companies opt for a business philosophy in which quality plays a key role, while taking care of consumers enables timely response to their needs, new trends and the development of innovative products.

Competitive advantage encompasses the company's overall value system. That is why the role of organizational culture, which is recognized as critical for quality management and business excellence, is very important. Business excellence, among other things, in its foundation contains a change of opinion of all employees with the aim of creating new values, i.e. organizational culture of the company. Business excellence integrates the existing organizational culture with new attitudes on the issue of quality and quality management.

Given that the knowledge and experience of managers acquired in the traditional market cannot be sufficient for modern business, it is necessary to apply new models, such as business excellence. The model implies the application of new rules and procedures that contribute to a better organization of work.

Education is the foundation for all changes. Management should know that education and training of employees is the right way to achieve competitive advantage. Training becomes the most important investment in one's own future and development, and modern organizations become places of constant learning, education and development. Organizations eager for progress understand employee education as a continuous process with the application of acquired knowledge as a profitable investment in improving quality and reducing business costs.

## GENERAL GUIDELINES FOR FUTURE RESEARCH

Based on the research, it can be said that the measurement of business excellence in enterprises from the sector of small and medium enterprises in Montenegro is only at the initial level and that the level



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of business excellence is low. The assumptions are the constant improvement of small and medium-sized enterprises that will base their operations on the principles of business excellence, which will further significantly contribute to the development of our country's economy. It was confirmed that continuous work on improving business processes leads to strengthening the competitive advantage of this sector, and that in the future, companies from Montenegro are expected to compete for prestigious European awards for quality management. It is expected that with continuous improvement and a systematic approach, companies from Montenegro will find themselves in the company of companies that are "recognized for excellence" in a few years, i.e. exceed the level of 400 points measured according to the EFQM model.

During the research process itself, many opportunities for improving business performance were identified, such as simply reducing scrap, shortening production cycles or more adequate inventory management. Companies must also consider the possibilities of raising the working conditions of employees, their level of satisfaction, eliminating conflicts, establishing better relations with suppliers and customers, and strengthening social responsibility. For these purposes, companies can use a number of modern management tools and concepts that are often possible, even desirable, to combine in order to achieve the best possible results. The cumulative effect of such continuous incremental improvements and modifications can be extremely large and contribute to strengthening the company's competitive position.

The results of the research provide domestic and foreign researchers, as well as managers of small and medium-sized enterprises, with significant information, based on empirical and scientifically verified results, about the most significant factors that can influence the improvement of business and performance of organizations in Montenegro.

The results presented in this research should be interpreted with caution due to certain minor limitations. First of all, the research was done in a certain period of time (the beginning and culmination of the world economic crisis) and is subject to the influence of factors that arose at that moment.

## REFERENCES

- Anđelković, M., Pešić, D. (2005). Applying the EFQM model, measuring the effect of improving business processes. Faculty of Technology Leskovac, Zbornik radova, pp. 297-306.
- Bošković, G., Anđelković Pešić, M. (2011). Quality management, competitiveness of the economy, Faculty of Economics, Niš.
- Filipović, J. (2007). Osnove kvaliteta. Fakultet organizacionih nauka, Beograd.
- Heleta, M. (2010). TQM – models of excellence and integrated management systems. Službeni glasnik, Zavod za udžbenike, Beograd.
- Ogawa, E. (2001). Small Business Management. European Center for Peace and Development (ECPD). Belgrade.
- Moljević, S., Rajković, D., Marić, B. et al. (2010). Integrated management systems in small and medium enterprises. International Journal of Engineering, 11(4), 315-320.
- Raković, R. (2006). With quality to business excellence. Energoprojekt InGraf, Belgrade.
- Stoner, A.F J., Freeman, R., Freeman, E., Gilbert, D. (1998). Management. Želnid, Belgrade.



## Conference Proceedings

Talwar, B. (2011). Comparative study of framework, criteria and criterion weighting of excellence models. *Measuring Business Excellence*, 15(1), 49-65

Ušćumlić, D., Lukić, R. (2003). *Product quality management*. Center for Publishing, Faculty of Economics, Belgrade.



## Conference Proceedings

# SPECIFICITIES OF CONCERT CANCELLATION INSURANCE

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DOI: 10.5937/EEE24066J

JEL: G22, K12, K22

Review Scientific Paper

### ABSTRACT

*Music industry generates revenue through various mediums and communication channels, with concerts being another profitable way to sell music and entertainment. Planning, organizing and holding concerts requires adequate time, contacts, necessary contracts, permits and consents, thus determining costs types and amount incurred by the promoter in case of concert cancellation. This paper analyzes the features of this insurance as a means of economic protection for concert promoters against the financial loss in case of concert cancellation and the risk of performers absence or non-appearance. Special focus is on who can be the insured, what the insured compensation embraces and which risks remain uncovered. This type of insurance belongs to financial loss insurances in the field of non-life insurance. At the end, it was concluded its specifics lie in the way of concerts organization, the performers' personal nature and their inherent risks.*

### KEYWORDS

*concert, cancellation, insurance, risks, expenses*

## INTRODUCTION

When processing this topic, one should determine the definition and content of the principal concepts such as “music”, “concert” and “festival”. **Music** is generally defined as the art of combining vocal performance and instrument sounds in some form or emotional expression incoming with appropriate melody, harmony, and rhythm (Epperson, 2023; Etymoline, n/a; The American Heritage Dictionary of the English Language, 2022). Moreover, it has always served for entertainment and social connection, and more recently for the psychotherapy of some mental states and diseases (Talwar, Crawford, Maratos, Nur, McDermott, Procter, 2006).

Word “music” is believed to derive from the medieval English *musike*, Old French *musique*, and Latin *musica* meaning a pleasant succession of sounds or combinations of sounds (Etymoline, n/a). **The concert** is a direct and simultaneous musical and vocal performance before the audience. The concert can be performed by a soloist or an ensemble like orchestra, choir or musical group – a band. Concerts can be outdoor (stadium, park, meadow, etc.) or indoor (sports hall, theater, cafe or club). **A festival** is an independent, occasional event celebrating part of a community's religion or culture. From religious commemorations, fostering local traditions to events celebrating a good harvest, festivals served for social bonding and adaptation (Davies, 2021).

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Furthermore, a **music festival** is a one-year musical event with a numerous concerts, which takes place over two or more days, on one or more stages, with one or more musical genres, outdoors or indoors. A music festival can serve various purposes, such as fostering the fame of a composer (eg. "Mokranjčevi dani"), promoting local artists and their creativity and presenting foreign art music programs (e.g. BEMUS and NOMUS), achieving social responsibility and social change (eg. EXIT) or exulting the ideas and beliefs of a social movement (hippies) (eg. Glastonbury) etc. The purpose of holding many music festivals in the beginning has disappeared over the years to be replaced today by entertainment and profit.

A contemporary music festival model was created in the beginning of the 60s of the 20th century to grow and develop into a highly profitable business today (Davies, 2021). However, one should have in mind the purpose of each music festival differs depending on the sponsor. Generally, music festivals sponsored by the public sector and non-profit organizations are more focused on tourism promotion, local community cohesion and public interest, and if the sponsors are business companies, the concerts are primarily profit-oriented (Davies, Gouthro, Matthews, Richards, 2023). An increase in the number of music festivals over the years and the economic growth that boosted well-being, contributed to the increase in the number of tourist trips (Gligorijević, Kostadinović, 2023).

According to one Serbian promoter, today music concerts generate money and enable a relatively quick turnover (Galić, 2022). However, concert promoter financial involvement in engaging foreign entertainer is not enviable. It is commonly the promoter pays a certain advance to the agency representing foreign musical entertainer, takes other organizational steps before the concert, and sustain various goods suppliers and service providers cost. The promoter must do the above in uncertainty about the realization of the future concert, tickets price and sale and, finally, the possibility of making a profit after overheads. In case concert cancellation, promoter suffers significant loss for the previously mentioned reasons. Consequently, insuring the costs incurred in advance concerning a concert is one of the effective solutions for financial protection of concert promoters.

## SUBJECT OF INSURANCE

Financial loss insurance is a non-life insurance branch which, among others, covers expenses incurred during the organization of sports and music events, conference planning, exhibitions and fairs that did not take place. The subject of insurance is the compensation of the ascertained net loss if any expressly stated or described insured musical performance or event is canceled, abandoned, postponed, interrupted or relocated beyond the insured will. Insurance coverage is provided against concert cancellation due to certain risks occurrence, including the absence or non-appearance of musical performers at the venue.

Cancellation means the inability to proceed with any or all of the insured performance or event prior to commencement. Abandonment means the inability to complete any or all of the insured performance or event once commenced. Postponement occurs if postponement to another time of any part or all of the performance or event is unavoidable. Interruption arises when the insured becomes unable to perform any part or all of the performance or event after its repeated attempt after commencement. Relocation occurs in case of an unavoidable transfer of the insured performance or event to another venue (Non-Appearance and Cancellation Policy, 1997).



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### Concert cancellation insurance

Some public concert event attracting attention and for which a large crowd gathers at the venue may find itself in a cancelling situation. In such case, insurers provide insurance against a certain set of named risks. These can be: fire, rain, storm, flood and other natural calamities that make it impossible to access and stay at the venue, including these risks inflicting damage to things and property for holding the concert (stage, stands, tents, sound system, lighting, cranes, etc.) However, one should have in mind the insurance of the value of the things used for the concert must be taken out separately for standard fire risks are covered only as a trigger in concert cancellation expenses insurance.

However, these may not be the only risks for concert cancellation. Immaterial if it is an outdoor or indoor concert, the policyholder can agree additional concert cancellation cover against a national holiday or mourning day declared after an extraordinary event (eg. the Belgrade concert of the "Rolling Stones" in 2003 was canceled because the death of the then Prime Minister Zoran Đinđić / Koprivica, 2006), then against demonstrations, terrorism, and for the concert cancellation against the spread of communicable diseases and satellite and signal transmission interruption or failure (Sadler Sport & Recreation Insurance, n /a). Untimely execution of any necessary type installation works (telecommunications, water supply, fire protection) can also be a reason for cancellation. One example of the event cancellation after exceeding the telecommunications equipment fitting deadline is the case *HDMG Entertainment LLC v. Certain Underwriters at Lloyd's of London Subscribing to Policy No. L009082 355 F.Supp.3d 373, 2018 WL 6065351 (D.S.C. 2018)*. In this dispute, the contractor for fitting telecommunication lines advised the organizer only a week before the event of his inability to complete the work on time. The insurer, not knowing about it, issued an insurance policy only for the insured to advise him about the event cancellation just two days later.

### Performer absence / non-appearance insurance

Typical risks of natural persons – musical performers, due to which they cannot appear on time at the venue to participate in the scheduled concert, is one of the set of risks insured. These are the key figures: singers, musicians, dancers, entertainers and other performers.

Risks of the performer absence or non-appearance most often occur when the insured (members of a choir, band, dance or other group) do not make travel arrangements enabling them to arrive at the venue on time. This risk also arises when the performer does not arrive on time for preparation and rehearsals before the concert. The performer has to meet the stated obligations faithfully and in a timely manner without leaving the possibility for objection to his conduct. State of drunkenness or stupor due to narcotics, lack of sleep because of a disorderly life, and the like, are not justified reasons for the insurer liability. The insurer's liability arises if the performer absence or non-appearance is due to an unavoidable travel delay. It occurs when the selected travel plan is irrevocably changed and this prevents the insured from arriving at the venue of the insured performance or event, provided the travel plan was so booked that it allowed enough time for arrival. Non-arrival of any other non-insured person, as a reason for concert cancellation, is not an insured event, so the insurer liability is invalid.

In addition to the performer's absence or non-appearance, the insurance terms limit the insurer's liability to two more named risks. These are: death or accident. However, rules of life and accident insurances for fixing the insurance premium (Glušac, 2022) in this insurance are inadequate due to the different nature of risk covered. It should be borne in mind this insurance does not cover the risk of concert cancelled due to the death, illness or accident of any other person who does not have insured status. In





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this sense, the death of a close relative or friend is not a valid basis for triggering the insurer's liability under the concert cancellation insurance policy. Accident means any accident or illness of the insured which, in the opinion of an independent medical expert approved by the insurers, wholly prevents the insured performer from appearing or continuing to perform at any insured performance or event. Same rules apply here as in voluntary health insurance and accident insurance being a sudden event independent of the insured's will, which, acting mostly externally and suddenly on the insured body, causes his death, total or partial disability, temporary work incapacity or health impairment requiring medical assistance (DDOR Novi Sad Sad, 2019; Wiener Städtische osiguranje, 2020, art. 5(1); art. 6(1)). Accident incapacitating and preventing members of a musical or other group to participate in a performance or concert can manifest in a dislocation or fracture of a limb or fingers, temporary or permanent loss of vision, contact dermatitis, repetitive and other injuries, sudden illness or medical condition (Okoshi, Minami, Kikuchi, Masahiro, Tomizawa, 2017). In this sense, the cancellation of the Belgrade concert of "Rolling Stones" in July 2006 due to the illness of Keith Richards is typical (Koprivica, 2006). Alternatively, a sudden "loss of voice" before a concert can also contribute to its cancellation. For the above reason, Andrea Bocelli was compelled to cancel concerts in Boston and Philadelphia in the USA early December 2023 when the audience was already seated in the theatre (Riley, 2023).

The Lloyd's insurance policy prescribes a few preconditions to the insurer's liability protecting him against negligent and malicious conduct of the insured relating to his health condition. The Insurer is particularly interested that the insured (musician or other performer) is in good health at the time of concluding the contract and capable of meeting the insured obligations. In foreign practice, there is a well-known lawsuit filed by some of Lloyd's insurers to nullify an insurance policy issued two months before Michael Jackson's death, because the promoter of his "This is it" tour did not report everything he knew about the singer's health when concluding policy (CBS, 2014). This means the insured must not be in an unfavorable or bad physical, mental or medical condition, and no treatment or therapy of any kind is effected, except those disclosed to the insurers. Only if the insurers agreed to cover the insured previous physical and health condition, prerequisite to their liability is the insured duty to comply with the doctor's recommendations, prescribed therapy or living style important for his good health during the insurance period (Non-Appearance and Cancellation Policy, 1997).

In a broader sense, the risks of natural persons also include the obligation of the insured to obtain required written authorizations, such as licenses, permits, visas, consent to copyrights and patents, etc. Obligation of the insured to this effect is not limited to the aforementioned, but to everything necessary for the legal and undisturbed performance or event.

## WHO CAN BE INSURED?

Concert cancellation insurance implies the a large number of insured persons. Since the promoter is involved in planning and organizing the concert and executing preparatory activities and works through subcontractors, undoubtedly this person has a material interest to be insured if the concert is cancelled. The promoter of the insured performance or concert appears as the contractor and main insured in the concert cancellation insurance policy. Besides, the names of natural persons engaged as musical, vocal, dance and other performers of the main program, i.e. persons significantly contributing to any function necessary for the successful rendition of the insured performance or event, are usually specified in an insurance policy. Alongside these, other important persons (business advisors, financial managers, agents), contractors and their subcontractors (equipment transporters, electricians, fitters, couriers, etc.)



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may also appear. These persons have the status of co-insureds (additional insureds), but one must remember these persons can also have own insurance policy.

## INDEMNITY

Concert cancellation insurance due to the absence or non-appearance of the performer(s), is not providing indemnity against the performer death or accident. These personal events are the only reason for the concert cancellation and the insurer's liability to cover the promoter and other insured expenses.

Insurance terms regularly define the gross income and expenses in order to determine the net insured loss, the indemnity which is the insurer's obligation when the concert is cancelled. Gross income includes amounts that would have been paid or payable to the insured from all sources based on the insured performance or event had the claim not occurred (Non-Appearance and Cancellation Policy, 1997). Expenses are considered to be the total amount of all costs and fees the insured would have had in the organization, management and provision of services to maintain the insured performance or event if the damage had not occurred (Non-Appearance and Cancellation Policy, 1997).

Expenses of planning and organizing a concert can consist of a different number of items. Expenses can be divided into:

- **staff** (cleaners, auxiliary labor, electricians, firemen, first aid, reception staff, personal security of the performers, security at the venue, plumber, civil engineer, etc.),
- **production** (hire of obstacles, fencing, catering, cranes, telecommunication connections, cloakroom, fire extinguishers, forklifts, fuel, generators, internet connections, hotel and travel expenses, lighting in front and behind the stage, chipboard or tin panels, telephones, towels, video, walkie-talkie, cars, trucks, containers, etc.),
- the **venue** (costs of building a stage, renting various devices and things, air conditioning, heating, handicap and hearing impaired area, portajohns, tents, boards, markings, etc.),
- **advertising** (radio, TV, newspapers, press conferences, posters and flyers, promotional activities, flags, badges, etc.), and
- **other** (performance rights, liability insurance, ticket printing and sales, credit card commissions, sponsorship expenses, other commissions, etc.).

The above list of expenses is not exhaustive nor can the possible expenses that can burden the organization of a concert be limited. Everything depends on a case-by-case basis, that is, depending on the needs and wishes of the promoters and performers at the concert.

## RISKS EXCLUDED FROM INSURANCE

Each type of insurance has a list of risks in relation to which the insurer excludes or limits its liability under certain circumstances. One should have in mind the insurance market is adaptable and can cover some excluded risks, but under special conditions and at the additional premium.

Typical risks in concert cancellation insurance are: risks of performer personal disability, risks of financing, war and political risks.



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Personal disability is a state in which a musician or other performer is brought to by own fault or negligence, disabling him fully or partially to attend and participate in a concert. Personal disability will, for example, exist due to:

1. travel by air, other than travel as a passenger on a scheduled airline or chartered aircraft on a regular air route;
2. any hazardous activity, feat or performance;
3. insufficient voice quality, unless directly caused by illness or infectious disease contracted or bodily injury occurring during the insurance period;
4. any known pre-existing physical, psychological or medical condition, unless otherwise agreed in writing by the insurers;
5. failure to follow the medical or other prescribed regime;
6. unreasonable or capricious behavior;
7. any sexually transmissible disease or their after effects;
8. infections with Covid-19 and AIDS and
9. illegal possession or illicit taking of drugs and their effects.

Risks related to financing are such events due to which the promoter cannot fully or partially realize the organization of the concert. Financial risks arise from:

- 1) any withdrawal, insufficiency or absence of financial resources;
- 2) the financial failure of any undertaking;
- 3) lack of or inadequate income, sales or profits of any enterprise;
- 4) changes in the exchange rate, interest rate or stability of any currency;
- 5) financial default, insolvency or non-payment of any natural, legal person or organization, notwithstanding it is a party to this insurance or otherwise.

Also, minor appearance at the concert resulting in an income decrease, which may not be attributable to the cancellation, abandonment, postponement, interruption or relocation of the concert, is not covered. Also, the insurers exclude liability for reimbursement of costs the insured did not disclose, and insurers did not agree.

War risks are events beyond the reasonably possible influence and control of the insured and the insurer, but they are still risks created by the human will. The insurance conditions provide for a broad definition of what is considered war risks. Thus, war risks include: actual or threatened war, invasion, acts of the enemy, hostilities (whether war be declared or not), civil war, rebellion, revolution, insurrection, military or usurped power, confiscation, nationalization, requisition or destruction of or damage to property by or under the order of any government or public or local authority. Given that numerous war and political risks appear in different forms and can apparently overlap with war operations, whether an act was done to achieve war goals or for political motives circumstances for classifying an event as war or political risk are decisive, i.e. if the risk is covered or excluded from insurance (Jovanović, 2016). According to the domestic terms of personal accident insurance, the insurer's liability is excluded when the insured event occurred: as a result of war events or armed actions (DDOR Novi Sad, 2019, art. 10(1)(2 and 3)), as well as events directly attributable to war, invasion, armed conflict, civil war, uprising, rebellion or revolution (Wiener Städtische osiguranje, 2020, art. 11(1)(2 and 3)).



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Political risks are considered social events such as civil unrest, strikes or demonstrations taking proportions or qualified to a popular uprising, rebellion, state of emergency or act of any legally constituted authority to maintain public order. Political risks are also decisions and actions of authorities, national or local, such as customs seizure or destruction of things in accordance with customs or other regulations, confiscation, nationalization or requisition or destruction or damage to property or handling of contraband or the engaging in illicit trade or transportation. Likewise, the authorities have the discretion to refuse entry to the country where the insured performance or event is to be held when crossing the state border and issue an order for the repatriation, internment, imprisonment and deportation of the insured.

General exclusions typical of all insurances, including this one, are:

- 1) radioactive radiation or contamination by radioactivity, and
- 2) seepage, pollution and/or contamination.

## CONCLUSION

Major concerts and tour cancellation insurance arose as a result of the emergence and development of the profitable entertainment industry after World War II. This insurance belongs to the group of financial loss insurances in the non-life insurance field. Cover primarily serves the economic protection of private interest, and in some cases also of public interest if public and/or non-profit organizations appear as organizers and when a concert is not profit-oriented. It is specifically because of the way of performing the concert organization, the performers' personal nature and their inherent risks. Therefore, besides the promoter, numerous natural and legal persons who contribute to the concert organization by providing services or works or delivering goods may appear as co-insured. The indemnity covers costs and expenses reasonably incurred for holding the concert and agreed by the insurers. Along with the standard risks covered by the insurance conditions, which result in cancellation, abandonment, postponement, interruption or relocation of the concert, it is possible to agree cover against other risks, which depends on the needs of promoters and performers. These are either risks excluded or risks not provided for in the standard cover.

## REFERENCES

- CBS. (2014). Lawsuit Over Michael Jackson Insurance Settled. CBC, Los Angeles. January 15, 2014. Retrieved December 23, 2023, from: <https://www.cbsnews.com/losangeles/news/lawsuit-over-michael-jackson-insurance-settled/>
- Davies, K. (2021). Festivals Post Covid-19. *Leisure Sciences*, 43(1–2), 184–189.
- Davies, K., Gouthro, M. B., Matthews, N., Richards, V. (2023). Festival Participation, Inclusion and Poverty: An Exploratory Study, *Tourism Hospitality*, 4, 51–74.
- DDOR (2019). Opšti uslovi za osiguranje lica od posledica nesrećnog slučaja (nezgode), DDOR-RS-OUN-01-0519, 15.5.2019. Novi Sad
- Epperson, G. (2023). Music. *Encyclopaedia Britannica*. Retrieved December 23, 2023, from: <https://www.britannica.com/art/music>.



## Conference Proceedings

Etymoline. (n/a). Music. Online Etymology Dictionary. Retrieved December 23, 2023, from: <https://www.etymonline.com/search?q=music>.

Galić, A. (2022). Muzička industrija u Srbiji: Koliko emitovanja, toliko para. *Biznis i finansije*, No. 196. Retrieved December 23, 2023, from: <https://bif.rs/2022/05/muzicka-industrija-u-srbiji-koliko-emitovanja-toliko-para/>.

Gligorijević, Ž., Kostadinović, I. (2023). Tourism of the Republic of Serbia: Characteristics and strategic goals of development. *International Review*, 1-2, 51–58.

Glušac, D. (2022). Premija osiguranja života i Covid-19. *Trendovi u poslovanju*, 10(2), 45–51.

Jovanović, S. (2016). Pravo osiguranja. Pravni fakultet za privredu i pravosuđe, Novi Sad.

Koprivica, J. (2006). Kad novac zagluši muziku. *Politika*, 10. 11. 2006. Retrieved December 23, 2023, from: <https://www.politika.rs/sr/clanak/17711/Spektar/Kad-novac-zaglushi-muziku>.

Maeglin, T. (2020). Event Cancellation Insurance Rulings Organizers Must Know. *Law360*. Retrieved December 23, 2023, from: <https://www.law360.com/articles/1255532/event-cancellation-insurance-rulings-organizers-must-know>.

Non-Appearance and Cancellation Policy Lloyd's Contingency, GC(NAC) NMA2743 (07/08/97).

Okoshi, K., Minami, T., Kikuchi, M., Tomizawa, Y. (2017). Musical Instrument-Associated Health Issues and Their Management. *The Tohoku Journal of Experimental Medicine*, 243, 49–56.

Riley, N. (2023). Andrea Bocelli cancels Boston concert just before showtime over 'health challenges. CBS News, Boston. Retrieved from: <https://www.cbsnews.com/boston/news/andrea-bocelli-boston-concert-2023-canceled-td-garden/>.

Sadler Sport & Recreation Insurance. (n/r). Event Cancellation Insurance. Retrieved from: <https://www.sadlersports.com/eventcancellationinsurance/>.

Talwar, N., Crawford, M., Maratos, A., Nur, U., McDermott, O., Procter, S. (2006). Music therapy for in-patients with schizophrenia: Exploratory randomised controlled trial. *British Journal of Psychiatry*, 189(5), 405-409.

The American Heritage Dictionary of the English Language (2022). Music. States: Harper Collins Publishers, New York. Retrieved from: <https://ahdictionary.com/word/search.html?q=Music>.

Wiener Städtische osiguranje (2020). Opšti uslovi za osiguranje lica od posledica nesrećnog slučaja (nezgode), WS.C05.0.C.20.01, 1. 11. 2020, Beograd.



## Conference Proceedings

# THE CONVENTION ON THE RIGHTS OF THE CHILD: SUCSESSES AND GAPS IN REDUCING CHILD LABOR AND RIGHT VIOLATIONS

Snežana Prelević Plavšić<sup>1</sup>

DOI: 10.5937/EEE24067P

JEL: J13, K31

Review Scientific Paper

### ABSTRACT

*The most significant international document in the field of children's rights is the 1989 United Nations Convention on the Rights of the Child (CRC), established to transform the treatment and perception of children by adults. Despite this, children's rights are frequently violated. Numerous children succumb to preventable diseases, lack access to education, and are left vulnerable when their parents die from illness or conflict. Many children endure violence, exploitation, and abuse, from which they are unable to protect themselves. The CRC was the first to establish a universally accepted definition of the fundamental rights of the child. With ratification by 196 countries, the CRC holds the distinction of being the most ratified human rights treaty. However, the primary shortcoming of the CRC is the absence of robust legal mechanisms for the practical implementation and protection of individual children's rights. According to data from international labor organizations, over 200 million children under the age of 15 are engaged in labor, including roles such as shoe shiners, newspaper vendors, agricultural workers, carpet weavers, quarry workers, and mine clearers.*

### KEYWORDS

*Convention on the rights of the child, children's rights, international documents*

“In the little world in which children have their existence,  
whosoever brings them up, there is nothing  
so finely perceived and so finely felt as injustice.”  
(Charles Dickens)

## INTRODUCTION

After World War I, which left many children orphaned, Eglantyne Jebb founded the world's first organization dedicated to children's rights in 1923 – Save the Children. At Eglantyne Jebb's initiative, the League of Nations General Assembly adopted the first Declaration of the Rights of the Child in 1924, which served as the foundation for the further strengthening of the concept of children's rights.

After World War II, during which children were not only victims but also participants in the conflicts, the United Nations was established in 1945. This organization has been instrumental in the creation of documents that advance children's rights: the Declaration of the Rights of the Child (1959), which

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includes 10 fundamental principles highlighting children as a particularly vulnerable group, and the Convention on the Rights of the Child (1989), which represents the first international document of binding nature for ratifying states addressing children's rights. A decade of preparation for the Convention on the Rights of the Child yielded results, and within just a few months, the Convention received the necessary 20 ratifications and entered into force on September 3, 1990. The process of acceptance continued, and with the endorsement of 196 countries, the Convention on the Rights of the Child became the most widely accepted international treaty, applying to nearly all children worldwide. The only two countries that have not ratified it are the United States and South Sudan.

The influence of the Convention on the Rights of the Child on legislation and practice can be observed in all parts of the world. The Convention was the first document ratified by South Africa, leading to the prohibition of corporal punishment and the development of an independent juvenile justice system. In Brazil, following the ratification of the Convention in 1990, a new Children and Adolescents Law was enacted based on the principles of the Convention. Burkina Faso established a Children's Parliament, implementing the principle of children's participation in society and the creation of new laws. The Russian Federation established juvenile and family courts. Morocco founded the National Institute for Monitoring the Respect of Children's Rights. Finland developed a plan for early childhood education and care, a new comprehensive education program, a recommendation for the quality of school health care, and an action plan against poverty and social exclusion. Eritrea's Penal Code prescribes penalties for parents or caregivers who neglect, abuse, or abandon children (Sejmur).

## STRUCTURE AND CONTENT OF THE CONVENTION OF THE RIGHTS OF THE CHILD

The text of the Convention on the Rights of the Child is divided into a preamble and three parts.

The preamble recalls the fundamental principles of the United Nations and specific provisions from relevant human rights treaties and declarations, affirming that children, due to their vulnerability, require special care and protection. It emphasizes the primary role of the family in the upbringing and protection of the child. The preamble also reaffirms the necessity of legal and other forms of protection for children before and after birth, the importance of respecting the cultural values of the communities from which children come, and the vital role of international cooperation in safeguarding children's rights (Convention on the Rights of the Child, 1989).

The first part of the Convention contains the rights recognized for children as well as several provisions that require State parties to take all necessary measures to implement the rights outlined in the Convention and to uphold the highest standards in this area. Article 1 of the Convention defines a child as any human being below the age of eighteen unless, under the law applicable to the child, majority is attained earlier.

To facilitate information about and application of the rights guaranteed by the Convention, various classifications are used:

- The classical division into civil, political, economic, social, and cultural rights;
- Rights classified as participatory, protective, and developmental;
- Rights categorized as rights to survival, protection, development, and participation in community life (participatory rights);



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- Rights classified as participatory, protective, preventive, and developmental.

The Committee on the Rights of the Child, to aid State parties in reporting on the implementation of their obligations under the Convention, has delineated categories such as civil and political rights, family environment and alternative care, rights to health and social services, rights to education, leisure, recreation, and cultural activities, and rights for children in special situations.

These classifications primarily serve a practical purpose and do not imply a hierarchy of rights in terms of importance, although four rights are elevated to the level of principles, as it is not possible to ensure the enjoyment of other rights without their realization:

- The right to non-discrimination (Article 2),
- The best interests of the child (Article 3),
- The right to life, survival, and development (Article 6),
- The right to participation (Article 12).

In the second part of the Convention on the Rights of the Child, the obligations of State parties are further elaborated, and the establishment and functioning of a special supervisory body – the Committee on the Rights of the Child – are regulated.

The third part of the Convention addresses matters related to signing, ratification, accession, entry into force, reservations, amendments, denunciation, and deposit.

## **PROTECTION AND SUPERVISION – COMMITTEE ON THE RIGHTS OF THE CHILD**

The Convention on the Rights of the Child establishes a specialized body – the Committee on the Rights of the Child, based in Geneva. This Committee consists of eighteen experts whose task is to monitor the alignment of national legislation with the provisions of the Convention, ensure the implementation of rights, and assess the practical situation regarding the enjoyment of children's rights.

The Committee obtains necessary information through reviews of reports that State parties are required to submit periodically (The initial report from State parties is submitted two years after the ratification of the Convention on the Rights of the Child, and thereafter, they are obligated to submit periodic reports every five years). The Committee may also supplement its understanding of the status of children's rights in a country with alternative reports prepared by non-governmental organizations. If the Committee finds that a State report is incomplete or contains inaccuracies, it will request additional written explanations from the State, which is then invited to provide an oral defense of its report.

Based on the review of both the State and alternative reports, responses to additional questions, and oral defenses, the Committee on the Rights of the Child prepares a report that includes recommendations to the State aimed at overcoming difficulties and improving the implementation of the Convention and overall conditions related to the realization of children's rights.





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# THE ROLE OF THE STATE IN IMPLEMENTING THE CONVENTION OF THE RIGHTS OF CHILD

By ratifying the Convention, a State undertakes the obligation to take all necessary legislative, administrative, and other measures to realize the rights recognized by the Convention. The State must take measures to the maximum extent of its available resources and, where necessary, within the framework of international cooperation (Convention on the Rights of the Child, Article 4). State parties are also committed to familiarizing both adults and children with the principles and provisions of the Convention (Convention on the Rights of the Child, Article 42). In this way, the State assumes primary responsibility for realizing children's rights.

The formulation of Article 4 of the Convention reflects the acknowledgment of the reality that a lack of resources may hinder the full implementation of economic, social, and cultural rights in a State. Thus, the concept of “progressive realization” of guaranteed rights is introduced, meaning that States must demonstrate that they have implemented the rights “to the maximum extent of their available resources” and, where necessary, sought international support and cooperation.

In its guidelines for reporting and assessing State parties' reports, the Committee on the Rights of the Child pays significant attention to identifying and analyzing resources allocated for children. No State can prove that it has fulfilled children's economic, social, and cultural rights to the maximum extent of available resources (in accordance with Article 4 of the Convention) if it cannot identify the percentage of the national budget allocated to the social sector, including the proportion directly or indirectly earmarked for children. The Committee advises State parties that the Convention should serve as a framework for international development aid and encourages States to work towards achieving internationally agreed goals, including the United Nations target for development aid at 0.7 percent of Gross National Product, which was also endorsed in the Monterrey Consensus reached at the International Conference on Financing for Development in 2002 (Report of the International Conference on Financing for Development, 2002).

The Committee positively evaluates the inclusion of sections on children's rights in national constitutions, as it reflects the fundamental principle of the Convention—that children, alongside adults, are also bearers (enjoyers) of human rights. However, constitutional guarantees of rights “for all” do not automatically ensure the enforcement of children's rights, raising questions about whether these rights are effectively applied to children and whether they can be protected in court. Therefore, full implementation of the rights under the Convention on the Rights of the Child requires additional legislative measures (General Comments of the Committee on the Rights of the Child, General Comment No. 5, p. 42).

In cases of conflict between the provisions of the Convention and domestic law or customs, the Convention applies in accordance with Article 27 of the Vienna Convention on the Law of Treaties (Vienna Convention on the Law of Treaties, 1969).

The Committee on the Rights of the Child recommends that State parties utilize technical assistance from the United Nations Children's Fund (UNICEF), the Office of the High Commissioner for Human Rights (OHCHR), and other United Nations agencies in the process of implementing the Convention.

## THE ROLE OF CHILDREN IN REALIZING RIGHTS

The Convention on the Rights of the Child seeks to balance between the developmental capabilities of the child and adults' assessments of what is in the best interest of the child. The Convention advocates



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for the empowerment of children by introducing the right to participation as one of its fundamental principles. Although children's rights are often addressed by adults, the principle of participation serves as a foundation for actively involving children in the realization of the Convention. The intention is not to confront children's views with adult values, but to create a responsibility for adults to ensure that children are involved in decision-making processes that affect them.

The right to participation does not, however, imply absolute freedom of action. The extent to which a child's opinion will be considered depends on various factors: the child's age and maturity, the specific circumstances, the nature and complexity of the decision, and the rights and interests of other parties involved.

For a more comprehensive understanding of implementation, the Convention requires States to conduct self-monitoring by assessing the impact on children and the enjoyment of their rights for every proposed law, decision, policy direction, or budgetary allocation, as well as evaluating the impact of measures taken as a result of implementation. In this regard, the Committee on the Rights of the Child emphasizes that, in many cases, only children can indicate whether their rights are fully recognized and realized. Conversations with children (interviewing) and data collected by child researchers are the best ways to determine the extent to which their opinions are heard and respected within families, schools, etc. It is also important that data collection covers the entire period of childhood, up to eighteen years of age. Additionally, it is crucial not only to establish an efficient data collection system but also to ensure that the collected data is evaluated and used to assess progress in implementation and to identify related issues.

Children must gain knowledge about their rights. UNICEF and certain non-governmental organizations have created child-friendly versions of the Convention with information on where to seek help and advice. On the other hand, it is essential to provide information and training for adults, as without understanding the implications of the Convention—particularly its affirmation of children's equal status as rights holders – parents, other family members, teachers, and caregivers are unlikely to recognize the rights outlined in the Convention for most children.

In raising public awareness about the Convention and expanding knowledge and understanding of it, the media play a crucial role. Involving children and consulting with them should not be merely a formality but a means through which the State engages with children, values their viewpoints, and becomes more sensitive to the implementation of children's rights. However, it has been observed that while listening to children may not pose a problem, paying due attention to their opinions requires changes. For instance, children who have experience with the juvenile justice system should be included in the process of preparing proposals for amendments to laws in that area. Similarly, children who are either adopted or from foster care should contribute to the drafting of adoption legislation. It is essential for authorities to establish a direct relationship with children rather than interacting indirectly through non-governmental organizations and human rights institutions.

## REALITY – FURTHER CHALLENGES

Reports from UNICEF indicate that for two-thirds of the world's children, less than two dollars are spent per day. Due to weakened immune systems, in 1998, two million children in Africa fell victim to AIDS. Annually, 11 million children still die from preventable diseases, such as measles or gastrointestinal illnesses (Schmitz).

Half of the 31 million refugees and displaced persons are children and young people under the age of 18. The number of children left to fend for themselves after losing parents or other relatives in displacement is estimated at between 6 to 10 million (Kauffmann).



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According to Terre des homes (The German children's aid organization, established in 1967 during the Vietnam War, organized rescue flights from Vietnam to treat war-injured children in German hospitals and facilitated connections between orphans and adopting families. Today, this organization operates in 35 countries with the aim of protecting children from material and emotional distress, oppression, and exploitation), ten years after the adoption of the Convention on the Rights of the Child, two million children worldwide were killed in wars and armed conflicts, around six million were injured, and ten million suffer from war-related trauma (Stuttgarter Zeitung). In some countries, one in four children dies before their fifth birthday (Terre des hommes).

In Sri Lanka, approximately 17,000 children are involved in prostitution, in the Philippines around 60,000, in Thailand at least 200,000, and in India 400,000 (Klein). Every year, a million children are sold or become subjects of illegal sexual trafficking (Terre des hommes). Many of these children live under conditions similar to slavery.

According to international labor organizations, over 200 million children under the age of 15 work as shoe shiners, newspaper vendors, in agriculture, carpet production, quarries, or mine clearance. Over 40% of these children work to finance their education (Suddeutsche Zeitung, Child Labor Exploitation). Around 130 million children who should be in school are not (Terre des hommes), with two-thirds of them being girls.

The first UN study on children in war, conducted in the late 1980s, reported that 200,000 children under 16 were serving in the military. The study reveals that armed children are commonplace in Afghanistan, Nicaragua, El Salvador, Colombia, Burma, Liberia, Sudan, Angola, Mozambique, and crisis areas in the Balkans. In Liberia, 18,000 children fought in the civil war, while in Lebanon and Sri Lanka, children were coerced into joining suicide bomber units. According to UN data, in Rwanda, children were for the first time in history accused of participating in genocide (Suddeutsche Zeitung, Child Soldiers).

The prevalence of easily accessible weapons, the daring nature of young recruits, their ability to influence, and the lack of demands from child soldiers are considered contributing factors. UNICEF has called for recruitment to be limited to individuals aged 18 and above. In June 1998, six NGOs established the Coalition to Stop the Use of Child Soldiers with the aim of adopting and enforcing the Optional Protocol to the Convention on the Rights of the Child, which would prohibit the recruitment and use of children in armed conflicts as defined by international law. As a result of the Coalition's efforts, the Statute of the International Criminal Court considers the recruitment or use of children under 15 in armed conflicts and national or international conflicts as a war crime under the Court's jurisdiction. Furthermore, the Convention on the Worst Forms of Child Labour recognizes for the first time the recruitment of children under 18 for armed conflicts as a form of child labor.

The COVID-19 pandemic has brought significant attention to and highlighted the long-neglected issue of children's mental health. It is estimated that more than 13% of adolescents worldwide have mental health disorders. Even before the pandemic, psychosocial stress and poor mental health affected far too many children. In 21 countries, 1 in 5 young people aged 15 to 24 reported feeling frequently depressed or disinterested in things, according to a global survey by UNICEF and Gallup.

The most vulnerable are the millions of children forced to leave their homes due to conflict and natural disasters, deprived of education, protection, and support. Suicide is the fourth leading cause of death among individuals aged 15 to 19. Each year, nearly 46,000 children between the ages of 10 and 19 end their lives, which equates to one child every eleven minutes worldwide (UNICEF, The State of the World's Children 2021).



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# CONCLUSION

The term "children's rights" refers to rights that are inherently human and that every child possesses regardless of the country they live in, their political, cultural, or economic environment, or the traditions, customs, and beliefs they are exposed to.

The most important international document in the field of children's rights is the Convention on the Rights of the Child, adopted in 1989 with the aim of changing the way adults view and interact with children worldwide. The rights outlined in the Convention are based on the concept of the child as an autonomous individual with specific needs and rights, thus recognizing them as active bearers of legal claims rather than merely objects of adult protection. At the same time, due to their unique psychological and physical characteristics, and varying levels of maturity, children are a particularly sensitive and vulnerable group that warrants special and additional protection.

The Convention on the Rights of the Child (CRC) established the first universally accepted definition of fundamental children's rights. As the Convention has been ratified by 193 countries (Convention on the Rights of the Child, 1989), it is the human rights treaty with the highest number of ratifications. It is the first international document in the field of human rights to encompass traditional groups of human rights: economic, social, cultural, political, and civil rights. The Convention is also an innovative document as it addresses new and challenging human rights issues (e.g., the right of the child to freely express opinions, the right of the child victim of any form of abuse, maltreatment, or exploitation to physical and psychological recovery and reintegration), and implicitly, for the first time in an international human rights treaty, recognizes the role of non-governmental and other civil society organizations in the process of realizing children's rights, primarily as independent sources of information from the state. Thus, the Convention serves as a framework for the promotion and realization of children's rights on both the international and national levels.

One of the major shortcomings of the Convention on the Rights of the Child is the lack of legal instruments for the practical enforcement of individual children's rights. In this regard, an initiative was launched within the Committee on the Rights of the Child to adopt a specific protocol, in addition to the existing Optional Protocols to the Convention – one concerning the involvement of children in armed conflict (Optional Protocol to the Convention on the Rights of the Child on the involvement of children in armed conflict, 2000) and the other on the sale of children, child prostitution, and child pornography (Optional Protocol to the Convention on the Rights of the Child on the sale of children, child prostitution and child pornography, 2000). This new protocol would introduce the possibility for individual complaints to be submitted to the Committee on the Rights of the Child, allowing children (their guardians and legal representatives) to have their own "Strasbourg Court" to seek justice if their rights are not realized through national decisions or are lost in the labyrinth of national administration. On December 19, 2011, the UN General Assembly approved the Third Optional Protocol on a communications procedure, which allows every child to submit a complaint for specific violations of their rights under the Convention and the first two Optional Protocols. The Protocol entered into force on April 14, 2014 (Optional Protocol to the Convention on the Rights of the Child on a communications procedure, 2011). However, the Republic of Serbia has not yet ratified this Protocol.

The Convention on the Rights of the Child was enacted to bridge the gap between what is known and what is done, between rhetoric and action, between demands and reality. We cannot say that the Convention has achieved what it aimed for. The world does not respect the rights of its children – many children die from treatable diseases, many children do not go to school, many are left to fend for themselves when their parents die from illness or as victims of war, and many children are victims of



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violence, exploitation, and abuse from which they cannot protect themselves. The Convention demands a revolution that places children at the center of human development, not because they represent the potential of the future and an investment that would yield multiple returns, but because it is their right.

The Convention on the Rights of the Child has provided the essential basis for doing what is necessary in the field of children's rights. Just as in a market economy consumers decide on the purchase of a product, and thereby on the conditions of production, a foundation was established in Germany with the idea of using German consumers to limit the exploitation of Indian children, who (around 300,000 of them) sit daily in front of looms weaving carpets. The foundation monitors manufacturers who have voluntarily renounced child labor and stamps their products with the label: "Rugmark, guaranteed child labor free" (Pinzler, 2023). Thus, every consumer can show whether they are truly ethical. Many footballs used in Europe are sewn by children's hands in Sialkot, Pakistan. Protests by Christian Aid and UNICEF activities led to a change in the thinking of FIFA's leadership, which, in order to preserve its image, decided to introduce special labels that only sports equipment manufacturers who adhere to minimal ethical standards can place on their products (Pinzler and Piper). Such examples of good practices not only help in combating child labor but also encourage broader responsibility and ethics in business. It is important to continue working on the implementation of the Convention and its protocols and to promote further development of awareness and actions to better protect children's rights around the world.

## REFERENCES

- Convention on the Rights of the Child. Available at: <https://www.unicef.org>. Accessed January 20, 2022.
- Convention on the Rights of the Child (1989). Available at: <https://www.ohchr.org/en/instruments-mechanisms/instruments/convention-rights-child>. Accessed February 10, 2023.
- General Comments of the Committee on the Rights of the Child, Available at: <http://www.bgcentar.org.rs>. Accessed May 3, 2024.
- International Conference on Financing for Development Report. Monterrey, March 18-22, 2002.
- Kauffmann, H. The Gap Between Demands and Reality. Available at: <http://www.dadalos.org>. Accessed November 14, 2023.
- Klein, S. Children as Commodities. *Suddeutsche Zeitung*. Available at: <http://www.dadalos.org>. Accessed October 13, 2023.
- Optional Protocol to the Convention on the Rights of the Child on a Communications Procedure (2011). Available at: <https://www.ohchr.org/en/instruments-mechanisms/instruments/optional-protocol-convention-rights-child-communications>. Accessed March 15, 2023.
- Optional Protocol to the Convention on the Rights of the Child on the Involvement of Children in Armed Conflict (2000). Available at: <https://www.ohchr.org/en/instruments-mechanisms/instruments/optional-protocol-convention-rights-child-involvement-children>. Accessed March 15, 2023.
- Optional Protocol to the Convention on the Rights of the Child on the Sale of Children, Child Prostitution, and Child Pornography (2000). Available at: <https://www.ohchr.org/en/instruments-mechanisms/instruments/optional-protocol-convention-rights-child-sale-children-child>. Accessed March 15, 2023.



## Conference Proceedings

Pinzler, P. (2023). Rugmark, Guaranteed Child Labor-Free. Die Zeit, Available at: <http://www.dadalos.org>. Accessed December 20.

Pinzler, P., Piper, N. Football Without Child Exploitation. Die Zeit. Available at: <http://www.dadalos.org>. Accessed December 20, 2023.

Sejmur, D. Convention Brings Progress in Children's Rights, but Challenges Remain. Available at: <http://www.unicef.rs>. Accessed April 20, 2023.

Schmitz, C. UNICEF's Assessment. Das Parlament No. 52-53. available at: <http://www.dadalos.org>, Accessed November 14, 2023.

Stuttgarter Zeitung. Two Million Children Killed. Available at: <http://www.dadalos.org>. Accessed September 8, 2023.

Suddeutsche Zeitung. Child Labor Exploitation. Available at: <http://www.dadalos.org>. Accessed October 13, 2023.

Suddeutsche Zeitung. Child Soldiers. Available at: <http://www.dadalos.org>. Accessed October 13, 2023.

Terre des hommes. One Decade for Children. Available at: <http://www.dadalos.org>. Accessed September 8, 2023.

Vienna Convention on the Law of Treaties (1969). Available at: <https://www.docstoc.com/sr/becka-konvencija-o-ugovornom-pravu>. Accessed March 13, 2024.

UNICEF (2021). The State of the World's Children 2021. Available at: <https://www.unicef.org/reports/state-worlds-children-2021>. Accessed March 5, 2024.



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# URBAN AI STRATEGIES BASED ON THE ECONOMIC IMPACTS OF SMART CITIES

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DOI: 10.5937/EEE24068S  
JEL: Z32, L26, Q13  
Review Scientific Paper

## ABSTRACT

*The way artificial intelligence systems are developed has major consequences for society as a whole. It is important how policy issues are resolved, ethical conflicts are reconciled, legal realities are resolved and how much transparency there is. It includes areas such as finance, national security, health care, criminal justice, transportation and smart cities. City governments are using AI to improve city service delivery. This research aims to define guidelines to help cities and local communities develop artificial intelligence systems that are consistent with inclusiveness and sustainable development goals. It includes considerations for creating an enabling environment, fostering cooperation and building local capacity. Regulation is a key tool for cities to direct the development of artificial intelligence and its interactions in the local environment.*

## KEYWORDS

*artificial intelligence, economic impact, smart cities, sustainable development, urban strategies*

## INTRODUCTION

Human choices for software development affect the way decisions are made and the way they are integrated into organizational routines. Artificial intelligence can be a revolution and become the most influential human innovation in history. AI plays an increasingly important role in our lives and economy, and is already impacting our world in many different ways. The world competition to take advantage of its advantages is huge, and global leaders - the USA and Asia - have appeared on the scene.

Artificial intelligence is seen as an engine of productivity and economic growth. It can increase efficiency and improve the decision-making process by analyzing large amounts of data. It can also create the new products and services, markets and industries, thereby increasing consumer demand and generating new revenue streams.

However, AI can also have a very disruptive effect on the economy and society. Some warn that this could lead to the creation of super firms - hubs of wealth and knowledge - which could have damaging effects on the wider economy. It can also widen the gap between developed and developing countries and boost the need for workers with certain skills. This latest trend could have far-reaching consequences for the labor market. Experts also warn of the potential for increased inequality, lower wages and a shrinking tax base. Although those concerns

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remain valid, there is no consensus on whether and to what extent the risks will materialize. It is necessary to define a common strategy that would enable the most effective way of using AI.

### **THE ROLE AND POTENTIAL OF ARTIFICIAL INTELLIGENCE IN THE ECONOMIC SECTOR**

Artificial intelligence is not a futuristic vision, but something that is integrated and deployed in different sectors here today. There are numerous examples where artificial intelligence is already influencing the world and significantly enhancing human capabilities.

One of the reasons for the growing role of artificial intelligence is the enormous opportunities for economic development that it represents. A Price Waterhouse Coopers (PwC) project estimated that "AI technologies could increase global GDP by \$15.7 trillion by 2030, a full 14%." That includes \$7 trillion in progress in China, \$3.7 trillion in North America, \$1.8 trillion in Northern Europe, \$1.2 trillion for Africa and Oceania, \$0.9 trillion in the rest of Asia excluding China, \$0.7 trillion in Southern Europe, and \$0.5 trillion in Latin America. China is slowly making progress as it has set a national goal to invest 150 billion USD in AI and become a global leader in this field by 2030 (PwC, 2023).

Meanwhile, a study by China's McKinsey Global Institute found that "AI-driven automation could give China's economy a productivity injection that would add 0.8 to 1.4 percentage points to annual GDP growth, depending on the speed of adoption" (McKinsey Global Institute, 2024).

Most studies emphasize that AI will have a significant economic impact. Research commissioned by consultancy firm Accenture covering 12 developed economies, which together generate more than 0.5% of global economic output, predicts that AI could double annual global economic growth rates by 2035. AI will drive this growth in three important ways.

- First, it will lead to a strong increase in labor productivity (up to 40%) thanks to innovative technologies, it will enable more effective time management related to the workforce.
- Second, AI will create a new virtual workforce - described as "intelligent automation" in the report - capable of problem solving and self-learning.
- Third, the economy will also benefit from the diffusion of innovation.

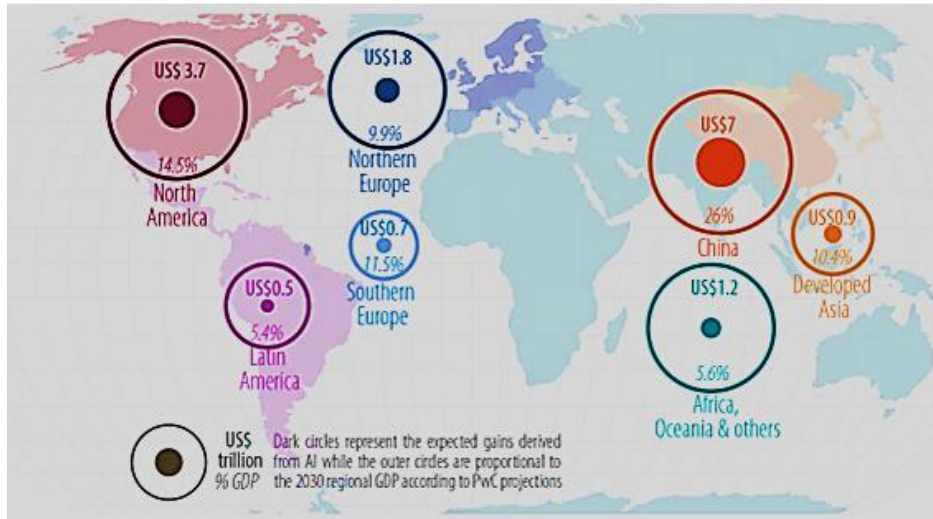
A study by PwC estimates that global GDP may increase by up to 14% by 2030 as a result of accelerated development (PwC, 2018) – Picture 1.

Overall, it appears that while AI has significant potential to increase productivity, the ultimate effects will depend on the speed with which AI spreads in the economy and on investment in new technologies and relevant skills in the workforce.





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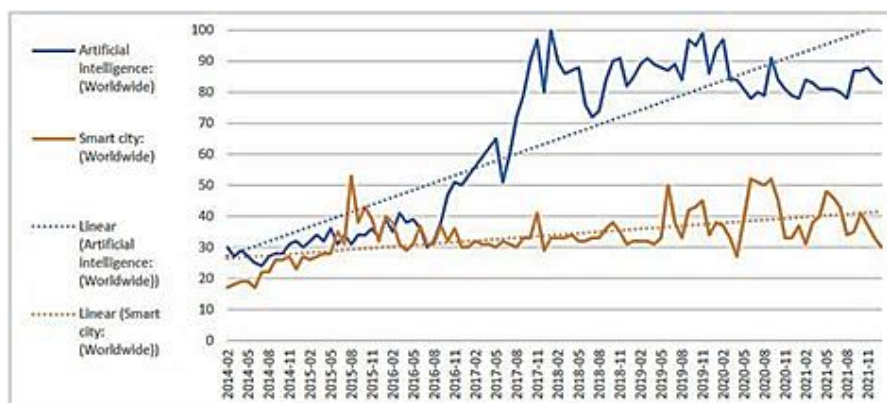


Picture 1. Expected gains from artificial intelligence in various regions of the world by 2030  
 Source: *The Macroeconomic Impact of Artificial Intelligence*, PwC, 2018.

## THE URBAN POTENTIAL OF AI AND SMART CITIES

Allam and Dhunni (2019) studied the urban potential of artificial intelligence and proposed a new system that connects artificial intelligence and cities, while ensuring the incorporation of essential aspects such as governance, metabolism, and also culture, all of which are recognized as important in effective integration smart cities in order to meet the Sustainable Development Goals (SDGs) as well as the new urban agenda (Herath, Mittal, 2022).

Technology plays a key role in smart cities, according to (Kar et al., 2017), and creative technology techniques effectively help cities become smarter. Smart cities use ICT to automate processes and improve people's quality of life in urban regions (Picture 2).



Picture 2. The popularity of the keywords "Smart City" and "Artificial Intelligence" since 2014  
 Source: *Google Trend*, 2014.



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Furthermore, they use integrated intelligence technologies to improve municipal infrastructure and enable responsible governance and involve residents in city governance. Technologies based on artificial intelligence are used to conduct advanced research on the recorded information. Big Data and IoT will collect more useful information for citizens, according to (Guevara, Cheein, 2020), thanks to 5G technology (Herath, Mittal, 2022).

A number of urban areas are adopting smart city applications that use artificial intelligence to improve service delivery, environmental planning, resource management, energy use and crime prevention. In its Smart Cities Index, Fast Company magazine ranked US locations and found Seattle, Boston, San Francisco, Washington, D.C. and New York City as the cities that have best embraced AI (Fast Company Premium, 2021). Through these and other means, urban areas lead the country in the application of AI solutions. Indeed, according to a report by the National League of Cities, 66 percent of US cities are investing in smart city technology.

## SHORT CASE STUDIES

### Case study: Amsterdam

Europe is the leading continent in the world in terms of smart city development. The city of Amsterdam in the Netherlands is a smart city of the 21st century. The "Amsterdam Smart City Initiative", which was launched in 2009, includes more than 170 projects developed in cooperation with local residents, government and businesses. Amsterdam was a pioneer in establishing contract clauses for their public procurement process for algorithms. The clauses focus on technical transparency, procedural transparency and explainability. Standard clauses for the procurement of reliable algorithmic systems are openly available and can be freely downloaded from the Amsterdam City Council website (Haataja et al., 2021).

### Case study: Barcelona

Barcelona is considered a pioneer in the development of a city strategy for the way data, and therefore AI, should be used in the city. The city has developed a value-based digital strategy starting with the framing and design phase. The plan is a toolkit known as Ethical Digital Standards that includes methods, standards, practices, procurement tools and software standards. Together, these standards set the conditions for working within the city, the conditions for investment and create a value-driven environment (Digital City of Barcelona, 2016). Barcelona had two defining contextual features: first, a visionary leadership supported by the political party that came to power, and second, a history of a strong civil society focused on technology as a power driver in the city (Monge, 2022). Barcelona is solving the weather problems. Smart sensors in the smart LED street light measure the amount of rainfall and analyze the irrigation level in the country. Thanks to advanced technological innovations, smart cities in the world are becoming more numerous, and the basis of their development is a strong integration of human and artificial intelligence in the city.



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# PROPOSAL OF URBAN AI STRATEGIES BASED ON CASE STUDIES

An urban AI strategy is a means of articulating context-specific local goals. The focus is on recommendations and concrete practical suggestions for local authorities on how to develop an artificial intelligence framework and strategy. Key tools useful for supporting urban AI strategies, such as algorithm registries and algorithmic impact assessments, are highlighted in brief case studies (UN Habitat, 2022).

## Recommendations

1. Create an appropriate environment.

While governments are late adopters of digital innovation, they are playing a key role in shaping the AI context in the city. By reviewing different sectors, defining the parameters of innovation through local regulation, local authorities have the power to create new ways for better services. Local authorities often have a great influence on creating the conditions for AI development in the city as well.

Building an AI-enabling environment means creating the conditions for responsible AI in the city. The development of artificial intelligence in the city will require medium to long-term changes. This time horizon is sometimes difficult to discuss and implement when politicians only focus on short-term priorities (Prince et al., 2020).

2. Introduce local technological standards and certificates.

Technical standards, explanatory standards and ethical standards can be useful regulatory tools. A promising perspective is the design of standards for data exchange that will allow the city to use data collected by private actors and facilitate collaborative management. The implementation of these standards can be supported by the establishment of a certification system for those working with artificial intelligence and the development of policies for their implementation (Prins et al., 2021).

The Open Mobility Foundation is a non-profit organization that has developed the Open Mobility Standards. It is "an open source standard that includes real-time reporting via API" (D'Agostino et al., 2019). It tracks individual mobility using a unique ID and creates a valuable location database. Originally developed in Los Angeles, it now operates in more than 130 cities worldwide.

3. Build on the existing monitoring and evaluation for supervision and system through all phases.

Evaluation must be ongoing at all stages of the AI's life. Monitoring must also include how the AI system works, as well as its impact after deployment. A robust monitoring and evaluation framework for AI systems needs to be built. Existing evaluation frameworks should be built upon, linking to algorithmic audit and impact assessment. Monitoring should involve an interdisciplinary team. It is also important that monitoring frameworks take the public interest into account. A specific monitoring mechanism is also needed (Jameson et al., 2021).

4. Include and adapt assessment tools as well.

Evaluation is not a one-time process, but it is continuous and recurring. Cities should design procedures with a long-term perspective, so that when things change the city can react.

5. Adjust procurement processes.



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The vast majority of urban AI will be acquired through procurement. Most cities do not have the internal capacity to develop robust AI solutions. Cities need the capacity to evaluate AI solutions that are presented to them during the procurement process (UN Habitat, 2022).

## CONCLUSION

This paper provides a general framework on how to apply AI responsibly in the context of cities and towns. Big data contains a lot of information, including economic, social, scientific values and other aspects, by analyzing big data you can get the information you want. Many new ideas, new applications and methods have emerged.

Some types of jobs will eventually be replaced by AI. Robots will become extremely useful in everyday life. With all these new use cases for artificial intelligence comes the scary question of whether machines will overtake humans as a workforce. The structure of the workforce is changing, allowing us to create a knowledge-based economy and use this to create better automation for a better quality of life.

In the economic past, there were opportunities to move from agriculture to manufacturing and to services, (Tapscot, 2006). but now this is not the case. The industry is completely robotized and we see that automation makes economic sense. We are facing a changing reality and questioning the basic assumptions of society. We have to really think about it and decide what makes us productive and what is the value of people in society.

## REFERENCES

- Allam, Z., Dhunny, Z. A. (2019). On big data, artificial intelligence and smart cities. *Cities*, 89, 80-91.
- D'Agostino, M., Pellaton, P., Brown, A. (2019). Mobility data sharing: Challenges and policy recommendations. UC Davis: Institute of Transportation Studies. <https://escholarship.org/uc/item/47p885q8>
- Fast Company Premium. (November 21, 2021). Retrieved May 04, 2024, from <https://www.fastcompany.com/90186037/the-top-10-smart-cities-on-the-planet>
- Guevara, L., Cheein., F. A. (2020). The Role of 5G Technologies: Challenges in Smart Cities and Intelligent Transportation Systems. *Sustainability*, 12(16), 6469.
- Haataja, M., Van de Fliert, L., Rautio, P. (2020). Public AI registers: Realising AI transparency and civic participation in government use of AI. White paper. Available at: <https://algoritmeregister.amsterdam.nl/wp-content/uploads/White-Paper.pdf>
- Herath, K., Mittal, M. (2022). Adoption of artificial intelligence in smart cities: A comprehensive review. *International Journal of Information Management Data Insights*, 2, 1-21.
- Jameson, S., Taylor, L., Noorman, M. (2021). Data governance clinics: A new approach to public-interest technology in cities. SSRN Scholarly Paper. Social Science Research Network, New York.
- Kar, A. K., Gupta, M. P., Ilavarasan, P. V., Dwivedi, Y. K. (ed.). (2017). *Advances in smart cities: smarter people, governance, and solutions*. CRC Press, Boca Raton.



## Conference Proceedings

McKinsey Global Institute (2024). A new future of work: The race to deploy AI and raise skills in Europe and beyond. Retrieved May 29, 2024, from <https://www.mckinsey.com/mgi/our-research/a-new-future-of-work-the-race-to-deploy-ai-and-raise-skills-in-europe-and-beyond>

Monge, F. (2022). A new data deal: The case of Barcelona. Datapoli's Newsletter (blog), Retrieved February 25, 2024, from <https://fermonge.substack.com/p/a-new-data-deal-the-case-of-barcelona>

Prince, A., Schwarcz, D. (2020). Proxy discrimination in the age of artificial intelligence and big data. Iowa Law Review, 105(3). Available at: <https://ilr.law.uiowa.edu/print/volume-105-issue-3/proxydiscrimination-in-the-age-of-artificial-intelligence-and-big-data>

Prins, C., Sheikh, H., Schrijvers, E., De Jong, E., Steijns, M., Bovens, M. (2021). Mission AI: The new system technology. Netherlands Scientific Council for Government Policy (WRR). Available at: [https://www.wrr.nl/binaries/wrr/documenten/rapporten/2021/11/11/opgave-aide-nieuwe-systeemtechnologie/Summary+WRRreport\\_Mission+AI\\_The+New+System+Technology\\_R105.pdf](https://www.wrr.nl/binaries/wrr/documenten/rapporten/2021/11/11/opgave-aide-nieuwe-systeemtechnologie/Summary+WRRreport_Mission+AI_The+New+System+Technology_R105.pdf)

PwC (2018). Fourth Industrial Revolution for the Earth: Harnessing artificial intelligence for the Earth. London. Available at: from <https://www.pwc.com/gx/en/services/sustainability/publications/ai-for-the-earth.html>. Retrieved January 11, 2024.

PwC (2023). Who's afraid of AI? Most employees aren't. London. Available at: <https://www.pwc.com/gx/en/issues/c-suite-insights/the-leadership-agenda/who-is-afraid-of-ai-most-employees-arent.html>. Retrieved March 04, 2024.

Tapscot, D. (2006). The Digital Economy. McGraw Hill, New York.

UN Habitat (2022). AI and Cities Risks, Applications and Governance. UN-Habitat. New York.



## Conference Proceedings

# ECONOMIC EDUCATION IN PRACTICE

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DOI: 10.5937/EEE24069M

JEL: A22, H24, I21

Review Scientific Paper

### ABSTRACT

*In order to participate in the labor market, economics graduates must acquire the necessary knowledge and competences during their studies, without which they cannot be actively involved in business processes and start their career as experts even in the most basic economic categories. If students do not have the initiative to really acquire knowledge, but their goal is only to pass certain exams, they finish their studies even without basic knowledge about economic categories. They start their careers from jobs where they are hired as operatives from whom no economic knowledge and performance is expected, but only the willingness to perform basic operational technical actions. In this paper, we have shown how economics students see their professional future and what basic knowledge they have about economic categories, such as taxes and contributions.*

### KEYWORDS

*education, students, taxes, contributions*

## STUDENT AT THE CENTER OF EDUCATION

We are witnessing that in the 21st century, business conditions are changing rapidly. The world has become a "global village" in which changes are constant and require continuous adaptation of all subjects.

University education of the Humboldt type, which prevailed in almost all of Europe and around the world, for the past two centuries was oriented towards the development of science in its identity, from which all other identifications or responsibilities - personal, professional and social – emerged. (Bodroški Spariosu, 2015).

Students were expected to be fully committed to their studies. Studying should have a central place in their lives, and not be just one of the side activities. Studying meant dedication of the whole person. In the meantime, conditions in economic systems have changed. The academic community, whose basic constitutive members are professors and students, no longer has the possibility to continue with the way of working until recently. Employers from the private sector became increasingly vocal with the demand that graduate students can actively engage in work processes after completing their studies. They, as an interest group, had a dominant influence to change the system of higher education. In accordance with the new requirements of the labor market in European countries, the Bologna process was started, which, in addition to creating a system of easier understanding and standardization of diplomas, increasing the mobility of students and graduates, etc., also implies that students undertake to attend classes, have

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several different pre-examination obligations and have continuous monitoring and evaluation of their achievements.

In accordance with the changes that occurred in the previous decades in the economic environment, Serbia also accepted the Bologna Process and ratified the Bologna Declaration in 2003. (Berlin Communiqué, 2003).

The reform of higher education in Serbia was carried out, with the aim of universities being able to prepare qualified individuals to successfully respond to many social-economic and other challenges.

The quality of education must be improved to ensure that young people acquire the appropriate skills that will enable them to become well-informed, active and responsible citizens and ensure their social inclusion and readiness for professional life (European Commission, 2001). The predictions of scientists from several decades ago have almost come true, that in this millennium the classic way of acquiring education in schools and classrooms will gradually be replaced by some other forms of education, in which learning from one's own home and office with the help of computers and network connection with centers will dominate for education around the planet. (Radović Marković, 2011).

It is to be expected that twenty years after the acceptance of the Bologna Process, studying in Serbia will be truly focused on the goal set on the faculties - that graduated students can actively engage in work processes within the professions for which they were educated.

When it comes to economics, we are witnessing that in the 21st century, it is an area in which basic knowledge should not only be acquired by persons professionally engaged in the aforementioned field of social sciences. Today, in a world where everything is measured by money and where material wealth has taken precedence over all other wealth, it is unacceptable for young people to complete their education, in whatever field they acquire knowledge, without knowing even the basic concepts of economics. However, we often witness that young people have no idea how the market, payment system and tax system work in our country, which often limits their ability to undertake certain activities in order to further their professional and personal progress. When it comes to people who have focused on getting an education in fields that are not close to the economy, perhaps some excuse could be found as to why they do not have at least basic knowledge of the said field. However, when it comes to young people who have chosen economics as their profession, it seems natural that they have at least basic knowledge of elementary economic areas.

## BASIC KNOWLEDGE IN PRACTICE

In order to see if young people who have decided to make economics their vocation in life have basic applicable knowledge about the fiscal system in the country they live in, a survey was conducted in which economics students participated. The research was conducted through a survey addressed to economics students at faculties in Belgrade during May and June 2024. Answers to the questionnaire were given by 107 students, and the analysis presented in this paper was based on them.

In our research, first of all, we wanted to find out why young people decided to study economics. The structure of the answers to the mentioned question can be seen in Figure 1.

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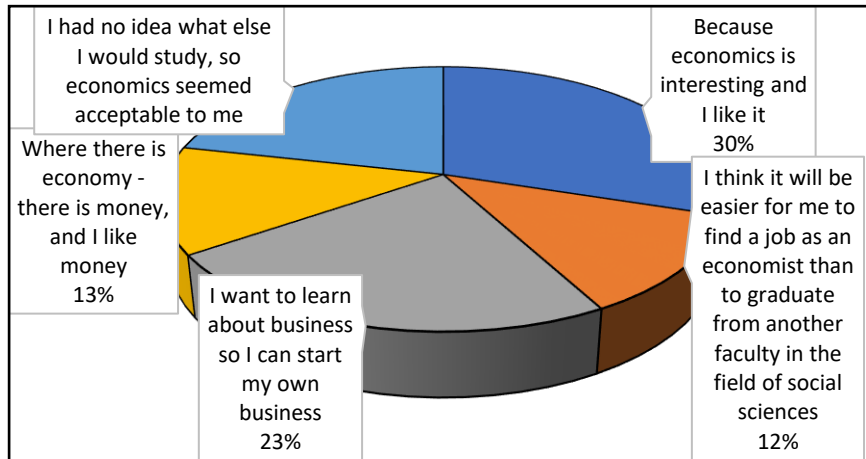


Figure 1. Why economics students decided to study economics

Source: Author's research

From the given graph, we can see that less than one third of students enrolled in economics studies because they think economics is interesting and they like it. On the other hand, a total of 34% of students enrolled in economic studies because they had no idea what else to study or because they expected to find work as economists more easily. The answers received are not surprising, because the school system in Serbia during primary, and especially during secondary education, with the exception of secondary economic, tourism or trade schools, does not allow children to become more familiar with economic concepts. Thus, we have a situation where a large number of students enroll in economic studies after completing high school, which should provide the widest range of general education, without ever having had the opportunity to become familiar with any economic subject. It is precisely because of the above-mentioned situation that students of economics are taken aback by everything that awaits them in the study of economic theories and quite often, completely demotivated, they give up on further studies.

We asked our students about their job aspirations after completing their studies. The structure of the answers to the mentioned question can be seen in Figure 2.

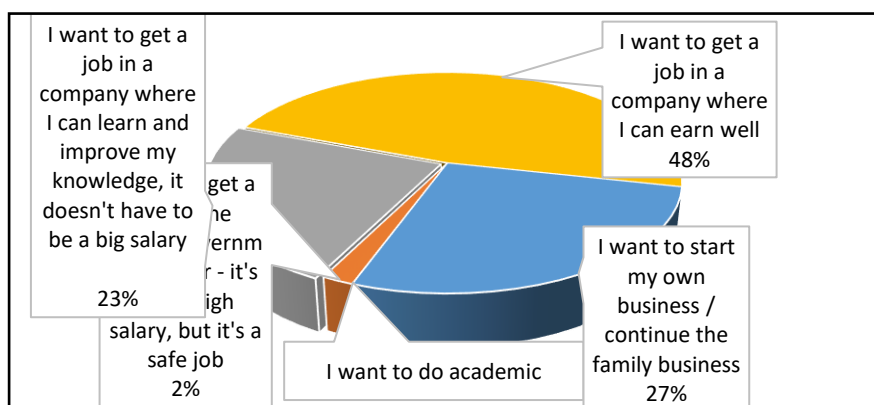


Figure 2. Desires regarding work

Source: Author's research

The results shown in Figure 2 show us that, unfortunately, none of the surveyed students wants to engage in academic and/or scientific-research work after graduation. On the other hand, almost half of the



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respondents (48%) want to be employed in a company where they can earn well. At the same time, 27% of respondents want to start their own business or continue their family business after their studies. This means that 75% of students plan to direct their professional involvement primarily in order to make a profit. The basic prerequisite for realizing the stated goal is good prior knowledge applicable in practice.

In order to see what kind of basic prior knowledge economics students have about elementary economic concepts that they should upgrade by the end of their studies and get involved in work processes in a quality way, in our survey we asked a very simple question that should be answered positively by almost every citizen of our country capable of doing business - we asked students if they knew what VAT is. We can see the results of the answers from Figure 3.

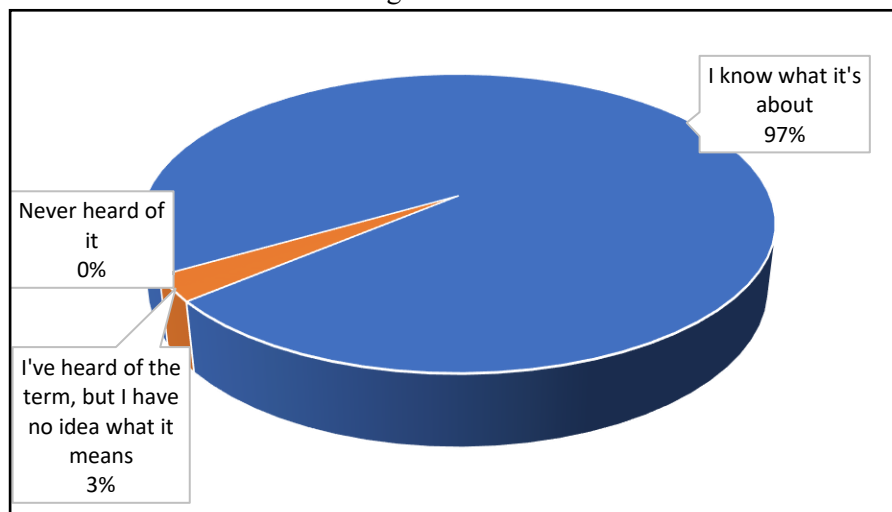


Figure 3. Do students know what VAT is?

*Source: Author's research*

From the given graph, we conclude that 97% of respondents answered that they know what it is about. The fact that 3% have heard the term, but have no idea what it means, is surprising, because it seems logical that an adult, although young, but studying economics, has knowledge of one of the basic economic terms that can be heard almost every day. But, we will consider this result as a coincidence and we will be convinced that economics students still know what it is about when VAT is mentioned. To test our beliefs, we asked survey participants if they knew exactly what the abbreviation VAT stands for. The correct answer was received from 96% of respondents - that it is a value added tax.

In our further research, we wanted to find out if the respondents make any difference at all in the fiscal treatment of goods, services, property and personal income. We do not expect students to know by heart which laws exactly regulate the fiscal treatment of the mentioned categories, nor which tax rates are current. However, if they have declared that they want to work in the economy and that their priority is profit, they should be familiar with at least the basic concepts from the field of fiscal economics, in the sense that goods, services, property and earnings are under completely different fiscal treatment, that VAT is calculated only during the delivery of goods and services and has nothing to do with assets and earnings.

In order to check how much students differentiate between different types of taxes, we asked them what they think - whether VAT is calculated on property owned by citizens and/or companies. Figure 4 illustrates the responses received.

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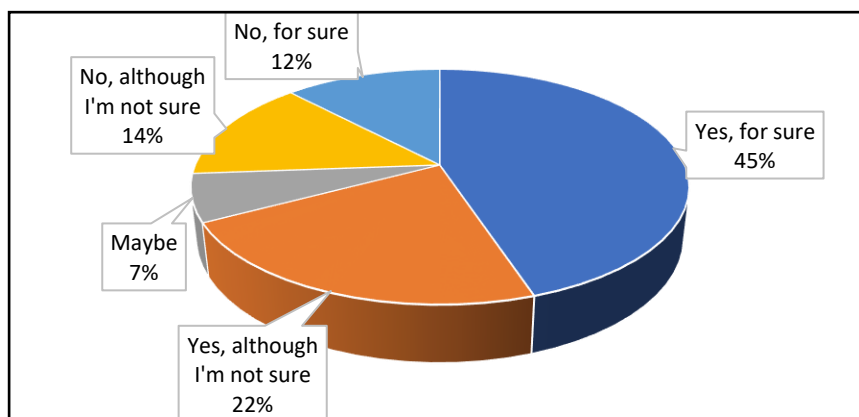


Figure 4. Students' opinion – whether VAT is calculated on property owned by citizens and/or companies

Source: Author's research

From Figure 4, it can be clearly seen that 45% of students are sure that VAT is calculated on properties owned by citizens and/or companies. On the one hand, this result can be comforting, because it shows that almost half of the students are sure that some property tax is paid. However, as people who decided to study economics, not for further academic engagement, but to work in the economy, respondents should distinguish between VAT (which is calculated for goods and services) and property tax.

We also asked economics students whether VAT is calculated on wages. We are of the opinion that every adult citizen capable of working should know at least the basics about earnings, so that, if nothing else, they can protect their rights. When asked whether VAT is calculated on wages, as many as 50.5% of respondents answered "Yes, for sure". We can see the structure of all responses from Figure 5.

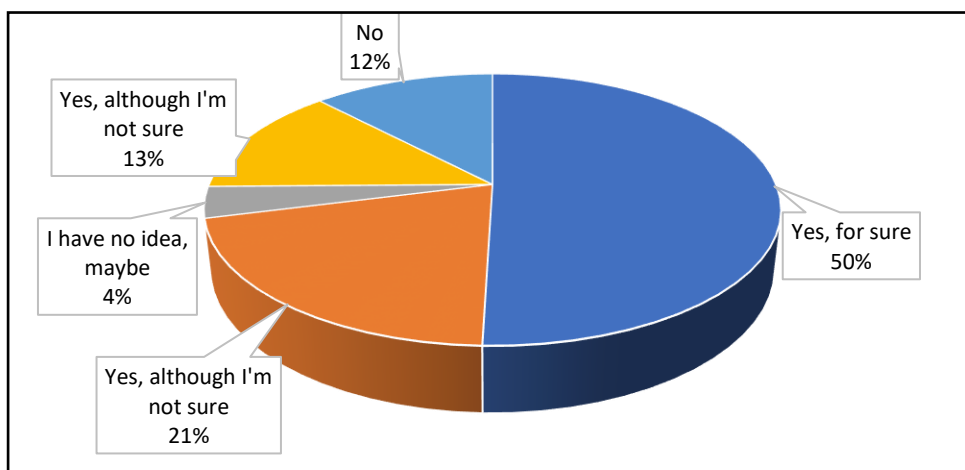


Figure 5. Students' opinion – whether VAT is calculated on wages

Source: Author's research

We believe that the results shown in Figure 5 are devastating, because students of economics should distinguish between earnings and goods and services, and thus know that there is a difference in fiscal treatment. However, it seems that for most respondents, VAT is synonymous with all taxes.



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In the further course of the research, we asked economics students what they think about which tax/taxes are calculated and paid when paying wages. In this question, the types of taxes are listed by name, so the respondents could, at least using the association method, express themselves more precisely. The range of diverse responses can be seen from Figure 6.

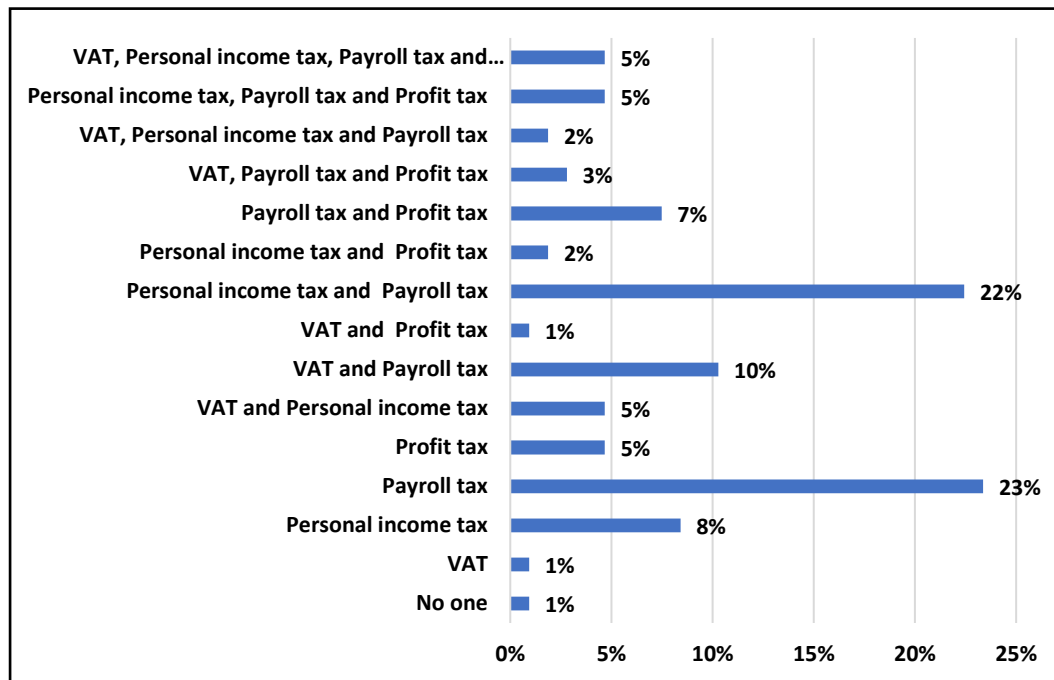


Figure 6. Students' opinion – which taxes are calculated and paid during the payment of wages

*Source: Author's research*

The largest number of students (23%) chose to answer that the Payroll tax is calculated on wages, which is correct. At the same time, we can also accept the answers of students who chose - Personal income tax, because the law that regulates the fiscal treatment of earnings is called the Law on personal income tax. (Sl. glasnik RS, 2024). However, it is worrying that 28% of the participants in the research answered that VAT is calculated and paid on wages (whether they decided only on VAT or rounded up this tax along with some other taxes offered). So, although among the answers offered was payroll tax, it didn't even associate them with the correct answer.

Also, 28% of the respondents answered that the profit tax is calculated and paid during the payment of wages (whether they decided only for the profit tax or rounded up this tax together with some of the other taxes offered).

Considering that during the calculation and payment of wages, social contributions are also calculated and paid, in addition to the wage tax, we wanted to find out if the students have any idea about this. The answers to the question of which contribution/contributions are calculated and paid during the payment of wages to employees can be seen from Figure 7.

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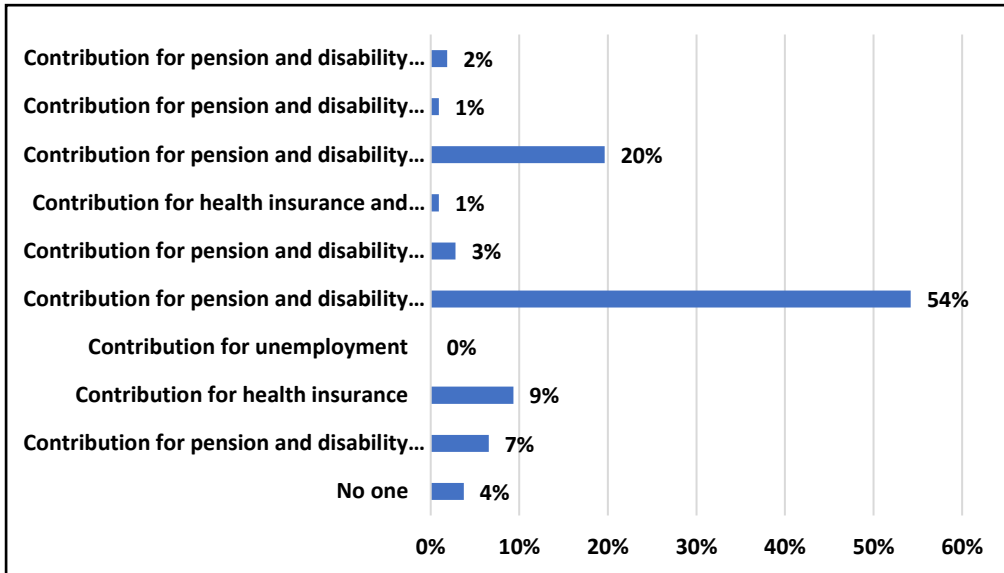


Figure 7. Students' opinion – which contribution/contributions are calculated and paid during salary payment  
Source: Author's research

Only 20% of respondents gave the correct answer, that during the calculation and payment of wages they must calculate and pay contributions for pension and disability insurance, health insurance and unemployment. All others gave incomplete or wrong answers.

In order to find out if economics students have any idea how much will be paid in taxes and contributions when they get a job, we asked them what they think, if the salary is paid in the amount of 100,000 (net), how much will roughly be to pay the corresponding tax and contributions. We wanted to check whether they have an idea of how much the fiscal obligations related to salaries burden the company's operations. We can see the structure of the answers from Figure 8.

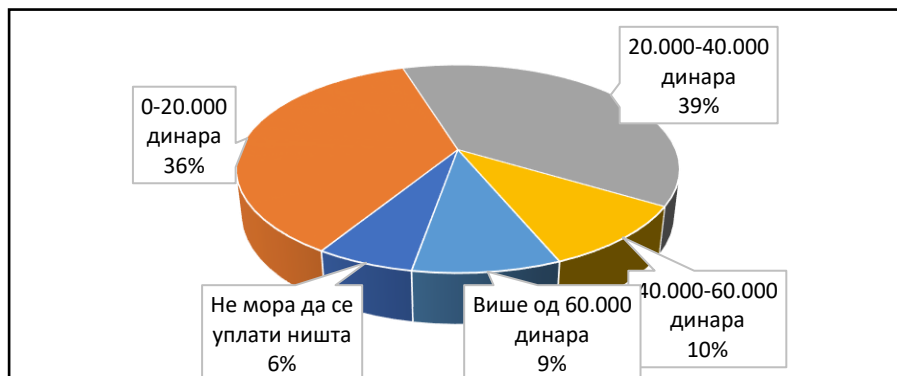


Figure 8. Students' opinion – what are the taxes and contributions for earnings of 100,000 (net)  
Source: Author's research

Only 9% of students answered correctly, that for the stated earnings, taxes and contributions amount to more than 60,000 dinars. The largest number of students (39%) answered that the corresponding tax and contributions are from 20,000 to 40,000 dinars. At the same time, 36% answered that tax and



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contributions on earnings of 100,000 (net) amount to 0-20,000 dinars, and even 6% answered that nothing has to be paid.

## CONCLUSION

Our research has shown that students mostly do not have knowledge of certain basic economic concepts, the knowledge of which is necessary for professional engagement in the economy. Although information on the fiscal treatment of goods, services and earnings is widely available, in addition to textbooks, on various websites and social networks, it seems that the majority of economics students have no interest in expanding their knowledge and trying to understand how the theoretical knowledge acquired at the faculties applies in practice.

In order to survive, in the 21st century it is necessary to have the ability to constantly adapt and constantly upgrade knowledge. In addition, the more he/she has knowledge and experience in a certain branch of business, the easier and more successful his/her path to the business world will be (Radović-Marković et. al, 2021).

Schools and colleges must make more efforts to teach young people to learn independently, without the constant help of professors and mentors. On the other hand, in order to achieve professional success and "make good money", as the interviewees declared their wish, young people must be aware that it is necessary to invest more time and effort in their own upgrading. There is no excuse for ignorance, because knowledge in the 21st century is available like never before.

## REFERENCES

- Bodroški Spariosu, B. (2015). Univerzitetsko obrazovanje – od Humboltovog modela do Bolonjskog procesa. Beograd. *Nastava i vaspitanje*, 64(3), 407-420.
- Berlin Communique (2003). Realization of the European Higher Education Area Communiqué of the Conference of Ministers of Higher Education in Berlin, September 19.
- European Commission (2001). European Commission White Paper "A New Impetus for European Youth". Brussels
- Radović-Marković, M. (2011) Obrazovni sistem i potrebe privrede u Srbiji. In: *Aktivne mere na tržištu rada i pitanja zaposlenosti*. Institut ekonomskih nauka, Beograd, pp. 27-42.
- Radović-Marković, M. et. al. (2021). *Flexibility and adaptation, The new post-Covid era*. Silver and Smith Publishers, Birminnham.
- Službeni glasnik RS, No. 6/2024. (2024). *Zakon o izmenama Zakona o porezu na dohodak građana*



## Conference Proceedings

# ASSESSING CUSTOMER LOYALTY IN A SHOPPING CENTER WITH ONE-WAY ANOVA APPROACH

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DOI: 10.5937/EEE24070S  
JEL: M31  
Review Scientific Paper

### ABSTRACT

*This study investigates customer loyalty levels in a shopping center using a one-way ANOVA. The aim of the research is to determine if there is a significant difference in loyalty among three groups of customers: first-time shoppers, second-time shoppers, and regular shoppers. A total of 102 respondents were surveyed, with an equal number of respondents in each group (34). Loyalty levels were measured on a scale from 1 to 10. Three hypotheses were formulated to test the differences in loyalty among the different customer groups. Data analysis was conducted using the JASP software. The research results show that there are significant differences in loyalty between first-time shoppers and those who are shopping for the second time, as well as between these groups and regular shoppers.*

### KEYWORDS

*customer loyalty, shopping centers, marketing mix, one-way ANOVA*

## INTRODUCTION

Customer loyalty is not easily achieved and that it is easier to retain an existing customer than to conquer new markets. For this reason, companies must monitor market changes and adapt to them, i.e., be in the right place at the right time and take the right steps. We are certainly confident that the elements of the marketing mix, with the aim of retaining existing and attracting new customers, will continue to evolve in the future. Supermarkets that are conveniently located, easy to access, and provide a pleasant shopping environment contribute significantly to a positive customer experience. This not only attracts customers but also plays a key role in retaining them. Effective promotional strategies, including advertising, in-store promotions, and digital marketing campaigns, are imperative. Personalized promotions and communication, especially through loyalty programs or targeted advertising, make customers feel valued and more inclined to return.

The behavior and attitude of supermarket staff can also influence customer perceptions of the supermarket brand. Positive interactions can lead to increased customer loyalty, as shoppers often return

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to places where they feel welcomed and valued. Supermarkets investing in employee training and development, ensuring their staff are well-equipped to provide excellent customer service, will likely see a positive impact on their customer loyalty. Well-balanced marketing mix addressing these four aspects is crucial for creating and maintaining customer loyalty to supermarkets. It's about creating a positive shopping experience that fosters trust, satisfaction, and a sense of value among customers, leading them to consistently choose the same supermarket for their shopping needs.

In today's competitive market environment, customer loyalty is crucial for the success and sustainability of shopping centers. Understanding the factors that influence customer loyalty can help shopping centers create strategies for retaining customers and increasing their satisfaction. One way to assess customer loyalty is through the analysis of their behavior and attitudes toward the shopping center. Customer loyalty can be defined as the tendency of customers to return to the same shopping center and recommend it to others. This study investigates the loyalty levels of different groups of customers - those who are shopping for the first time, those who are shopping for the second time, and regular shoppers.

## LITERATURE REVIEW

In creating customer loyalty in restaurants and the service sector, it is evident that employees are a very important factor, and their relationship with customers is crucial in terms of building loyalty (Gu, 2023; Sobia, Al Saif, 2023). In the purchase of fresh products in supermarkets, Azhar et al. (2023) demonstrate that price has a significant impact. In the telecommunications business, service quality, employee relations, and pricing have a strong influence on loyalty creation (Saputra, Yulfiswandi, 2023). Traditionally comprised of Product, Price, Promotion, and Place (Distribution), recent developments in the field have led to the inclusion of a fifth P, People, acknowledging the significance of human interaction in shaping customer experiences and building loyalty. This expanded 5P model serves as the fulcrum around which a supermarket's marketing strategies revolve.

Numerous indicators suggest that businesses should not just focus on costs and prices. Instead, they should pay more attention to customer satisfaction, changing their strategy from exclusively targeting profit maximization to overall profit maximization. Thus, the challenge of improving customer satisfaction and loyalty to occupy a larger market share has become a key issue hindering the development of businesses (Lei et al., 2022). The role of the marketing mix (Product, Price, Place, Promotion, People), is integral in fostering customer loyalty to supermarkets. The 'Product' aspect involves offering a diverse and high-quality range of products. Supermarkets that provide a variety of goods that meet customer needs, including exclusive products or brands, tend to build a strong, loyal customer base.

Supermarkets that adopt competitive pricing strategies, offering good value for money, regular discounts, and loyalty rewards, are more likely to attract and retain customers. This aspect of the marketing mix is essential in encouraging repeat purchases and establishing a loyal customer following. By deepening our understanding of these dynamics, this study aims to contribute to the broader discourse on resilience and adaptability in the supermarket sector amidst an era of rapid change and uncertainty. In addition to creating long-term customer satisfaction and loyalty to the same shopping experience, it is necessary to consider the profitability of the business. In addition to shopping, this particularly relates to creating a pleasant place where entertainment and consumption come together. Additionally, they argue that lower product prices and better marketing compared to competitors also play a crucial role. Madeira (2019), Houghtaling et al., (2019), Gustavo et al., (2021), Karanarathna et al., (2020), Kazibudzki, Trojanowski (2020) points out that the green marketing mix utilized by supermarkets



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represents a comparative advantage in attracting customers and influencing their purchasing decisions compared to competitors.

Furthermore, it has substantial positive effects on the environment and health. The COVID-19 pandemic has significantly affected the purchasing habits of consumers. Customer satisfaction and building their loyalty cannot be achieved by just one element of the marketing mix; it is essential to use all elements that must be interconnected and create a unified marketing strategy (Othman et al., 2021; Marušić, 2019). In their research, Thabit and Raewf (2018) present findings where as much as 79% of consumers say that price does not have a significant impact on their satisfaction with the purchase made, while on the other hand, a quality marketing campaign increases sales revenue by more than 80%.

Here, it would certainly be desirable to motivate employees to increase their interest in the entire process (Adeleh, Eleyan, 2021). The study by Donndeliger and Ferguson (2020) highlights the advancements the design community has made in each segment of the marketing mix. It shows how decisions about place and promotion are based on a key element - considering price within the context of an engineering design problem. According to the results of factors motivating consumers to purchase, Adera (2018) highlights price as an element emphasized by more than 60% of consumers, while all other elements cover the remaining 40% of respondents' answers. The importance of the marketing mix elements also varies depending on the sales it relates to. Thus, we can say that in the service sector, the emphasis is on location, promotional activities, market positioning, but also price and product, which we certainly cannot ignore (Olivar et al., 2022).

In marketing, we cannot limit ourselves to only four elements of the marketing mix. It is important to mention, in addition to product, price, distribution, and promotion, people, processes, and physical evidence as significant factors of the modern age (Dhanuandra et al., 2022). The value perceived by customers (CPV) has a favorable effect on their contentment. Notably, when consumers feel they are getting a worthwhile deal for their money (functional worth linked to price), this sentiment has a stronger positive influence than the social worth aspect (Slack et al., 2020). Customer expectations have a significant impact on their satisfaction, and the level of satisfaction is higher if the product, price, and shopping experience meet or exceed their expectations (Suchánek and Králová, 2019; Ali et al., 2021). The research findings by Pradnyadewi and Giantar (2022) show that data protection, convenience, reliability, and operational efficiency have a significant impact on the customer, which ultimately affects their satisfaction.

The author's opinion is that the key elements of the marketing mix applicable in supermarkets are Product, Price, Distribution, Promotion, and People (employees), and that these elements have a direct impact on consumer behavior and their purchasing actions. Furthermore, marketing mix elements such as physical aspects, processes, etc., are already partly contained within the marketing mix elements and are not significantly important to analyze from the perspective of everyday shopping in supermarkets. Given these turbulent times, price and availability play a major role in consumer consciousness, while competition influences the products to be of an acceptable quality level for consumers. Inflation, natural disasters, wars, and pandemics have made consumers more sensitive to price and more cautious about what and how much they purchase. The research results of Xu et al. (2022), demonstrate that the combination of different stores within a shopping center is an important factor in creating a loyal customer. In this way, the customer feels greater satisfaction and is more willing to return and make repeated purchases.

When it comes to shopping centers, Salazar (2022), emphasizes that an increasing number of customers are shifting towards online shopping channels, which leads to greater satisfaction for them. For sales to be successful and to create customer loyalty, it is important to develop a relationship and friendly connection with consumers, which will significantly influence the increase in revenue of the sales outlet.





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Developing long-term relationships is essential in creating customer loyalty, and this can make it easier to overcome difficult times in business (Arikan et al., 2016). In their research, the author emphasizes the importance of location and quality of a product that has good features to create customer loyalty (Jesus, Villanueva, 2022, Biesok et al., 2018). When we talk about the traditional market, considering the 7P's (product, price, place, promotion, people, process, physical evidence), consumers are extremely loyal, with over 75% who will repeat their purchase in the same supermarket, with the greatest investment in people and the least in promotion (Anjani et al., 2018).

Customer loyalty is not easily achieved, and it is a long process through which supermarkets must be willing to provide their best services through various loyalty cards and programs for discounts and a wide range of available products that is better compared to the competition (Alsulami, 2021, Lawrence, Muathe, 2022, Fook, Dastane, 2021, Arslan, 2020). The research results by Nesett et al. (2021) show that the product range, price, and service have almost equal total effects when it comes to customer loyalty towards a particular supermarket. The research shows that product traits, service quality, and shopping convenience significantly contribute to customer satisfaction, which in turn has a strong positive impact on emotional loyalty and behavioral loyalty (Fan et al., 2020).

Consumers faced with unexpected stock shortages often choose products of the same brand, but brand loyalty does not occur if non-brand attributes, such as price or quantity, provide greater emotional value, which managers often mispredict (Khan, De Paoli, 2023). In their research, Närvänen et al. (2020) talk about several different types of customer loyalty: binding loyalty where the relationship resembles a marriage and can be good for the seller but also feelings of restriction at the buyer leading to termination of the relationship; freedom of choice loyalty which includes the buyer's loyalty to the brand of the product; loyalty as belonging where customers expect the seller to be loyal to them which is a good way to build long-term relationships.

Companies in the sales and trade sector should, to make the right managerial decisions, focus their efforts on analyzing the factors that influence consumer behavior and the reasons why customers become loyal (Kyurova, Koyundzhiyska-Davidkova, 2021). Trust between the seller and the customer is built over a longer period and is the result of product consumption during that time. The quality of the service offered, the expectations and experiences that the customer has, realistically acceptable product prices, and the perceived value of the brand strengthen the customer's sense of loyalty (Sharma et al., 2020). Ahmad et al. (2022) results suggest that in e-sales, the approach to creating a loyal customer mainly relates to the time the customer spends on the online platform, as well as the satisfaction they get, with an emphasis on the importance of personalizing the approach to each customer.

The study by Bisschoff, Schmulian (2019), Sunday, Olasoji (2023) highlights the importance of a product's brand in creating loyalty with customers, and it is essential to implement it in the company's marketing strategies. Research of Tartaglione et al. (2018) indicates a complex interplay between attitudinal and behavioral dimensions in customer loyalty, emphasizing the significance of emotional content, trust, satisfaction, and engagement. The analysis of Mittal et al. (2023) reveals a direct link between customer contentment and metrics both at the individual consumer level (like retention rate, referrals, expenditures, and pricing) and the organizational scale (encompassing performance in the product market, accounting outcomes, and financial market success).

Cognitive and affective factors create a significant prerequisite for shaping the level of customer satisfaction and are an important cog in achieving the success of any sale (Palaci et al., 2019, Vera and Espinosa, 2019), while other research (Conner et al., 2017) confirms that the mentioned factors independently affect decisions to purchase domestic products, but this is not necessarily the case for imported products. Rua et al. (2020) demonstrate that customer loyalty is influenced by quality and satisfaction, while satisfaction directly mediates the relationship between quality and the loyalty of the customer themselves. To create loyal customers, the



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retailer needs to stimulate imagination and creativity in the store, which would in turn spark customer curiosity (Cachero-Martínez, Vázquez-Casielles, 2017).

As brand communities and social media emerge as pivotal tools for customer relationship management, there's a call for further empirical research on these platforms to understand consumer attitudes and the co-creation of value. The author's view is that creating loyal customers is a long-term process and that it is more cost-effective and profitable to influence existing customers rather than attempting to acquire new ones. Combining all elements of the marketing mix is the best approach to fostering loyalty, while customer relations, product availability, assortment, and price competitiveness are key to success. The study by Simangunsong et al. (2018); Vasquez-Parraga and Sahagun (2020) shows that the marketing mix has a greater impact on customer loyalty than on their satisfaction with a particular purchased product. The research by Djunaidi et al. (2021), El Moussaoui et al. (2022), Febrianti et al. (2022), Javed et al. (2021), Leecharoen (2019) states that customer satisfaction is directly related to an increase in loyalty to supermarkets as well as other fields of sales and services.

Marona and Wilk (2016) highlight in their research that 20% of respondents go to supermarkets for fun, 15% for the culinary offerings, and as much as 19% just to meet up with friends. Many supermarkets monitor online events with an emphasis on social networks where they collect information about their own and competing companies, and in this way plan their sales and communication with customers (Pantano et al., 2021; Kebede, 2023). In their research, Blut et al. (2018) highlight seller communication, corporate brand of the product, and low price as the most influential factors for purchase, while the distance to the supermarket and product brand are of lower priority in creating loyalty. When consumers consider the possibility that retailers can check competitors' prices and match them, it can encourage greater competition among retailers and result in lower prices for consumers.

However, if consumers do not consider this possibility, retailers could abuse the situation and discriminate prices, meaning they could charge different consumers differently for the same product, which could harm consumers (Nalca et al., 2019). The research by Hanaysha (2020), Moisescu (2018) demonstrates that socially responsible behavior and increased investment in advertising with a focus on social media are essential factors for the success of supermarkets. Considering that most supermarkets offer the same or similar products, the elements of the marketing mix are a crucial factor that differentiates them from one another. In addition to the fact that the elements of the marketing mix influence customer loyalty in supermarkets, it is essential for owners to invest in technology to reduce operating costs.

The value of the brand, the credibility that the product demonstrates, and the customer's experience when consuming the product have a significant impact on strengthening the relationship between the seller, the product, and the customer (Rather et al., 2022). Rahman et al. (2019) emphasize that store managers should focus their efforts on saving customers' time, services and quick responsiveness of employees, the possibility of returning purchased goods, and innovative payment methods. Some studies (Goić et al., 2021; Yokoyama et al., 2022) show that larger stores generate more customer satisfaction but fail to confirm the main reasons for such trends. The study by Lei et al. (2022) shows that the popularity of the store/brand, credibility, and fulfillment of agreed commitments are the main common factors affecting customer satisfaction. The author's opinion is that strategic and marketing plans of supermarkets, as well as management, are crucial in proper communication with customers. Planning, monitoring competition, regularly examining consumer preferences, and collecting feedback are important to offer the market what it demands. The goal of supermarkets is not just to attract customers once but to create a long-term relationship and achieve repeat purchases. Keeping up with modern market and business trends that should be implemented in the company's strategic plans is essential.



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# RESEARCH OBJECTIVES AND METHODOLOGY

The aim of this research is to explore customer behavior at a specific shopping center, ranging from first-time purchase to repeat purchases, and eventually to becoming a regular customer, and how repeat purchases influence loyalty towards the shopping center. On the graph 1 we can see the research hypothesis that was defined:

H1: There is a significant difference in loyalty between customers who make their first purchase at the shopping center and customers who make repeat purchases for the second time;

H2: There is a significant difference in loyalty between customers who make their first purchase at the shopping center and regular customers;

H3: There is a significant difference in loyalty between customers who make repeat purchases for the second time and regular customers.

The study was conducted through a questionnaire survey with 102 respondents in the Republic of Croatia during 2024. The sample of respondents was randomly selected, with the researcher standing outside the shopping center for 7 days, collecting responses anonymously from consenting participants. Many potential respondents declined to complete the questionnaire, which was one of the main limitations of the study. Following the collection of the questionnaire data, data analysis was conducted using the JASP software, performing one-way ANOVA.

# RESEARCH RESULTS

After the survey was conducted using a questionnaire, the results were analyzed to either confirm or reject the established hypotheses of the study. This involved a thorough review of the participants' responses to ascertain if the evidence aligned with or contradicted the initial assumptions. The findings from these analyses are essential for enhancing the understanding of the subject and guiding future research based on the validated or disproved hypotheses.

Table 1. ANOVA - Loyalty Score

Cases	Sum of Squares	df	Mean Square	F	p	$\eta^2$
Group	712.471	2	356.235	243.321	< .001	0.831
Residuals	144.941	99	1.464			

*Source: Authors research, 2024*

These results in table 1 show that the variability between groups (712.471) is much greater than the variability within groups (144.941). This suggests that there is a significant difference in loyalty levels between the different customer groups (first-time, second-time, regular), confirming that the hypotheses about differences in loyalty between these groups are justified.



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Table 2. Descriptives - Loyalty Score

Group	N	Mean	SD	SE	Coefficient of variation
Loyal (regular)	34	9.647	0.812	0.139	0.084
New (first time)	34	3.176	1.424	0.244	0.448
Returning (second time)	34	6.588	1.305	0.224	0.198

Source: Authors research, 2024

Table 2 show the average loyalty scores among the groups are significantly different: regular shoppers have the highest average loyalty (9.647); first-time shoppers have the lowest average loyalty (3.176); and returning shoppers have a mid-range loyalty score (6.588). Based on these average values and the results of the ANOVA analysis, we can evaluate the hypotheses: H1: There is a significant difference in loyalty between first-time shoppers (New) and second-time shoppers (Returning). Accepted, as the average loyalty score for first-time shoppers (3.176) is significantly different from the average score for returning shoppers (6.588); H2: There is a significant difference in loyalty between first-time shoppers (New) and regular shoppers (Loyal). Accepted, as the average loyalty score for first-time shoppers (3.176) is significantly different from the average score for regular shoppers (9.647); H3: There is a significant difference in loyalty between second-time shoppers (Returning) and regular shoppers (Loyal). Accepted, as the average loyalty score for returning shoppers (6.588) is significantly different from the average score for regular shoppers (9.647).

Table 3. Post Hoc Comparisons - Group

Consumers group	Mean Difference	95% CI for Mean Difference		SE	t	pbonf
		Lower	Upper			
Loyal – New (first time)	6.471	5.772	7.169	0.293	22.049	< .001
Loyal – Returning (second time)	3.059	2.361	3.757	0.293	10.423	< .001
New – Returning (second time)	-3.412	-4.110	-2.713	0.293	-11.626	< .001

Source: Authors research, 2024

In table 3 we can see that difference in mean loyalty scores between first-time shoppers (New) and returning shoppers (Returning) is -3.412 (95% CI: -4.110 to -2.713,  $p < .001$ ). Since the p-value is less than 0.001, there is a statistically significant difference. H1 is accepted. The difference in mean loyalty scores between first-time shoppers (New) and regular shoppers (Loyal) is 6.471 (95% CI: 5.772 to 7.169,  $p < .001$ ). Since the p-value is less than 0.001, there is a statistically significant difference. H2 is accepted. The difference in mean loyalty scores between returning shoppers (Returning) and regular shoppers (Loyal) is 3.059 (95% CI: 2.361 to 3.757,  $p < .001$ ). Since the p-value is less than 0.001, there is a statistically significant difference. H3 is accepted.



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Table 4. Marginal Means - Group

Consumers group	Marginal mean	95% CI for Mean Difference		SE
		Lower	Upper	
Loyal (regular)	9.647	9.235	10.059	0.208
New (first time)	3.176	2.765	3.588	0.208
Returning (second time)	6.588	6.176	7.000	0.208

*Source: Authors research, 2024*

In table 4 we can see the Marginal Means by Groups. Regular shoppers (Loyal): They have the highest marginal mean loyalty score (9.647) with a confidence interval from 9.235 to 10.059. First-time shoppers (New): They have the lowest marginal mean loyalty score (3.176) with a confidence interval from 2.765 to 3.588. Returning shoppers (Returning): They have an intermediate marginal mean loyalty score (6.588) with a confidence interval from 6.176 to 7.000. The table confirms significant differences in loyalty among the customer groups. Regular shoppers have the highest level of loyalty, first-time shoppers have the lowest, and returning shoppers fall in between. The confidence intervals are quite narrow, indicating the precision of the estimates. Based on all the above, we can confirm all three hypotheses.

## CONCLUSION

Customer loyalty is crucial for the success of shopping centers in today's competitive environment. Achieving and maintaining loyalty requires careful planning and adjustment of marketing strategies. The Pareto principle suggests that 20% of customers generate 80% of purchases, highlighting the importance of retaining existing customers. Supermarkets that are conveniently located, easily accessible, and provide a pleasant shopping environment significantly enhance customer experience. Personalized promotions and communication, especially through loyalty programs or targeted advertising, make customers feel valued and more inclined to return. The behavior and attitude of supermarket staff also significantly influence customers' perceptions of the supermarket brand. Positive interactions can lead to increased customer loyalty, as shoppers often return to places where they feel welcomed and valued.

Quality training for staff to deliver excellent customer service is crucial for achieving customer loyalty. Supermarkets that invest in the development and training of their employees to ensure they are well-equipped to provide excellent service are likely to see a positive impact on customer loyalty. In today's dynamic environment, a balanced marketing mix that addresses these aspects is crucial for creating and maintaining customer loyalty towards supermarkets. It's important to create a positive shopping experience that fosters trust, satisfaction, and a sense of value among customers, encouraging them to consistently choose the same supermarket for their needs. This research confirms that customer loyalty is highest among regular shoppers, lowest among first-time buyers, and intermediate among second-time purchasers. This indicates that repeated shopping at the same shopping center correlates with increased levels of loyalty.



## Conference Proceedings

## REFERENCES

- Adeleh, S., Eleyan, D. (2021). The Effect of Marketing Mix on Customer Behaviour. *Economics, Business and Organization Research*, 3(2), 194-208.
- Adera, W. K. (2018). The Effect of Marketing Mix Strategy on customer satisfaction: The case of Ethiopian Trading Enterprise, St. Mary's University, Addis Ababa.
- Ahmad, F., Mustafa, K., Hamid, R. A. S., Khawaja, F. K., Zada, S., Jamil, S., Qaisar, N. N., Vega-Muñoz, A., Contreras-Barraza, N., Answer, N. (2022). Online Customer Experience Leads to Loyalty via Customer Engagement: Moderating Role of Value Co-creation. *Frontiers in Psychology*, 13, 897851.
- Ali, B. J., Saleh, F. P., Akoi, S., Abdulrahman, A. A., Muhamed, A. S., Noori, H. N., Anwar, G. (2021). Impact of Service Quality on the Customer Satisfaction: Case Study at Online Meeting Platforms. *International Journal of Engineering, Business and Management*, 5(2), 65-77.
- Alsulami, H. (2021). A Framework for Improving Customer Loyalty at Retailers in Jeddah City: A Case Study. *American Journal of Industrial and Business Management*, 11(9), 973-983.
- Anjani, D. H., Irham, Waluyati, R. L. (2018). Relationship of 7p Marketing Mix and Consumers' Loyalty in Traditional Markets. *Agro Ekonomi*, 29(2), 261-273.
- Arikan, E., Yilmaz, C., Bodur, M. (2016). Expanding the boundary of brand extensions through brand relationship quality. *Journal of Business Economics and Management*, 17(6), 930-944.
- Arslan, K. I. (2020). The Importance of Creating Customer Loyalty in Achieving Sustainable Competitive Advantage. *Eurasian Journal of Business and Management*, 8(1), 11-20.
- Azhar, R. A., Salehuddin, M., Bakhtiar, S. B. F. M., Kamaruddin, B. Y. S. M. (2013). Customer Satisfaction with Hypermarket Fresh Food's Characteristics. *Business, Agricultural and Food Sciences*, 17-37.
- Biesok, G., Wyród-Wróbel, J. (2018). Models of Customers Satisfaction with Supermarkets in Poland. *European Journal of Business Science and Technology*, 4(1), 81-92.
- Bisschoff, A. C., Schmulian, M. (2019). Measuring brand loyalty of consumers towards chicken brands in the KwaZulu-Natal Province of South Africa. *Journal of Business and Retail Management Research*, 14(1), 79-97.
- Blut, M., Teller, C., Floh, A. (2018). Testing Retail Marketing-Mix Effects on Patronage: A Meta-Analysis. *Journal of Retailing*, 94(2), 113-135.
- Cachero-Martínez, S., Vázquez-Casielles, R. (2017). Living Positive Experience in Store: How it Influences Shopping Experience Value and Satisfaction? *Journal of Business Economics and Management*, 18(3), 537-553.
- Conner, L. S., Reardon, J., Miller, C., Salciuviene, L., Auruskeviciene, V. (2017). Cultural antecedents to the normative, affective, and cognitive effects of domestic versus foreign purchase behavior, *Journal of Business Economics and Management*, 18(1), 100-115.
- Dhanuandra, K., Yanuarrahmatsyah, T., Semerdantapusaka, Indradewa, R. (2022). Influence of 7p Mix Marketing Strategy on Business Sky Garden. *American International Journal of Business Management*, 5(6), 102-110.
- Djunaidi, G. F., Umanailo, B. C. M., Tawulo, A. M., Tang, B., Wula, Z., Mukmin, A. N., Unga, H. O. W. (2021). The Effect of Customer Satisfaction on Customers Loyalty at the Green Mart Supermarket



## Conference Proceedings

in Namrole City. Proceedings of the 11th Annual International Conference on Industrial Engineering and Operations Management Singapore, pp. 6143-6153.

Donndelinger, J. A., Ferguson, S. M. (2019). Design for the Marketing Mix: The Past, Present, and Future of Market-Driven Engineering Design. *Journal of Mechanical Design*, 142(6), 1-14.

El Moussaoui, E. A., Benbba, B., El Andaloussi, Z. (2023). Impact of logistics performance on the store image, consumer satisfaction and loyalty: a quantitative case study. *Arab Gulf Journal of Scientific Research*, 41(3), 226-239.

Fan, Y., Kou, J., Liu, J. (2020). Research on the Influencing Factors of Customer Loyalty in Offline Supermarket under New Retail Model. *ICMSS 2020: Proceedings of the 2020 4th International Conference on Management Engineering, Software Engineering and Service Sciences*, pp. 216-220.

Febrianti, M. A., Sihombing, V. M. R., Soetjipto, C. J. S. (2022). Determinant of customer satisfaction and loyalty in using online shopping applications. *International Journal of Research in Business and Social Science*, 11(2), 119–126.

Fook, W. C. A., Dastane, O. (2021). Effectiveness of Loyalty Programs in Customer Retention: A Multiple Mediation Analysis. *Jindal Journal of Business Research*, 10(1), 7-32.

Goić, M., Levenier, C., Montoya, R. Drivers of customer satisfaction in the grocery retail industry: A longitudinal analysis across store formats. *Journal of Retailing and Consumer Services*, 60, 102505.

Gu, Y. (2023). Implement of the Marketing Mix Theory in Increasing Customer Satisfaction at Internet-famous Restaurant. Proceedings of the 2nd International Conference on Financial Technology and Business Analysis, pp. 82-89.

Gustavo Jr., U. J., Trento, R. L., de Souza, M., Pereira, M. G., Jabbour, S. d. L. B. A., Ndubisi, O. N., Jabbour, C. J. C., Borchardt, M., Zvirtes, L. (2021). Green marketing in supermarkets: Conventional and digitized marketing alternatives to reduce waste. *Journal of Cleaner Production*, 296, 126531.

Hanaysha, J. R. (2020). Marketing Mix Elements and Corporate Social Responsibility: Do they Really Matter to Store Image? *Jindal Journal of Business Research*, 9(1), 56–71.

Houghtaling, B., Serrano, E., Kraak, V. I., Harden, M. S., Davis, C. G., Misyak, A. S. (2019). A systematic review of factors that influence food store owner and manager decision making and ability or willingness to use choice architecture and marketing mix strategies to encourage healthy consumer purchases in the United States, 2005–2017. *International Journal of Behavioral Nutrition and Physical Activity*, 16(1), 5.

Javed, S., Rashidin, S. M., Jian, W. (2021). Predictors and outcome of customer satisfaction: moderating effect of social trust and corporate social responsibility. *Future Business Journal*, 7(12).

Jesus, D. S. F., Villanueva, C. W. (2022). The Correlation of 4Ps of Marketing in the Business Performance of MSEs in Palayan City, Nueva Ecija. *IRA International Journal of Education and Multidisciplinary Studies*, 18(2), 35-52.

Karanarathna, P. K. A., Bandara, K. V., Silva, T. S. A., De Mel, H. D. W. (2020). Impact of Green Marketing Mix on Customers' Green Purchasing Intention with Special Reference to Sri Lankan Supermarkets. *South Asian Journal of Marketing*, 1(1), 127-153.

Kazibudzki, P. T., Trojanowski, T. W. (2020). Examination of marketing mix performance in relation to sustainable development of the Poland's confectionery industry. *PLoS ONE*, 15(10).



## Conference Proceedings

- Kebede, K., Yadete, D. F., Kant, S. (2023). Is Paradigm Shift from Traditional Marketing Mix to Digital Marketing Mix Effects the Organizational Profitability in Ethiopia? A Multivariate Analysis, *Partners Universal International Research Journal*, 2(1), 122–134.
- Khan, U., De Paoli, A. (2024). Brand loyalty in the face of stockouts. *Journal of the Academy of Marketing Science*, 52, 44-74.
- Kyurova, V., Koyundzhiyska-Davidkova, B. (2021). Study of Customer Loyalty in Small and Medium-Sized Enterprises in the Field of Trade in Bulgaria. *The 20th International Scientific Conference Globalization and its Socio-Economic Consequences, Proceedings*, pp. 92.
- Lawrence, L. O., Muathe, S. M. (2022). Do customer loyalty programs enhance customers buying behaviour in supermarkets in Kenya? *International Journal of Research in Business and Social Science*, 11(3), 1-15.
- Leecharoen, B. (2019). Examining the Relationships between Customer Satisfaction and Repurchase Behavior in Online Fashion Retailing. *PSAKU International Journal of Interdisciplinary Research*, 8(2), 123-136.
- Lei, Z., Duan, H., Zhang, L., Ergu, D., Liu, F. (2022). The main influencing factors of customer satisfaction and loyalty in city express delivery. *Frontiers in Psychology*, 13, 1-9.
- Madeira, B. A. (2019). Green marketing mix: A case study of Brazilian retail enterprises. *Environmental Quality Management*, 28(3), 111-116.
- Marona, B., Wilk, A. (2016). Tenant mix structure in shopping centres: some empirical analyses from Poland. *Entrepreneurial Business and Economics Review*, 4(2), 51-65.
- Marušić, T. (2019). Importance of Marketing Mix in Successful Positioning of Products and Services on the Market. *Ekonomiska misao i praksa*, 1, 431-446.
- Mittal, V., Han, K., Frennea, C., Blut, M., Shaik, M., Bosukonda, N., Sridhar, S. (2023). Customer satisfaction, loyalty behaviors, and firm financial performance: what 40 years of research tells us. *Marketing Letters*, 34, 171–187.
- Moiesescu, I. O. (2018). From perceptual corporate sustainability to customer loyalty: a multi-sectorial investigation in a developing country. *Economic Research*, 31(1), 55-72.
- Nalca, A., Ray, S., Boyaci, T. (2020). Price-Matching Strategy: Implications of Consumer Behavior and Channel Structure. In: Ray, S., Yin, S. (eds) *Channel Strategies and Marketing Mix in a Connected World*. Springer Series in Supply Chain Management, 9.
- Närvänen, E., Kuusela, H., Paavola, H., Sirola, N. (2020). A meaning-based framework for customer loyalty. *International Journal of Retail & Distribution Management*, 48(8), 825-843.
- Nesset, E., Bergem, O., Nervik, N., Sørli, S. E., Helgesen, Ø. (2021). Building chain loyalty in grocery retailing by means of loyalty programs – A study of ‘the Norwegian case’. *Journal of Retailing and Consumer Services*, 60.
- Olivar, G. K., Demain, D. C., Quito, L. H., Palmes, D. (2022). Make it Mati: The Marketing Mix Strategies and Customer Satisfaction of Resorts Amidst Covid-19 Pandemic. *Archives of Business Research*, 10(7), 185-197.
- Othman, B., Weijun, H., Huang, Z. (2021). The effect of service marketing mix elements and customer retention towards clothing store brands in China. *Industria Textila*, 72, 388-397.





## Conference Proceedings

- Palací, F., Salcedo, A., Topa, G. (2019). Cognitive and Affective Antecedents of Consumers' Satisfaction: A Systematic Review of Two Research Approaches. *Sustainability*, 11(2).
- Pantano, E., Dennis, C., De Pietro, M. (2021). Shopping centers revisited: The interplay between consumers' spontaneous online communications and retail planning. *Journal of Retailing and Consumer Services*, 61, 102576.
- Pradnyadewi, A. P. L., Giantari, I. (2022). Effect of E-Service Quality on Customer Satisfaction and Customer Loyalty on Tokopedia Customers in Denpasar, *European Journal of Business and Management Research*, 7(2), 200-204.
- Rahman, N. M., Nower, N., Hassan, R., Samiha, Z. (2019). An Evaluation of the Factors Influencing Customers' Experience in Supermarkets of Bangladesh. *European Journal of Business and Management*, 11(26), 13-22.
- Rather, A. R., Hollebeek, D. L., Vo-Thanh, T., Ramkissoon, H., Leppiman, A., Smith, D. (2022). Shaping customer brand loyalty during the pandemic: The role of brand credibility, value congruence, experience, identification, and engagement. *Journal of Consumer Behaviour*, 21(5), 1175-1189.
- Rua, S., Saldanha, E. Amaral, A. (2020). Examining the Relationships among Product Quality, Customer Satisfaction and Loyalty in the Bamboo Institute, Dili, Timor-Leste. *Timor Leste Journal of Business and Management*, 2(2), 33-44.
- Salazar, R. I. M. (2022). Omnichannel Marketing Model Applied at the Shopping Centers in Medellín City. *Mercados Y Negocios*, (46), 31-56.
- Saputra, S. and Yulfiswandi, Y. (2023). Exploring The Impact of Trust on Customer Loyalty in the Telecommunication Industry. *Journal Of Business Studies And Management Review*, 7(1), 139-143.
- Sharma, A., Gupta, J., Gera, L., Sati, M., Sharma, S. (2020). Relationship between Customer Satisfaction and Loyalty. *Social Science Research Network*. Available at: [https://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=3913161](https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3913161)
- Simangunsong, B., Sitompul, D., Sadalia, I. (2018). The Effect of Marketing Mix on Loyalty Through Customer Satisfaction in PT. Merck Tbk Cabang Medan. *KnE Social Sciences*, 3(10).
- Slack, N., Singh, G., Sharma, S. (2020). The effect of supermarket service quality dimensions and customer satisfaction on customer loyalty and disloyalty dimensions. *International Journal of Quality and Service Sciences*, 12(3), 297-318.
- Sobaih, A. E. E., Al Saif, A. (2023). Effects of Parcel Delivery Service on Customer Satisfaction in the Saudi Arabian Logistics Industry: Does the National Culture Make a Difference? *Logistics*, 7(4), 1-15.
- Suchánek, P., Králová, M. (2019). Customer satisfaction, loyalty, knowledge and competitiveness in the food industry. *Economic Research*, 32(1), 1237-1255.
- Sunday, O. A., Olosoji, T. O. (2023). The Impact of Brand Awareness on Customer Loyalty in Selected Food and Beverage Businesses in Lagos State Nigeria. *Jurnal Multidisiplin Madani*, 3(3), 541-551.
- Tartaglione, M. A., Cavacece, Y., Russo, G., Granata, G. (2019). A Systematic Mapping Study on Customer Loyalty and Brand Management. *Administrative Sciences*, 9(1), 1-21.
- Thabit, T., Raewf, M. (2018). The Evaluation of Marketing Mix Elements: A Case Study. *International Journal of Social Sciences & Educational Studies*, 4(4), 100-109.



## Conference Proceedings

Vasquez-Parraga, A. Z. & Sahagun, M. A. (2020). Explaining Customer Loyalty to Retail Stores: A Moderated Explanation Chain of the Process. In F. Musso & E. Druica (Eds.), *Handbook of Research on Retailing Techniques for Optimal Consumer Engagement and Experiences*, pp. 15-32.

Vera, J., Espinosa, M. (2019). Consumer involvement as a covariant effect in rethinking the affective-cognitive relationship in advertising effectiveness. *Journal of Business Economics and Management*, 20(2), 208-224.

Xu, Y., Yiu, C. Y., Cheung, K. S. (2022). Retail tenant mix effect on shopping mall's performance. *Marketing Intelligence & Planning*, 40(2), 273-287.

Yokoyama, N., Azuma, N., Kim, W. (2022). Moderating effect of customer's retail format perception on customer satisfaction formation: An empirical study of mini supermarkets in an urban retail market setting. *Journal of Retailing and Consumer Services*, 66, 102935.



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# DIRECT DEMOCRACY AND SOCIAL NETWORKS – PERSPECTIVES FOR ELECTIONS FOR EUROPEAN PARLIAMENT

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DOI: 10.5937/EEE24071M  
JEL: K16, K33  
Review Scientific Paper

## ABSTRACT

*In this article, authors tried to connect concepts of direct democracy with modern technologies and social networks in order to propose improvement of nature of elections for European Parliament. Article aims to analyze historical development of idea of direct democracy with modern concept implemented in Switzerland and possible connection with elections for European Parliament which are the most important elections in the EU. Authors tried also to connect modern technologies emanated in social networks with specific focus on Facebook and X with democratical procedures in the EU. Conclusion is that the future of the EU and elections for European parliament lies in more involvement of citizens via social networks which will legitimize process of democratic decision in the EU and also includes more participation of citizens in the institutional work of European Parliament.*

## KEYWORDS

*direct democracy, social networks, European Parliament, elections*

## INTRODUCTION

Direct democracy is a regime which the adult citizens as a whole debate and vote on the most important political decisions and where their vote determines the action to be taken (Budge, 1996). Most countries that are representative democracies allow for three forms of political action that provide limited direct democracy: referendum (plebiscite), initiative, and recall. The first two forms: referendums and initiatives are examples of direct legislation (Smith, 2009).

Compulsory referendum subjects the legislation drafted by political elites to a binding popular vote. This is the most common form of direct legislation. Popular referendum (also known as abrogative or facultative) empowers citizens to make a petition that calls existing legislation to a citizen's vote. Institutions specify the time frame for a valid petition, the number of signatures required, and may

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require signatures from diverse communities to protect minority interests (Smith, 2009). This form of direct democracy effectively grants the voting public a veto on laws adopted by the elected legislature.

Power of Initiative allows members of the general public to propose specific statutory measures or constitutional reforms to the government, and as with referendums, the vote may be binding or simply advisory. Initiatives may be direct or indirect: With the direct initiative, a successful proposition is placed directly on the ballot to be subject to vote (as exemplified by California's system) (Smith, 2009). With an indirect initiative, a successful proposition is first presented to the legislature for their consideration; however, if no acceptable action is taken after a designated period of time, the proposition moves to direct popular vote. Such a form of indirect initiative is utilized by Switzerland for constitutional amendments.

Some writers with anarchist sympathies have said direct democracy is opposed to a strong central authority, as decision making power can reside at only one level – the people themselves (through direct democracy) or the central authority which is often Assembly.

## HISTORICAL DEVELOPMENT OF IDEA OF DIRECT DEMOCRACY

The earliest known direct democracy is said to be the Athenian democracy in the 5th century BC, although it was not an inclusive democracy: women, foreigners and slaves were excluded from it. The classical *polis* was marked by unity, solidarity, participation and a highly restricted citizenship (Held, 1987). But it is necessary to mention that women and slaves didn't have right to vote or to participate in political life of polis. The achievement of classical democracy were directly linked to the politically unrecognized work and domestic service of women (and children) (Held, 1987).

The main bodies in the Athenian democracy were the assembly, composed of male citizens; the *boulê*, composed of 500 citizens; and the law courts, composed of a massive number of jurors chosen by lot, with no judges. The citizenry as a whole formed the key sovereign body of Athens: the Assembly. The Assembly met over 40 times a year and had a quorum of 6.000 citizens. All major issues such as the legal framework for the maintenance of public order, finance and direct taxation, ostracism, foreign affairs came before assembled citizens for debate and decision (Held, 1987). There were only about 30.000 male citizens, but several thousand of them were politically active in each year, and many of them quite regularly for years on end.

The Athenian democracy was *direct* not only in the sense that decisions were made by the assembled people, but also in the sense that the people through the assembly, *boulê* and law courts controlled the entire political process and a large proportion of citizens were involved constantly in the public business (Raaflaub et al., 2007). The Greeks probably invented the use of formal voting procedures to legitimate decisions in the face of conflicting positions. But the ideal remained consensus, and it is not clear that even a majority of issues was put to the vote (Mansbridge, 1983). This type of democracy enabled economic, cultural and political development of Athens. But cultural achievements rested until nowadays to testify about one time, where ordinary people could have an influence on state affairs. If those cultural masterpieces such as Parthenon, Erechtheon and Propileus are cultural heritage of whole world, why political regime of direct democracy can't be political heritage to the whole world? We think that this model of democracy can be implemented very soon in Europe, especially because it has roots from deep past of first developed European civilization.



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In theoretical sense idea of direct democracy was dead during whole Middle Age, but it revived with theory of social contract, which was very innovative in political theory, and made an inspiration for French revolution in 1789. In the history of political theory, theory of social contract rested specifically related with Jean Jacques Rousseau. Some authors like David Held thinks that model of direct democracy was implemented in Italian city-republics. Held claims that model of direct democracy „was fully re-examined, re-articulated and re-advocated, although it directly re-entered European political thought with the Italian Renaissance and the flourishing of the Italian city-republics (Held, 1987).”

We can agree in some sense that this statement is true, but Italian city-republics was not so highly relevant in examination of this model of democracy, because they weren't self-sufficient models like Ancient Athens, and they had strong will to create big, unified Italy. Also Machiavelli as the most prominent thinker of that time didn't revive ancient model of direct democracy in his political theory in whole manner. He had some fragmentary reviews on that issue. So, it rests that Rousseau revived this model and after him, Karl Marx and Friedrich Engels made deeper examination of this model and put it in their theory of creation of new economic, political and cultural order called socialism. So it is obvious that the classical model of democracy and its critique have both had an enduring impact on modern Western political thought.

Rousseau claimed that for development of each human being, it is necessary that each human being can have power to make influence on political questions which are relevant for him. In his classic *The Social Contract*, he assumed that although humans were happy in an original state of nature, they were driven from it by a variety of obstacles to their preservation (individual weaknesses, common miseries, natural disasters) (Rousseau, 1968).

Rousseau tried to make approach to the idea of direct democracy with claim that all citizens should meet together to decide what is best for the community and enact the appropriate laws. This claim was disavowed with another claim which said that it is impossible to meet all people on one place in the same time. But in the 21st century with development of social networks this problem is solved, And that is key reason why we are trying to prove that direct democracy need to become political regime in this time.

Rousseau was pleading for society in which the affairs of the state are integrated into the affairs of ordinary citizens (Rousseau, 1968). The role of the citizen is the highest to which an individual can aspire. But it is very important to have aware citizen, who will have wright view on political events in his community. When we look in European Union today, we are completely sure, that aware citizen is citizen of European Union. So much money invested in education will turn back, when it comes to making political decisions by those educated citizens.

Rousseau recognized that opinions may differ about the „common good” and he accepted a provision for majority rule: „the votes of the greatest numbers always bind the rest” (Rousseau, 1968). It is clear that principle of majority should be kept, for one natural reason, and that is that people think in a different way. Also he made distinction of „general will” and „will of all”. It is the difference according to him, between the sum of judgements about the common good and the mere aggregate of personal fancies and individual desires (Rousseau, 1968).

What is also important in Rousseau's work is that he realized that political rights are strongly connected to economic status in society. Later, this idea, Marx will exploit for his theoretical explanation of logic of capitalism. Rousseau desired a state of affairs in which “no citizen shall be rich enough to buy another and none so poor as to be forced to sell himself”(Rousseau, 1968).

Rousseau argued in favour of a political system in which the legislature and executive functions are clearly demarcated (Held, 1987). Rousseau claimed that it is necessary to have Assembly and Government, but Assembly will have power to elect and to control Government. Government is



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necessary for communication and for implementing laws. These theoretical approach made influence on Convent constitution in 1793.

Rousseau's overriding concern was with what might be thought of as the future of democracy in a non-industrial community, that is, a community like his native republic of Geneva, which he greatly admired. His vision of democracy was evocative and challenging; but it was not connected to an account of politics in a world faced by rapid political change and by change of an altogether different kind: the industrial revolution, which was gathering pace at the end of the eighteenth century and beginning to undermine traditional community life (Rousseau, 1968).

After Rousseau, development of idea of direct democracy is linked to Marx and Engels. In their very famous work named *The Communist Manifesto* it was written: „In place of the old bourgeois society, with its classes and class antagonisms, we shall have an association, in which the free development of each is the condition for the free development of all” (Marx, Engels, 1969). Something similar like Rousseau thought.

When it comes to the best political regime, Marx said that the machinery of the liberal state would be replaced by the Commune structure. All aspects of the government would then, according to Marx, be fully accountable: „the general will“ of the people would prevail. The smallest communities would administer their own affairs, elect delegates to larger administrative units (districts, towns) and these would, in turn, elect candidates to still larger areas of administration (the national delegation). This arrangement is known as the „pyramid“ structure of direct democracy: all delegates are revocable, bound by the instructions of their constituency and organized into a „pyramid“ of directly elected committees (Held, 1987).

Similar to Rousseau's thought that English people are free only when elections are organized, but they are slaves in the period between elections, Marx concluded that parliaments create unacceptable barriers between the ruled and their representatives; a vote once in a while is a wholly insufficient basis to ensure adequate representation of the people's views. A system of direct delegation overcomes this difficulty, as it does the fundamental lack of accountability introduced into state power by the principle of the separation of powers (Held, 1987). All state agencies must be brought within the sphere of a single set of directly accountable institutions (Polan, 1984). While Marx's model of direct democracy departs in many aspects from the model of ancient Athens, and from Rousseau's related conception of the self-governing republic. it is hard not to see in it, at least in part, an attempt to recover directly the radical herotage of these positions against the tide of the liberal tradition (Marx, 1975).

Modern-era citizen lawmaking began in the towns of Switzerland in the 13th century. In 1847, the Swiss added the „statute referendum” to their national constitution. They soon discovered that merely having the power to veto Parliament's laws was not enough. In 1891, they added the „constitutional amendment initiative.” Swiss politics since 1891 have given the world a valuable experience base with the national-level constitutional amendment initiative. In the past 120 years, more than 240 initiatives have been put to referendums. The populace has been conservative, approving only about 10% of these initiatives; in addition, they have often opted for a version of the initiative rewritten by government.

Switzerland is a rare example of a country with instruments of direct democracy (at the level of the municipalities, cantons and federal state). Citizens have more power than in a representative democracy. At the federal level, citizens can propose changes to the constitution (federal popular initiative) or ask for a referendum to be held on any law voted by the parliament. Swiss citizens vote regularly on any kind of issue on every political level, such as financial approvals of a school house or the building of a new street, or the change of the policy regarding sexual work, or on constitutional changes, or on the foreign policy of Switzerland, four times a year (Slater, 2013). In Switzerland, simple majorities are



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sufficient at the municipal and canton level, but at the federal level double majorities are required on constitutional issues

A double majority requires approval by a majority of individuals voting, and also by a majority of cantons. Thus in Switzerland a citizen-proposed amendment to the federal constitution (i.e. initiative) cannot be passed at the federal level if a majority of the people approve but a majority of the cantons disapprove. For referendums or propositions in general terms (like the principle of a general revision of the Constitution), a majority of those voting is sufficient (Swiss Constitution, 2005). In 1890, when the provisions for Swiss national citizen lawmaking were being debated by civil society and government, the Swiss adopted the idea of double majorities from the United States Congress, in which House votes were to represent the people and Senate votes were to represent the states. According to its supporters, this "legitimacy-rich" approach to national citizen lawmaking has been very successful.

Kris Kobach claims that Switzerland has had tandem successes, both socially and economically, which are matched by only a few other nations. Kobach states at the end of his book, that observers too often deem Switzerland an oddity among political systems. It is more appropriate to regard it as a pioneer (Kobach, 1993).

We think that Swiss political system, as an example, will become very relevant for prevailing democratic deficit in the EU. As long as citizens of the EU don't feel that they can have an influence on making political decisions in the EU, democratic deficit will exist. The tendency towards greater citizen involvement and transparency within the EU is reflected in its accession to the Aarhus Convention. The aim of the Aarhus Convention is to strengthen the role of citizens and civil society organizations in environmental matters, based on the principles of participatory democracy (Vlajnić, Spasojević, 2023).

When it starts to create electoral system which will enable voting on municipality level and further control of work of elected members, discussions with them, and lifting the veil of secret negotiations between members, then problem of democratic deficit will simply disappear.

## FACEBOOK AND DIRECT DEMOCRACY

Facebook has started with work on 4. February 2004., and today is used by more than billion people on Earth. Idea of some students of Harvard about online community of friends with photos and profiles which they post alone, or idea about creation interactive virtual community parallel with social communities, which exist in real world, today is reality (Mezrih, 2010). It is very important to know that information which Facebook gets from users become property of Facebook, which can trade and get profit (Diligenski, Prlja, 2014). The most legal problems on Facebook are connected to right of privacy (Spasojević, Miladinovic Bogavac, 2018), protection of files and possibility of realization of right on legal protect. This questions are regulated by directives and primarily Directive of protection of files – Directive 95/46/EC, Directive of privacy and electronic communications – Directive 2002/58/EC, Directive which change Directive of privacy and electronic communications, Directive which also change Directive of privacy and electronic communication – Directive 2009/136/EC and Telekom package Directive – Directive 2009/140/EC.

For our hypothesis of using possibilities which Facebook guarantees for making easily process of elections for European Parliament, it is very important to analyze how ordinary citizen creates relation with Facebook, and why Facebook profile is necessary. Well, Facebook profile enables participation in Facebook community and consider respect for some rules, which are prescribed in Facebook rules of work, and abovementioned directives. So, proper question is not should ordinary citizen create Facebook



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profile, in spite of that, the question is whether an ordinary citizen leaves a Facebook community. The assumption is that he has freedom to access Facebook or not. This freedom should be kept, even when the election process starts to organize via Facebook. But if an ordinary citizen wants to leave a Facebook community, he has two options. The first option is deactivation of the profile, but the profile still stays un-erased. All files stay on Facebook servers and the user can easily retake the profile. But if someone wants to erase completely his/her profile, then it is necessary to send a request to the center for help and make a click to erase the profile. After that, Facebook needs to give confirmation. For this situation, there exists one interesting legal issue. If a user in the meantime logs into his profile, and an order for erasing the profile is sent, that request stops and automatically activates membership on this social network. For Facebook users, it is important Article 8 of the Charter of the European Union about basic rights, which regulates the right of protection of personal files. Specifically, it should note paragraph 2 of this article, which for revision of files is necessary with the previous approval of the holder of the files (Diligenski, Prlja, 2014).

But before all of this, it will be necessary to educate people in a sense to be informatically literate and parallel with that raising awareness of the importance of usage of social networks in the 21st century, in the context of elections for the European Parliament, about the importance of using Facebook as a mediator in a political process. People can enjoy their own rights and freedoms only if they know that they belong to them, if they are capable to recognize when rights are threatened or denied and at least, if they are ready to fight in a legal way for protection of their own rights (Jering, 1998).

For appropriate usage of social networks in political processes, it is necessary to exist neutrality of the internet network. For neutrality of the internet network, it is highly important to explain 5 aspects:

1. Internet as a global network is made that it is possible freely to spread and accept information. Beside that, the internet is a moving force of the economy in the 21st century, mostly because of business which is arranged by this network. The internet is a bridge which connects communication among people (Diligenski, Prlja, 2014).
2. For using of the internet network and that network have to be on an optimal level for using, it is necessary constantly to invest in equipment and capacities of the internet network. Those costs are covered by internet service providers.
3. The state should be a regulator of all of these relations and it is that, which should enable a fair-game on the market. The state is also, in European legal systems, a protector of human rights, and before all the right of privacy and secrecy of electronic communication. Simultaneously, the state must not excessively intervene in private legal relationships where the principle of autonomy of will is dominant (Rašević, Vlajnić, 2022). But it is also very important that states shouldn't violate the right on privacy, even though in this time, secret services can open profiles in order to search criminals or to prevent execution of some criminal act (Diligenski, Prlja, 2014).
4. Individuals are the next important element of this relation, which the state has to enable free expansion and acceptance of information. This right is guaranteed in a way of the right on free opinion and expression. It is regulated in article 10 of the European Convention of Human Rights and article 11 of the Charter of Fundamental Human Rights of the EU. It is based also on money which individuals invest through salaries and taxes in the infrastructure of the network. All these guarantees are related on guarantees from the state to individuals. The private sector is not considered and it is left that its relations to individuals regulate by contract law (Prlja, Diligenski, 2011).
5. Facebook in this context is a mediator or better, a regulator which enables easily and quicker acceptance and sending of information on the internet network and communication among individuals. It is important to say that Facebook has some elements of statehood, but it misses complete infrastructure, and that is the internet network (Diligenski, Prlja, 2014).





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By all odds, politics and law are apparently politics and law are in great backlog about the rest of the technology, but also the basic principles that have made the modern state no longer able to follow the development of the Internet and the flow of information. It seems that though after all the above circumstances and in the case of Facebook, ultimately happen to people (Diligenski, Prlja, 2014).

This is one additional argument to our hypothesis. It is obvious that political regimes of representative democracies are not able any more to cover their faults against development of social networks, who unveiled all mistakes of that regimes. Also communication between citizens in each country, specifically in European countries, and of course, in EU, has become more faster and it will definitely produce process of political reforms. If old political institutions are not capable to sustain normal political life in the community they should be changed. We will stay only on institution of elections for European Parliament, but this new political regime will shake all institutions of EU and cause great political reshaping, and inevitably change source of political power. Political elite won't be in a position to control life of ordinary citizens. In spite of that, ordinary citizens will control political elite. But precondition of all political reforms is education of people for using social networks and raising awareness of necessary to make an influence on political decisions. It can be seen that this process is going in a proper direction, but not fast enough.

Definitely, changing of election process will be first, but very huge step in sense of reshaping political regime in the EU. Direct democracy will become very soon reality, with all its advantages. Direct democracy is not history, direct democracy is future.

## **ELECTIONS FOR EUROPEAN PARLIAMENT AND DIRECT DEMOCRACY VIA FACEBOOK AND X NETWORKS**

Political system of the European Union is the most developing political system in the world. So, it will be very logical to expect that election process for European Parliament will become very soon digitalized, and probably become quicker with using Facebook as a mediator. But those elections won't be only relation between citizens and politicians. Tweeter and Facebook will enable constant pressure on governing elite and constant interest of citizens for decisions of European institutions. In that sense, this proposal will be step forward in the future, because electoral voting is not new idea, but using of two greatest social networks in political process is definitely something new.

So, it is very important to note that Facebook will be used for electoral process, and Tweeter will be used after elections for discussion between member of European Parliament and his/her voters from electoral unit, where he was elected.

European Union started with this process in 2010 with e-Government Action Plan i2010. It provides electoral voting as a future of EU. ICT have great potential to involve large numbers of citizens in public debate and decision-making. Indeed, 65 percent of respondents to an on-line eGovernment policy poll considered that on-line democracy (e-Democracy) can help reduce democratic deficits. To encourage this potential, the Action Plan proposes support for projects which enhance the use of ICT with the aim of increasing public involvement in the democratic process (Communication from the Commission, 2006).

In the meantime, we are completely sure that process of federalization of European Union will speed up, mostly because of necessary for European states to have better position in economic, military and political temptations in the 21st century. In that reason, political elites will have to redistribute power to citizens, which is only possible with reframing electoral process in a two abovementioned ways. First is implementing electoral voting and second is creating direct democracy as a political regime.



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Possible solution for this problem can be forming type of elections, which will put Member States in the same position. It means if in the EU exists 27 Member States, then they will have to give the same number of members to the European Parliament. This will be step forward to process of federalization of the EU. It can be process of reshaping discrepancies between Member States and it will look like on a U.S. system, where it is not important, which state is rich, or which is poor, or which state has more inhabitants. And also those members, who will be elected, should be elected on a majority principle. Nevertheless, which parties they belong, it will give more power to citizens to elect member, who has moral dignity, knowledge and who will represent them on a right way.

And if that kind of election will be established, than role of social networks will be very important, not only for voting during election process, but also for control of member during its mandate. It will be necessary to create Facebook groups where members will be chosen member of European Parliament, and all voters from his electoral unit. This group will have role to discover what are actions of that member and how him/her see political decisions made in European Parliament. Also it will be necessary for member and all voters from that electoral unit to have profiles on Tweeter, where it will be possible for him/her to discuss with his voters, and not only with them, but to all who will be interested in his actions and his opinions.

This type of elections and political regime will surely prevail huge problem called democratic deficit. Professor Hix expressed that it is necessary to resolve problem of democratic deficit and to allow that answer on this question will be given through ideological fight, respectively confronting ideas (Hix, 2006).

Decisions are adopted by absolute majority presented and voted, while for quorum is necessary to have at least one third of whole members of Parliament. So, decisions of this body can be adopted from very small number of members (Hix, 2006).

It is necessary to mention how political parties will react on this proposal. Definitely this type of electoral process will diminish their power. But, it will push them to choose the best people from each electoral unit for membership in their parties. So, competition in that sense will produce that members of European Parliament will be the best possible people. We think that two main conditions should be placed. First is education, and second is moral dignity. It is not impossible to fulfil those two conditions, especially because people mostly know each other in small communities, but for someone who they don't know biographies of candidates should be published online and available for each one to know as much as possible about who is the best representative of their community. But after elections no matter from which party, member of European Parliament was chosen, he/she will be obliged to represent all citizens of that particular community. And that will be good test for approvation of his/her honesty and loyalty to its community. This provisions will encourage ordinary citizens to involve more in political life in the EU, especially in the work of European Parliament. And when they realize that all of them have they same task, to unit Europe in order to create and preserve economic, political and cultural freedoms, citizens will change their national, particular or separatist views. Despite of that, using of social networks, expanding tourism and educational exchanges between young pupils and students, will be strong barrier to any hate, and will found proposal of making European nation. This should be primary aim for European citizens in the 21st century.

## CONCLUSION

The European Parliament's role in the Community's legislative procedure has increased from having, initially, no role what so ever, to having a consultative role, to being a co-legislator with the Council. Parliament has demonstrated its ability to initiate new legislation in areas of concern to the public, to



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force substantial amendments to major legislative proposals and to oblige the Council to review important elements of several of the common positions it has adopted. The European Parliament is now a clearly identifiable part of an institutional triangle. This fact in itself is remarkable in historical terms. The term institutional triangle was virtually unused two decades ago when most commentators referred to a bicephalous Community made up of the Commission and the Council. Now the argument is rather one about preserving and developing the equal status that the Parliament has won with regard to the other two institutions and of making European electorates aware of the contribution that the Parliament is increasingly making to the content of European laws (Corbett et al., 2005, p. 237). Considering that its legislative power does not belong in its entirety to the implementation of financial jurisdictions depends on the nature of expenditure and the implementation of control jurisdiction doesn't have enough possibilities to influence both the Commission and on the Council of Ministers, it can be concluded that the European Parliament isn't the parliament with role that this body has in the national state. This fact should not be interpreted as a lack of this institution. Because it shouldn't been lost sight that this is a body of an international organization.

On the other hand, there is a huge tendency of citizens of the EU to have an institutions which will have democratic legitimacy, an institution which will have political power to solve problems. About importance of this body, professor Kosutic claims that this body becomes, and in the future will be more important than it is now. As a proof of this statement, he gave an example of situation that happened when Jose Manuel Baroso had to be elected for president of the European Commission in 2004. In that time „two national governments were forced to change firstly suggested candidates for members of Commission because Parliament had negative opinion about candidate of Italian government Roco Boutiglione because of his statements about homosexuality, candidate of Latvia Ingridi Udre because corruption in her party in Latvia and Laslo Kovac as insufficiently qualified for resor of energetics in European Union (Košutić, 2008). If assumption that EU will make to integrate political processes on supranational level, strengthening of control and the introduction of legislative competence of the European Parliament, can be anticipated its transformation into Home nations, bicameral representative body, with the simultaneous inauguration of the Council in the Home state. Then there would be no obstacles for the Commission to assume the position of executive authorities becoming so fully accountable to the European Parliament.

Beside this process of developing of European Parliament, process of development of social networks is much quicker. In context of election process for European Parliament, Facebook will have very important role. It can be mediator, for implementation new political regime called direct democracy and prevailing huge problem of EU called democratic deficit. This type of election process will increase influence of citizens of EU on political elite, reduce power of that elite and make higher legitimacy of the most representative body in European institutions.

## REFERENCES

- Budge, I. (1996). *The new challenges of direct democracy*. Blackwell Publishers, Cambridge
- Communication from the Commission.(2006). *i2010 eGovernment Action Plan – Accelerating eGovernment in Europe for the Benefit of All*. Retrieved June 14, 2024, from <http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=URISERV:I24226j>
- Corbett, R., Jacobs, F., & Shackleton, M. (2005). *The European Parliament*. Harper, Palatine.
- Diligenski, A., Prlja, D. (2014). *Fejsbuk i pravo*. Institut za uporedno parvo, Beograd



## Conference Proceedings

- Held, D. (1987). *Models of democracy*. Polity press, Cambridge.
- Hix, S. (2006). Why the EU needs(Left-Right) Politics? Policy reform and Accountability are impossible without it. *Notre Europe*, 19, 2-28.
- Jering, R. (1998). *Borba za pravo*. Pravni fakultet Univerziteta u Beogradu, Beograd.
- Kobach, K. W. (1993). *The Referendum: Direct Democracy In Switzerland*. Dartmouth Publishing Company, Yale.
- Košutić, B. (2008). *Uvod u velike pravne sisteme današnjice*. Pravni fakultet Univerziteta u Beogradu, Beograd.
- Mansbridge, J.J. (1983). *Beyond adversary democracy*. University Press, Chicago.
- Marx, K., Engels, F. (1975). *Marx & Engels Collected Works Vol 03: Marx and Engels: 1843-1844*. Lawrence & Wishart, London
- Marx, K., Engels, F. (1969). *The Manifesto of the Communist Party in Marx/Engels Selected Works Vol. I*. Progress Publishers, Moscow.
- Mezrih, B. (2010). *Slučajni milijarder: nastajanje Fejsbuka*. Evro-Giunti, Beograd.
- Polan, A.J. (1984). *Lenin and the End of politics*. California Press, Oakland.
- Prlja, D., Diligenski, A. (2011). Pravni aspekti neutralnosti internet mreže. *Strani pravni život*, 3, 124-140.
- Raaflaub, A.K., Ober, J., Wallace, R.W. (2007). *Origins of Democracy in Ancient Greece*. University of California Press, Berkeley.
- Rašević, Ž., Vlajnić, J. (2022). Novela Zakona o zabrani diskriminacije – korak napred? *Trendovi u poslovanju*, 19, 109-117.
- Rousseau, J.J. (1968). *The Social Contract*. Penguin, Harmondsworth.
- Slater, J. (2013). The Swiss vote more than any other country. Retrieved June 14, 2024, from [http://www.swissinfo.ch/directdemocracy/checks-and-balances\\_the-swiss-vote-more-than-any-other-country/36286970](http://www.swissinfo.ch/directdemocracy/checks-and-balances_the-swiss-vote-more-than-any-other-country/36286970)
- Smith, G. (2009). *Democratic Innovations: Designing Institutions for Citizen Participation (Theories of Institutional Design)*. Cambridge University Press, Cambridge.
- Spasojević, Đ., Miladinović Bogavac, Ž. (2018). Maloletnici kao žrtve krivičnih dela učinjenih zloupotrebom računarske mreže. *Trendovi u poslovanju*, 12, 61-70.
- Vlajnić, J., Spasojević, Đ. (2023). Procedural legitimation of private parties before the Court of Justice of the EU in the light of Carvalho case. *International Review*, 3-4, 239-247.



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# INTENSITY AND PROSPECT OF SMALLHOLDERS' POTATO COMMERCIALIZATION IN SOUTHERN ETHIOPIA: EVIDENCE FROM GAMO ZONE

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DOI: 10.5937/EEE24072T  
JEL: O10, P25, P32  
Original Scientific Paper

## ABSTRACT

*Ethiopia has set agricultural commercialization as one of the policy priorities to transit from subsistence-oriented agriculture to commercialized one, which could ensure stable livelihoods for both producers and consumers. Despite this, much of the country's crop production, particularly tuber crops, is still subsistence-based. Potato is the leading tuber crop in Ethiopia in terms of its production capacity, productivity, and market demand, and its commercialization could significantly impact the policy. Thus, this study aimed to analyze the determinants and prospects of the intensity of potato commercialization. Data for the study was gathered from 255 smallholder potato producers using multistage sampling techniques. The inferential statistics with Tobit regression and thematic content analysis were used to analyze quantitative and qualitative data. The findings depict that formal education, the number of oxen, the proportion of land dedicated to potatoes, potato output, contact with extension services, cooperative membership and accessibility to irrigation water significantly increase the intensity of potato commercialization while distance to market and paved road have a negative impact. The potential for future improvements in potato commercialization depends on the exploitation of existing opportunities, including farmers' production skills, agroecology, the government focuses on agriculture, water availability and NGO intervention from the production side, increased market outlets, higher market demand and local knowledge of post-harvest management from the consumption side. The government and other initiatives must focus on extension services, cooperative farming, market and road accessibility, and utilizing the identified opportunities.*

## KEYWORDS

*potato output commercialization, prospect, mixed research method, tobit model, Ethiopia*

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# INTRODUCTION

In many developing nations, including Ethiopia, smallholder agriculture is vital in fulfilling food needs and stimulating economic growth (Zhou et al., 2013, Ferris et al., 2014). Nevertheless, one of the strong arguments in smallholder agriculture is the necessity of increasing the involvement of smallholder farmers in the market and food supply chain, which primarily depends on the commercialization of their agricultural production (Madhin, 2009, Mudhara, 2010, Radović-Marković, 2010, Okezie et al., 2012). The possible drivers of this necessity comprise the size of the population, urbanization, growth of the non-farm sector, increasing domestic and foreign trade demands and related circumstances (Berhanu, Moti, 2010). Moreover, commercializing crops is integral to changing agriculture via heightened productivity, facilitating economic diversification and accelerated economic expansion (Barrett, 2008, Yaseen, 2018, Raj, Hall, 2020, Shajahan, Radović-Marković, Manohar, 2024).

In Ethiopia, though smallholder agriculture has a considerable influence on Ethiopian food production and economic growth (Zerssa et al., 2021), most smallholder farmers in the country are unconnected from the market, and a majority of them market less than 50% of their crops (Abafita et al., 2016). Several problems obstruct commercializing smallholder agriculture in Ethiopia, such as inadequate infrastructure, inefficient marketplaces, land deterioration, and a rapidly expanding population. Consequently, smallholder farmers' integration into the market has become a primary goal of Ethiopia's policy agenda to transform its subsistence agriculture system, make progress out of poverty, and sustainable agricultural development (Gebre-Selassie, Bekele, 2012b, ATA, 2016). For instance, Ethiopia's Growth and Transformation Programs (GTP-I and GTP-II) have recently sought to construct Integrated Agro-industrial Parks (IAIPs) to bridge the gap between the agricultural sector and increase the value of basic agrarian goods.

Of the tuber crops, Potato (*Solanum tuberosum* L.) is the key source of food and income in Ethiopia's highlands (Geburu et al., 2017). This crop can be cultivated on about 70% of Ethiopia's arable land (Hirpa et al. 2010, Tadesse et al. 2018). The data from the Central Statistical Agency (CSA) from 2014-2019 show that potato covers about 41.14% of the total area of root and tuber crops and 29.9% of the total production. This is likely attributed to the high yield in a short season, ideal agroecology, accessible labour in the country's highlands, and market demand.

The commercialization of potatoes (in this paper, the share of the value of potato output that is marketed is usually the standard form of agricultural commercialization that can also reveal production decisions in response to market signals, therefore integrating the input dimension of commercialization (Pingali, 1997). The excellent benchmark for the commercialization of potatoes in the country is an increasing demand for fresh potatoes in the domestic market and food processing industry and the current international market conditions characterized by high prices for cereals (Gildemacher et al., 2009; AgroBIG, 2016)., the potato produced in the country is being exported to regional markets like Djibouti, Somalia, and Middle East countries (Fekadu, Dandena, 2006, EHDA, 2011). For instance, out % of the total volume of potatoes marketed to Somalia, 75% is supplied from East Hararge and 25% from the central part of Ethiopia (Aman et al., 2014).

Despite the evidence mentioned above, the commercialization of potatoes by smallholders to fulfil both local and regional markets is neither satisfactory nor stable, indicating the necessity for more efforts to reduce the difference between the accessible supply and the demand in local and regional markets (Mahlet et al., 2015). Potatoes have been overlooked in agricultural marketing strategies, particularly in the study area, as it is commonly deemed a bulky, perishable commodity with expensive transportation costs and limited export potential, typically restricted to cross-border transactions (Daniel, 2020).



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Previous studies in varying parts of Ethiopia (Mesfin et al., 2014, Gebru et al., 2017, Seifu, Eshetu, 2017, Biniam et al., 2019, Daniel, 2020) was conducted regarding the adoption of new potato varieties and production. Nevertheless, despite emphasizing the acceptance and generation of potatoes, none of these studies has focused on the status, degree, and likelihood of commercializing it.

Additionally, while evaluating other studies concerning the commercialization of potatoes (Sebatta et al., 2014, Kumilachew, 2016, Hagos, Geta, 2016, Asfaw, 2020), a considerable number of gaps were noticed, which the present research endeavoured to fill. Examples include the minimal sample size and missing important socioeconomic variables which affect smallholders' potato commercialization, such as credit amount, access to irrigation, mobile phone ownership, and product volume. Furthermore, this study provides insights to local decision-makers, planners, and practitioners in setting priorities for agricultural investment, resource allocation, market stability, and poverty reduction.

## CONCEPTUAL FRAMEWORK AND MEASUREMENT OF COMMERCIALIZATION INTENSITY

Commercialization of agriculture takes many forms and is defined in different ways. Its meaning goes beyond supplying surplus products to markets; it has to consider both the input and output sides of production and the decision-making behaviour of farm households in production and marketing simultaneously (Pingali, 1997, Von Braun et al., 1994). Moreover, commercialization is not restricted only to cash crops as traditional food crops are also frequently marketed to a considerable extent (Berhanu et al., 2006).

However, the core of most definitions of agricultural commercialization is the degree of participation in the output market, focusing on earning cash incomes (Strasberg et al., 1999; Von Braun, 1994). According to these authors, commercialization supplies a higher amount or percentage of surplus products to the market. Because as illustrated by Pingali (1997), one component of agricultural commercialization (use of purchased inputs) is likely to proceed in tandem with the degree of participation in output markets. Based on this adopted definition, a more comprehensive Household Commercialization Index (HCI) was used to compute potato commercialization's intensity. Mathematically, HCI is expressed as:

$$HCI = \frac{\text{Gross value of potato sold by } i^{\text{th}} \text{ household in year } j}{\text{Gross value of potato produced by } i^{\text{th}} \text{ household in year } j} * 100 \quad (1)$$

where:

HCI = commercialization index of  $i^{\text{th}}$  household in potato sales expressed as a percentage.

The commercialization process is, undoubtedly, a long, drawn-out process that occurs along a commercial pathway from 0-1. A value closer to 0 indicates subsistence farmers, and a value closer to 1 implies fully commercialized farmers (Govereh et al., 1999).

The Conceptual Framework of this study is meant to describe key causal relationships between the intensity of potato commercialization measured by HCI and the different socio-demographic, economic, institutional, and physical factors.



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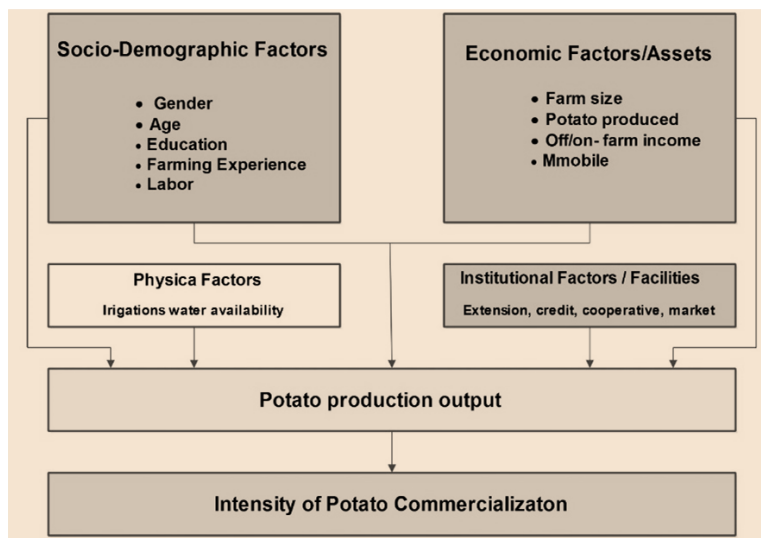


Figure 1. Conceptual work of the study

## RESEARCH METHODOLOGY

### Study area

The study was conducted in the Gamo Zone, one Zone in Southern nations, nationalities, and peoples' region, Ethiopia, located at 6°15'N latitude and 37°E longitude. The Zone has a total area of 6460.11 km<sup>2</sup> and consists of 14 districts, and the elevation of the Zone ranges from 600 to 3300 msl. The land's topography characterizes an undulating feature that favours the existence of different climatic zones in the area. The current total population of the Zone is estimated to be 1,597,767, with a population density of 80 inhabitants per square kilometer (Figure 2). The Zone has tremendous potential for Irish potato production and is crucial in ensuring market food supply. Different potato varieties include Gudenie, Degemegn, Belete, Jalene, and Tolicha, and a local variety named Asmera is produced and marketed in the area (CSA, 2016).

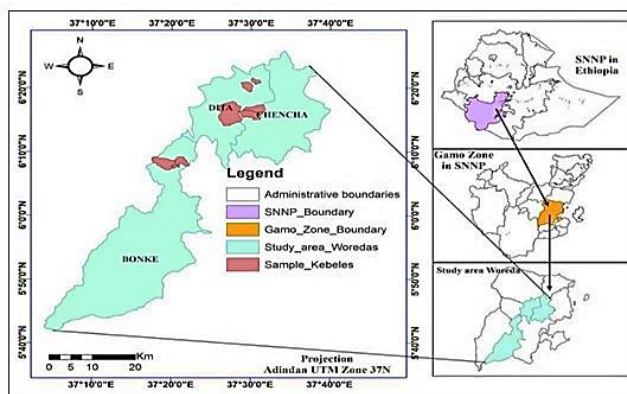


Figure 2. Location map of the study area.  
Source: Authors sketch using Ethio GIS data





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### Research design and sampling technique

The research followed a cross-sectional survey design of quantitative and qualitative data for 2022. Four-stage sampling techniques with a combination of probability and non-probability sampling techniques were utilized to reach the final sample respondents. First, the Gamo zone was selected purposely based on potato production experience and the authors' previous exposure and understanding of the problem when working in the area. Second, the target districts (Bonke, Dita, and Chencha) were selected purposely based on their high potential for potato market supply. In the third stage, two sample potato-growing kebeles from each district (Yela and Chosha from Bonke, GanaKare and Kodo from Dita, and Yoyra and Dambo from Chencha) were selected randomly).

Then, the sample size from the sampling unit,  $N=4599$ , was determined using the Kothari formula in equation 2 below.

$$n = \frac{z^2 pq N}{e^2(N-1) + z^2 pq} = \frac{(1.96)^2(0.5)(0.5)(4599)}{(0.05)^2(4599-1) + (1.96)^2(0.5)(0.5)} \approx 355 \quad (2)$$

where:

$n$  – is the sample size,

$Z$  – is the standard cumulative distribution that corresponds to the level of confidence with the value of 1.96,

$e$  – is desired level of precision,

$p$  – is the estimated proportion of an attribute present in the population with the value of 0.5 as suggested by Kothari (2004) to get the desired minimum sample size of households at 95% confidence level and  $\pm 5\%$  precision;  $q = 1-p$ , and

$N$  – is the size of the total population (sampling unit) from which the sample is drawn.

Then,  $n$  is redistributed to each Kebele via probability proportion to size.

Finally, a systematic random sampling technique was applied (equation 3), which has specific plus points and can be taken as an improvement over a simple random sample as it spreads more evenly over the entire population (Kothari, 2004).

$$K = \frac{N}{n} \quad (3)$$

Where:

$K$  – is the interval among which the first sample is to be drawn using the lottery method,

$N$  – is the total number of households in each sample Kebele, and

$n$  – is the total sample size allocated for each sample Kebele.

Thus, the 1<sup>st</sup> subject was selected randomly, and every  $k$ th subject from the sampling frame was included until the determined sample size was reached.

The study also applied the same sampling procedure of selecting the study zone, sample districts, and kebeles to select the final focus group, discussants, and key informants. Finally, Focus Group Discussants (FGDs) and Key Informants were considered the non-sampled respondents to whom



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the qualitative data was conducted in the sampled Kebeles using the Checklists. In total, 3 FGDs, each consisting of 8 discussants (2 kebele leaders, 2 development agents, 2 male-headed and 2 female-headed potato producers). The key informant interview (KII) was conducted with experts from districts' agricultural offices, Trade and Industry Development offices, cooperative offices, and selected potato producers).

### Data sources, types, and collection methods

To achieve the stated objectives, both qualitative and quantitative data were collected from primary sources (respondents) and secondary sources (reports of Districts and Zonal governments, statistical information, published theses and dissertations, and journal articles). The collected data from these sources include detailed socioeconomic and demographic characteristics of the respondents, data on potato output market participation, indicators for prospects of potato commercialization, gross volume and value of potatoes produced and sold per household per year, and others.

The quantitative data were collected using a semi-structured questionnaire administered by well-trained enumerators (2 from each Kebele) and the researchers. And the qualitative data were collected using Focus Group Discussions (FGDs) and Key Informant Interviews (KII). Here, open-ended questions were explicitly prepared for an in-depth understanding of the qualitative responses and opinions that supplement and triangulate quantitative data.

### Analysis Methods

The descriptive statistics, frequency, percentage, mean, and standard deviation were used to describe and summarize the demographic and socioeconomic characteristics of the respondents. And the inferential statistics, T-test, and  $\chi^2$ -test were applied to compare the mean and proportion difference of continuous and discrete explanatory variables, respectively.

To examine determinants of intensity of potato commercialization, models like Tobit and Heckman's two-stage and double hurdle models are the competing models. However, the econometric model specification relies on the variable's nature, the study's purpose, and the type of data available (Komarek, 2010). Thus, our dependent variable, the intensity of potato commercialization measured by HCI, is censored. Because some of its values cluster at the limit, i.e., 0 for subsistence potato producers and 100 for fully potato commercialized farmers. Hence, the censored regression model, Tobit, is an option for handling this limited dependent variable. The general formula for defining Tobit is as follows:

$$Y_i^* = \beta_i x_i + \varepsilon_i \quad (4)$$

where:

$y_i^*$  – a latent variable, which is unobserved for values less than 0 and greater than 100 that represent subsistence or fully commercial index,

$x_i$  – is a vector of independent variables, which includes factors affecting the intensity of potato of commercialization,

$B$  – a vector of unknown parameters to be estimated,



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$\varepsilon_i$  – a disturbance term assumed to be normally distributed with zero mean and constant variance  $\sigma^2$ , and

$i = 1, 2, 3 \dots n$  ( $n =$  the number of observations).

Given the observed dependent variable commercialization index ( $y_i$ ), The Tobit model is specified as follows:

$$y_i = \begin{cases} 0 & \text{if } y_i^* \leq 0 \\ y^* & \text{if } y_i^* > 0 \end{cases} \quad (5)$$

The Tobit model is estimated using maximum likelihood estimations. However, the  $i$ th coefficients can't be interpreted directly as estimates of the magnitude of marginal effects of changes in the explanatory variables on the expected value of the dependent variable because there are three main conditional expectations of interest in the Tobit model. These are the conditional expectation of the underlying latent variable ( $y^*$ ); the conditional expectation of the observed dependent variable ( $y$ ); and the conditional expectations of the uncensored observed dependent variable ( $y_j, y > 0$ ).

Following (McDonald, Moffitt, 1980, Greene, 1997), the marginal effects of these conditional expectations, respectively, are given as:

$$\frac{\partial E(y^*/x)}{\partial x} = \beta \quad (6)$$

$$\frac{\partial E(y/x)}{\partial x} = \beta \Phi \left( \frac{x\beta}{\sigma} \right) \quad (7)$$

$$\frac{\partial \Pr(y > 0/x)}{\partial x} = \Phi \left( \frac{x\beta}{\sigma} \right) \frac{\partial}{\partial \beta} \quad (8)$$

The interpretations of these marginal effects depend on the point of interest based on the focus of the study (Greene, 2003). The researcher is interested in the average population of the study and how those values vary with covariates; hence, equation 6 was used.

**The study's qualitative data was recorded and transcribed and afterwards analyzed through thematic content analysis, emphasizing** identifying, analyzing, and interpreting patterns of meaning or themes argued by FGDs and KIIs (Alhojailan, 2012).

## DESCRIPTION OF VARIABLES

The following explanatory variables (Table 1) were included in the study to explain the dependent variable based on their theoretical and empirical backgrounds and the context of the study area.

Table 1. Description of the Variables and Hypothesis

No	Variables	Variable type	Measurement	Expected sign
<b>Dependent variable</b>				
1	Intensity of potato commercialization	Censored	HCI in percent	



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Explanatory variables				
2	Gender	Dummy	1. Male, 0 Otherwise	-
3	Age	Continuous	Year	-
4	Education level	Continuous	Year of schooling	+
5	Household labor size	Continuous	AE	+
6	Potato farming experience	Continuous	Year	+
7	Oxen	Continuous	Number	+
8	Land cultivated for potato	Continuous	Hectare	+
9	Potato production volume /year	Continuous	Kg	+
10	Off/Non-farm income	Continuous	Birr	-
11	Extension contact	Continuous	Frequency	+
12	Distance to the nearest market	Continuous	Hour	-
13	Distance to the main paved road	Continuous	Hour	-
14	Cooperative membership	Dummy	1 member, 0 not member	+
15	Credit amount	Continuous	Birr	+
16	Mobile ownership	Dummy	1 owned, 0 otherwise	+
17	Irrigation water accessibility	Dummy	1 accessible, 0 otherwise	+

## RESULTS AND DISCUSSION

### Statistical summary of explanatory variables concerning potato output market participation

Of the total surveyed households, the proportion of potato output market participants was 238 (67%), and non-participants were 117(33%), meaning that in the study area, the current status of potato market participation is increasing and it needs to investigation on the intensity of potato commercialization.

The summary of continuous variables in Table 2 below depicts that the mean year of formal education for potato output market participants was higher (3.98 years) than that of non-participants (1.06 years). The mean difference was statistically significant at a 5% level. The mean farming experience in years for market participants was longer (2.08 years) compared to the non-participants' (1.28 years), with a statistically significant difference at a 1% level. Also, the mean proportion of land for potato farming and the mean potato product in a kilogram of market participants were higher (1.38 ha and 2480 Kg/year) than the non-participants' (0.86 ha and (1230 Kg/year, respectively). These variables had a significant mean difference between the two categories at 1% and 5%, respectively. Owning more oxen enabled potato producers to participate in the market (1.34) than owning fewer oxen (0.9), and the mean difference was statistically significant at a 1% level. Potato producers in the area receive credit from private and governmental sources, and the mean credit in Birr received by potato market participants was more significant (3185.00) than non-participants (1887.6).

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Moreover, the market participants had more frequent visits to the extension agents (1.41 times/month) than the non-participants (0.85/month), with a significant difference of 1%. In contrast to the variables mentioned above, the mean distance of the closest market and main paved road for potato market participants takes less time to travel (1.82 and 1.06) than the non-participants (2.57 and 2.91). The mean difference of these variables for the two groups was statistically significant at 1% and 5% levels, respectively.

Table 2. Respondents' characteristics (Continuous Variables)

Categories of Variables	Participants (238)		Non-participants (117)		t-value
	Mean	SD	Mean	SD	
Age	40.02	7.7	42.61	8.40	-2.332
Education years	3.98	2.32	1.06	0.99	2.198**
Household labor size	3.16	1.19	2.07	1.01	-2.756
Potato farming experience	2.08	1.98	1.28	1.29	3.177***
Off/non-farm income	4437.72	3404.91	3419.28	2124.66	-0.099
Proportion of land for potato	1.38	0.99	0.86	0.62	4.009***
Number of oxen	1.34	0.74	0.9	0.55	2.748***
Credit amount	3185.0	534.4	1887.6	472.2	1.799*
Potato product volume	2480	1949	1230	819	2.594**
Distance from the closest market	1.82	0.99	2.57	1.0	-5.406***
Distance from the paved main road	1.06	0.71	2.91	0.81	-2.297**
Frequency of extension contact	1.41	0.91	0.85	0.71	4.399***

Source: Field Survey, 2022.

The summary of discrete variables in Table 3 below indicates that the proportion of cooperative members in the potato market participant category was higher (44.3%) than the proportion of cooperatives in the non-participants (31.4%). And the more significant proportion of potato market participants (68.6 %) was accessible to the irrigation water source compared to non-participants (31.0%). The  $\chi^2$ -test result shows a significant proportion difference between these two variables at 1 and 5 % significance levels, respectively, between the participants and non-participants.

Table 3. Respondents' characteristics (Discrete Variables)

Variables	Categories	Participants (238)	Non-participants (117)	$\chi^2$ -value
		%	%	
Household head gender	Female	23.5	27.1	0.296
	Male	76.5	72.9	
Mobile ownership	No	40	55.7	5.082
	Yes	60	44.3	
Cooperative membership	No	55.7	67.7	2.757**
	Yes	44.3	32.3	
Irrigation water accessibility	Not accessible	31.4	49.0	2.801**
	Accessible	68.6	31.0	

Source: Field Survey, 2022.



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As a result, presented in Table 4 below, the mean HCI of potato farmers was found to be 34%. Most potato farmers (43%) in the area are situated at the transition line (semi-commercialized); thus, on average, they supply 42.4% of their total annual potato output. The two extremes, subsistence, and fully commercialized potato farmers, supplied 6.12 % and 71.7% of their total annual potato output. Generally, the figures from the result indicated that, in the study area, the commercialization pathway of potato producers stretched from subsistence to full commercialization.

Table 4. Intensity of Potato Commercialization (Descriptive result)

Intensity of Commercialization	Observation	%	Mean HCI
Subsistence (0-0.25)	138	39	0.06
Transition (0.26- 0.50)	150	42	0.43
Fully commercialized (0.51-1)	67	19	0.72
Total	355	100	0.34

Source: Field survey, 2022.

## Determinants of the Intensity of Potato Commercialization

Out of the 355 sample households, 117 (33%) did not sell their potato product even if produced in the 2022 production year, and the data was censored. The model result presented in Table 5 below indicates that the goodness of fit of the Tobit model was statistically significant at a 1 % significance level (i.e.,  $\chi^2 = 175.05^{***}$ ). Thus, out of 16 explanatory variables used in the model, 9 were found to be statistically significant and discussed as follows:

**Formal Education** is positively and significantly associated with the intensity of potato commercialization. The marginal effect analysis indicates that a 1-year increase in households' education would increase their likelihood of being commercialized by 2.76%, *ceteris paribus*. The focus group discussants argued that educated farmers in the study area are more eager to use agricultural inputs like improved potato seeds and fertilizers. They also easily understand the costs and benefits of their farming activity and shift from cereal production to potato and other vegetable production. In contrast to this finding, Lighton and Emmanuel (2016) found that the education status achieved by the farmers increases the probability of shunning rural agricultural life and instead opting for higher, faster-paying professions.

**Land Allocated** for potato production has a positive and significant influence on the intensity of potato commercialization. A 1 additional hectare of potato production land would increase commercialization intensity by 2.3%, *ceteris paribus*. **The FGDs' result also justified that** farmers who cultivate large land sizes for potatoes in the area had a sound output, and their likelihood to be transitioned and commercial farmers increased.

Moreover, the key informants informed that as farmers produce a particular crop on a large land, their probability of losing product by different risks decreases, and they gain more benefits and can participate in the market more easily than their counterfactual producers. This finding is consistent with Assefa et al. (2019) and Meleaku et al. (2020).

**Oxen** number is also one of the significant factors that influence the intensity of potato commercialization. Thus, a 1 unit increase in the number of oxen would increase the intensity of commercialization by 4.1 %, *ceteris paribus*. One member of the FGD reported that "Oxen are the major source of traction power in the study area, and farmers with two (pair) and more *oxen could cultivate their own land and other farmers' land for share production that resulted in increased output.*" The result is consistent with the finding of Birara et al. (2020).



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Also, the quantity of potato output is positively and significantly associated with the intensity of potato commercialization. For each kilogram increase of potato product, *ceteris paribus*, the households would be 0.5% more likely to be commercialized. This result is also consistent with the finding of Birara et al. (2020).

**Extension Contact:** Frequency of extension contact is positively and significantly associated with the intensity of potato commercialization. Each additional contact per month of potato producers to the extension agents, *ceteris paribus*, would increase the likelihood of their potato commercialization by 3.37%. The FGDs also argued that farmers who frequently visit the extension agents had improved their know-how on the benefits of producing potatoes for more than home consumption purposes. Compared to their counterparts, they use improved potato seed, chemical fertilizer, and animal dung.

**Cooperative Membership** also positively and significantly affects the intensity of potato commercialization. The marginal effect results depict that being a member of a cooperative, *ceteris paribus*, would increase the probability of farmers' potato commercialization by 1.85%. The evidence from key informants shows that farmer's involvement in cooperatives, particularly potato cooperatives established by the VITA organization, savings and credit cooperatives established by the government, and women's self-help groups established by the HOPE organization in the area enabled their information sharing among the co-members and as a source of initial capital to produce and commercialize potato.

Table 5. Tobit result on determinants of intensity of potato commercialization

Variables	Coefficient	Std. Err.	T	P> t	dy/dx
Gender of household head	.0895981	.0324578	1.53	0.128	.0339791
Age of household head	-.0001808	.0019582	-0.09	0.927	-.0001239
Education level	.0403306***	.0119185	3.38	0.001	.02763
Potato farming experience	.00186977	.0091063	2.05	0.41	.0128096
Household labor size	.0340724	.0132957	2.56	0.12	.0233426
Off/non-farm income	-.0000142	.000011	-1.30	0.196	-9.76e-06
Proportion of potato farmland	.0339975*	.0190551	1.78	0.076	.0232913
Oxen number	.0601494***	.0205356	2.93	0.004	.0412077
Credit amount	.0000385	.0000311	1.24	0.217	.0000263
Potato product volume	.07021***	.0017936	3.91	0.000	.00481
Distance from main paved road	-.0286955**	.0198734	-1.44	0.015	-.00921
Distance from the closest market	-.0492482**	.0180469	-2.73	0.0201	-.019658
Frequency of extension contact	.0571792***	.0196359	2.91	0.004	.0337393
Mobile ownership	.00346442	.0315869	1.10	0.274	.0237343
Cooperative membership	.0271026**	.0318422	0.85	0.039	.0185677
Access to irrigation water	.0269346**	.0322231	0.84	0.040	.0184526
_cons	.0876208	.1189722	0.74	0.462	
/sigma	.2217455	.0123407			
Number of observations = 355, LR Prob> chi2 = 0.000, chi2 (16) = 175.05, Log-likelihood = -43.174248, Pseudo R <sup>2</sup> = 0.6697, 117 left-censored observations at IC <= 0, 238 uncensored observations and 0 right-censored observations.					

Note: \*\*\*, \*\*, and \* represents statistical significance at 10, 5, and 1%, respectively.

Source: Field survey, 2022.



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**Access to irrigation** water has a positive and significant influence on the intensity of potato commercialization. Being accessible to irrigation water sources, *ceteris paribus*, would increase the likelihood of farmers commercializing potatoes by 1.84%, indicating that some farmers have used small-scale irrigation by diverting water in traditional mechanisms from rivers. Some other farmers use motorized water pumps and rope pump irrigation technologies that enable them to intensify potato production. Similarly, Abineh (2021) found the positive effect of irrigation on agricultural commercialization.

In contrast to these factors, distance from the **main paved road** and distance from the **closest market** is positively and significantly associated with the intensity of potato commercialization. For an hour's additional journey to the main road and closest market, *ceteris paribus*, the probability of intensifying potato commercialization would decrease by 0.9% and 1.9 %, respectively. The FGDs argument supports this result: when farmers reside far from the main road and market, they cannot access both input and output market information; they fear the transportation cost since the potato output is bulky; consequently, they produce potatoes for only home consumption. Conversely, farmers closer to the main road are highly initiated in potato commercialization as they hope to transport their output from the farm.

### Prospect of Potato Commercialization

The prospects of crop commercialization vary across the country and from place to place, and it can be viewed mainly from production and consumption perspectives (Hailu et al., 2015, Yigezu, 2021). Hence, this paper was devoted to assessing and identifying potato commercialization prospects from these perspectives.

The household survey, FGDs, and field observation on prospects of potato commercialization indicate that in the study area, the production and marketing of potato crops are increasing over time. One evidence was that most of the farmers, 238 (67%) of the surveyed households, produced potatoes beyond their home consumption in the year 2022. The majority of the FGDs argued that the prospects of potato commercialization would be good and depend on the utilization of current existing opportunities in the area. Thus, as indicated in Table 6 below, out of the total respondents, 30.2%, 23.9%, 23.9%, 7.8% and 49.4%, 19.6%, 17.2%, and 13.7% reported that agro-ecological suitability, farmers' knowledge and skill on potato production, government focus on agriculture, irrigation water availability, and VITA intervention as opportunities from production sides for the future expansion of potato commercialization, respectively. And 49.4%, 19.6%, 17.2%, and 13.7% of the total respondents reported that increased market outlets and demands, increased market information and communication, farmer's knowledge and skill on post-harvest management and transportation accessibility from the consumption side as opportunities for the future expansion of potato commercialization, respectively.

Table 6. Opportunities for the Prospect of Potato Commercialization

Contexts	Opportunities	Freq.	%	Rank
	Good farmers' knowledge and skill in potato production	85	23.9	2
Production side	Agro-ecological suitability	107	30.2	1
	Irrigation water availability	50	14.1	3
	Government focus on agriculture	85	23.9	2
	VITA intervention	28	7.9	4





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		355	100	
Consumption side	Good framers' Knowledge and skill in post-harvest management	61	17.2	3
	Increased market outlets/demands	175	49.3	1
	Transportation accessibility	49	13.8	4
	Increased market information and communication	70	19.7	2
		355	100	

*Source: Field survey, 2022.*

## CONCLUSION AND POLICY IMPLICATIONS

The departure of smallholder farmers from subsistence to commercialization-based production has been the policy agenda of the government in Ethiopia. However, commercializing vegetables and root crops like potatoes has not gotten enough attention compared to their production potential in Ethiopia and the study area.

So, the study focused on analyzing the determining factors and prospects of smallholders' potato commercialization. The analysis result indicates that the intensity of potato commercialization is the function of the area's demographic, socioeconomic, institutional, and physical factors., farmers' educational status, proportion of land allocated for potatoes, oxen number, quantity of potato output, extension contact, cooperative membership and access to irrigation water significantly increases the intensity of potato commercialization whereas, distance from the main road and closest market substantially decreases the intensity of potato commercialization.

Furthermore, the investigation result on prospects of potato commercialization shows that there are opportunities to progress out subsistence potato farming. The agroecology, the good trend in farmers' knowledge and skill of potato production, government support, irrigation water and VITA intervention from the production side, increased market outlets and demand, increased market information and communication, and farmers' knowledge on post-harvest management from consumption side was found to be better opportunities for the prospects of potato commercialization.

Though potato has been produced in the area and is profitable, it needs further attention to achieve the required commercial stage. Hence, to promote the realization of commercialization of the sector, the Ethiopian agricultural marketing policy and development actors at different levels in the country should create more awareness of the importance of potato commercialization/ need to strengthen the program of adult education, cooperative farming, delivery of appropriate farm inputs/ improved seeds and construction of irrigation facilities to increase the volume of potato marketed., market and road access to farmers should be given more emphasis. Finally, the prospects of potato commercialization tell us that focusing on utilizing the existing opportunities should be strengthened.

## REFERENCES

Yaseen, A. Bryceson, K., Mungai, A.N. (2018). Commercialization behaviour in production agriculture: The overlooked role of market orientation. *Journal of Agribusiness in Developing and Emerging Economy*, 883), 579–602.



## Conference Proceedings

- Abafita, J., Atkinson, J., Kim, C.-S. (2016). Smallholder commercialization in Ethiopia: market orientation and participation. *International Food Research Journal*, 23 (4), 1797-1807.
- Abineh, E. (2021). Determinants of Commercialization of Teff and its Factor Productivity Outcomes: The case of Awebel Woreda, Amahara Region, Ethiopia. Doctoral dissertation.
- Afewerk Hagos and Endrias Geta (2016). Review on smallholder agriculture commercialization in Ethiopia: What are the driving factors to focus on? *Journal of Development and Agricultural Economics*, 8(4), 65-76.
- Agro BIG. (2016). Potato Value Chain Analysis. Programme for Agribusiness Induced Growth in the Amhara region. Bahir Dar, Ethiopia.
- Alhojailan, M.I. (2012) Thematic Analysis: A critical review of its process and evaluation. *West East Journal of Social Sciences*, 1, 39-47.
- Aman, T., Adam, B., Lemma, Z. (2014). Determinants of smallholder commercialization of horticultural crops in Gemechis District, West Hararghe Zone, Ethiopia. *African Journal of Agricultural Research*, 9(3), 310–319.
- Asfaw, N: S. (2020). Factors affecting the level of potato commercialization in Kofale district, west Arsi zone, Oromia regional state, Ethiopia. *Journal of investment and management*, 9(2), 56-62.
- Assefa, T., Jema, H., Lemma, Z., Dawit, A., (2019). Commercialization of smallholder pulse producers in East Gojjam zone, Ethiopia. *Sustainable Agriculture Research*, 8, 84–93.
- ATA (2016). Market Service, the agricultural transformation agency in Ethiopia, sustained development to end poverty. Addis Ababa.
- Berhanu, G., Moti, J. (2010). Commercialization of smallholders: Does market orientation translate into market participation? Improving productivity and market success. Working Paper 22, Nairobi.
- Berhanu, G., Hoekstra, D., Azage, T. (2006). Commercialization of Ethiopian agriculture: extension service from input supplier to knowledge broker and facilitator. (IPMS) of Ethiopian farmers project Working Paper I. Nairobi.
- Biniam, T., Rahmeto, N., Amanuel, S. (2019). Determinants of adoption of improved Jalenea potato variety: The case of Chencha Woreda, Southern Ethiopia: *Journal of Development and Agricultural Economics*, 11(7), 170-185.
- Birara, E., Mezegebu, A., Fenta, A., Zemen, A. (2020). Determinants of wheat commercialization among smallholder farmers in Debre Elias Woreda. Ethiopia. *Hindawi Advanced Agriculture*, 12. Article 2195823.
- Barrett, C.B. (2008). Smallholder market participation: Concepts and evidence from eastern and southern Africa. *Food Policy*, 33(4), 299–317.
- CSA (Central Statistical Agency) (2016). Agricultural sample survey 2015/2016. Volume I, Report on Area and Production of Major Crops (Private Peasant Holdings, Meher Season). Statistical Bulletin 584. Addis Ababa.
- Daniel, H. (2020). Determinants of smallholder potato farmers' commercialization in central highlands of Ethiopia. *Journal of Agricultural Economics and Rural Development*, 6(2), 842-850.
- EHDA (Ethiopian Horticultural Development Agency). (2011). The status of post-harvest and transport technologies for horticulture produces in Ethiopia, Addis Ababa.



## Conference Proceedings

- Fekadu, M., Dandena, G. (2006). Review of the status of vegetable crops production and marketing in Ethiopia. *Uganda Journal of Agricultural Sciences*, 12( 2), 26-30.
- Ferris, S., Robbins, P., Best, R., Seville, D., Buxton, A., Shriver, J., Wei, E. (2014). linking smallholder farmers to markets and the implications for extension and advisory services. MEAS Discussion Paper 4. Available at: [www.meas-extension.org](http://www.meas-extension.org) [Accessed on 10-03-2022].
- Gebre-Selassie, A., Bekele, T. (2012b). A review of Ethiopian agriculture: roles, policy, and small-scale farming systems. In: Bell, C., Prammer (Researchers), J., Eder, C., KydRebenburg, D., Prammer, J. (Eds.), *Global Growing Casebook: Insights into African Agriculture*, 36–65.
- Gildemacher, P., W. Kaguongo, O. Ortiz, A. Tesfaye, W. Gebremedhin W.W. Wagoire, R. Kakuhenzire, P. Kinyae, M. Nyongesa, P.C. Struik, and C. Leewis. (2009a). Potato production in Kenya, Uganda, and Ethiopia. *Potato Research* 52, 173–205.
- Govereh, J., Jayne, T.S., Nyoro, J. (1999). Smallholder commercialization, interlinked markets, and food crop productivity: Cross-Country Evidence in Eastern and Southern Africa.
- Greene, W.H., (2003). *Econometric Analysis*, 5th ed. Pearson Education Inc., New Jersey.
- Gebru, H., Mohammed, A., Dechassa, N., Belew, D. (2017). Assessment of production practices of smallholder potato (*Solanum tuberosum* L.) farmers in Wolaita zone, southern Ethiopia. *Agriculture & Food Security*, 6(1), 31.
- Hirpa, A., Meuwissen, M. P. M. (2010). Analysis of seed potato systems in Ethiopia. *American Journal of Potato Research*, 87(6), 537–552.
- Raj, K.G.C., Hall, R.P. (2020). The commercialization of smallholder farming – a case study from the rural western middle hills of Nepal. *Agriculture*, 10(5), 1–16.
- Komarek, A. (2010). Determinants of banana market commercialization in Western Uganda. *African Journal of Agriculture Resesearch*, 5(9), 775–784.
- Kothari, C.R. (2004). *Research Methodology: methods and techniques*. Second revised edition. New age international limited publisher, New Delhi.
- Kumilachew, A. (2016). Commercial behaviour of smallholder potato producers: the case of Kombolcha woreda, the Eastern part of Ethiopia. *Ekonomika poljoprivrede*, 63(1), 159-173.
- Lighton, D., Guveya, E. (2016). Determinants of agriculture commercialization among smallholder farmers in Manicaland and Masvingo Provinces of Zimbabwe. *Agriculture Scientific Research Journal*, 6, 182–190.
- Madhin, G. (2009). A market for all farmers: market institutions and smallholder participation. *Journal of Development Studies*, 30(3), 818-830.
- Mahlet, A., Bezabih, E., Mengistu, K., Jeffreyson, K.M., Jemal, Y. (2015). Gender role in market supply of potato in Eastern Harargehe Zone, Ethiopia. *African Journal of Agricultural Marketing*, 3(8), 241-251.
- McDonald, J. F., Moffitt, R. A. (1980). The uses of Tobit analysis. *Review of Economics and Statistics*, 62(2), 318–321.
- Meleaku, T., Goshu, D., Tegegne, B.( 2020). Determinants sorghum market among smallholder farmers in KaftaHumera district Tigeray, Ethiopia. *South Asian Journal of Social Studies and Economics*, 8(1), 1-13.



## Conference Proceedings

- Mesfin, M., Girmay, G., Woldeyes, F. (2014). Enhancing household food security through Irish potato production in Gamo Highlands of Southern Ethiopia. *Scholarly Journal of Agricultural Science*, 4(7), 410–419.
- Mudhara, M. (2010). Agrarian transformation in smallholder agriculture in South Africa. A Diagnosis of bottlenecks and public policy options. Conference Paper: Overcoming inequality and structural poverty in South Africa: Towards inclusive growth and development. Johannesburg.
- National Plan Commission. (2016). Growth and Transformation Plan II. National Plan Commission. Volume I, Addis Ababa.
- Okezie, C.A., Sulaiman, J., Nwosu, A. C. (2012). Farm-level determinants of agricultural Commercialization. *International Journal of Agriculture and Forestry*, 2(2), 1-5.
- Pingali, P. L. (1997). From Subsistence to Commercial Production Systems: The Transformation of Asian Agriculture. *American Journal of Agricultural Economics*, 7, 628 - 634.
- Radović Marković, M. (2010). Rural Entrepreneurship and sustainable economic development in Serbia. *Agricultural Economy*, 57(spec. num 2), 583-589.
- Sebatta, C., Mugisha, J., Katungi, E., Kashaaru, A., Kyomugisha, H. (2014). Smallholder farmers' decision and level of participation in the potato market in Uganda. *Modern Economy*, 5, 895-906.
- Seifu F., Betewulign E. (2017). Evaluation of released and local potato (*Solanum tuberosum*L) varieties for growth performance. *Journal of Agronomy*, 16, 40-44.
- Shajahan, Md., Radović-Marković, M., Marković, D. (2024). Impact of Bangabandhu's Agricultural Development Philosophy on Food Security In Bangladesh. *International Review*, 7(1), 31-62.
- Strasberg P.J., Jayne, T.S., Yamano, T., Nyoro, J., Karanja, D., Strauss, J. (1999). Effects of Agricultural Commercialization on Food Crop Input Use and Productivity in Kenya. Michigan State University International Development, Working Papers No. 71. Michigan.
- Tadesse, B., Bakala, F., Mariam, L.W., (2018). Assessment of post-harvest loss along the potato value chain: the case of Sheka Zone, Southwest Ethiopia. *Agriculture & Food Security*. 7 (1), 1–14.
- Von Braun J. (1994). *Agricultural Commercialization, Economic Development and Nutrition*. Johns Hopkins University Press, Baltimore.
- Yigezu, G. (2021). The challenges and prospects of Ethiopian agriculture. *Cogent Food & Agriculture*, 7(1), 1923619.
- Zerssa, G., Feyssa, D., Kim, D.G., Eichler-Lobermann, B. (2021). Challenges of smallholder farming in Ethiopia and opportunities by adopting climate-smart agriculture. *Agriculture*, 11 (3), 192.
- Zhou S., Minde, I.J., Mtigwe, B. (2013). Smallholder agricultural commercialization for income growth and poverty alleviation in southern Africa: A review. *African Journal of Agricultural Research*, 8(22), 2599 -2608.



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# MEDIATING EFFECTS OF FDI INFLOWS ON CARBON DIOXIDE EMISSIONS: EVIDENCE FROM INDIA

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DOI: 10.5937/EEE24073T  
JEL: C22, F23, Q54, Q56  
Original Scientific Paper

## ABSTRACT

*This paper investigates the direct and indirect consequence of foreign direct investment (FDI) inflows on carbon dioxide (CO<sub>2</sub>) emissions in India, covering 1980 to 2014. To quantify the indirect outcome of FDI taking place CO<sub>2</sub> emissions, this study considers three mediating channels of FDI. The three broad mediating channels of FDI inflows are energy structure, industrial structure, and high-carbon technology, by which the foreign direct investments affect India's carbon dioxide emissions. The unit root test, the Johansen cointegration, the Granger causality, and the Seemingly Unrelated Regression are used in this study for the empirical analysis. The findings discover a long-run cointegrating link between FDI inflows and CO<sub>2</sub> emissions, as well as a one-way causality running from FDI to CO<sub>2</sub> emissions. The outcomes of the seemingly unrelated regression estimation indicate that all the mediating factors significantly contribute to the carbon dioxide emissions level. The findings of this paper reveal that FDI inflows affect India's CO<sub>2</sub> emission level mainly by the mediating factors compared to its direct effect. Finally, the study suggests that the policymakers should prioritize the redistribution of foreign investment from high carbon-intensive technology to less carbon-intensive and cleaner technologies for a carbonless and sustainable future in India.*

## KEYWORDS

*foreign direct investment, carbon dioxide emissions, mediating effects, cointegration, Granger causality, seemingly unrelated regression, Indian economy*

## INTRODUCTION

Climate change, greenhouse gases (GHGs), future energy, and carbon dioxide emissions are all attracting interest from industrialized, developing, and impoverished countries alike (Narayan, Sahu, 2016). As per the Future Earth and the Earth League report-2019 discussed at the Conference of Parties (COP) 25, the world has already diverted from its track to meet the Paris Agreements (to limit global

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warming to 1.5° C), and climate change is faster and more robust than it was expected<sup>1</sup>. Further, the report highlights that it will go to severe pain for hundreds of millions' food security and health; also threaten biodiversity. Thus, climate change becomes a significant hurdle to accomplishing the Sustainable Development Goals of the United Nations (SDGs) for overall global development. With due time, natural scientists investigated those carbon dioxide (CO<sub>2</sub>) emissions are the leading factor of climate change through a higher level of the greenhouse effect and the deterioration of the atmospheric system (IPCC, 2014). Measuring this severity, the World Bank (2019) has reported around an 84.38% increase in CO<sub>2</sub> emissions from 1980 to 2014 and awaked the world about such an unexpected change in CO<sub>2</sub> emissions. Thus, to control the extreme climatic events, melting of Arctic sea ice, rising sea level, and other long-term and irreversible changes, it is indispensable to maintain the CO<sub>2</sub> emissions level and increase environmental sustainability (Mardani et al., 2019).

For decades, studies have pointed out that heavy industrialization and high energy consumption are the prime cause of the increased CO<sub>2</sub> emissions (Muhammad, Khan, 2019). However, a trade-off exists between environmental quality and higher economic growth. In recent times, growing economies have been deeply involved in internationalization, industrialization, and energy consumption to achieve their economic growth target (Sabir et al., 2020). Furthermore, the global and local environmental challenges produced by the ever-increasing usage of fossil fuels have reignited worries, making it an enormous task to fuel economic growth in an environmentally friendly manner (Sahu, Narayan, 2010). As CO<sub>2</sub> emissions are a global pollutant, recent researchers have emphasized the globalization-environmental quality nexus. At the same time, internationalization is the prime factor to speed up industrialization, so the higher the level of globalization, the higher the production, consumption, and deterioration of the environment quality (Bhat et al., 2018, Haider et al., 2019).

More specifically, according to the published studies, any initiatives by policymakers and government entities in developed and developing economies to optimize environmental quality will be ineffective in the long run until either the effects of globalization on the environment is accounted for CO<sub>2</sub> emissions (Shahbaz et al., 2018). Although a few decades ago, researchers argued that an economy's environmental degradation would reduce after a threshold level of economic growth was achieved (Grossman, Krueger, 1991, 1995). This theory, popularly acknowledged as the Environment Kuznets Curve (EKC) hypothesis, is usually represented in an inverted U-shape. The well-known EKC examines the different dimensions of the CO<sub>2</sub> emissions on the macroeconomic variables, which can be sub-divided as CO<sub>2</sub> emissions and economic growth (Saboori et al., 2014, Wang et al., 2018, Wang, He, 2019, Hargrove et al., 2019), CO<sub>2</sub> emissions, and urbanization (Yao et al., 2018, Sharma, 2011), and CO<sub>2</sub> emissions and FDI inflows (Muhammad et al., 2021, Gokmenoglu, Taspinar, 2016).

Research results on the association between CO<sub>2</sub> emissions and FDI inflows have been twofold in recent years. On the one hand, a group of studies argued a positive relationship between these two factors (Guzel, Okumus, 2020, Opoku, Boachie, 2020, Omri et al., 2014, Shahbaz et al., 2015, 2019, Abdouli et al., 2018) and mainly emphasized the cost of economic growth in terms of environmental degradation. This relationship is commonly known as the 'pollution haven hypothesis (henceforth the PHH).' This hypothesis implies that polluting units come from developed and more stringent environmentally regulated countries to developing and less environmentally regulated countries with high environmental pollution. On the other side, a group of studies by Huang et al. (2017), Seetanah et al. (2019), and Ehigiamusoe (2020) have highlighted a negative affiliation between FDI and CO<sub>2</sub> emissions and claimed that FDI could bring more advanced and energy-saving innovations from developed to underdeveloped countries economies; so help the economy to build sustainable development.

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<sup>1</sup> A global temperature rises to 1.5° C, i.e., above the pre-industrial levels, could be reached already in 2030, instead of 2040, as is the mean projection of IPCC.



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This relationship explains the opposite of the PHH hypothesis and is well known as ‘the pollution halo effect (henceforth the PHHH).’ Considering developed countries such as Turkey, France, Australia, and several emerging and developing countries such as Mexico, Brazil, India, China, and Pakistan in existing studies (Jun et al., 2018, Shahbaz et al., 2018, Rehman et al., 2021, Nasir et al., 2019) have emphasized a positive relationship and confirms FDI inflows deteriorates the environmental quality. Thus, this supports the PHH hypothesis. On the other side, considering a set of 30 OECD economies, MINT nations, G6 economies, and a collection of Sub-Saharan African countries, including Malaysia and China group of studies (Acheampong et al., 2019, Balsalobre-Lorente et al., 2019, Nguyen et al., 2021) have revealed a negative association between these two and validated the PHHH hypothesis.

Furthermore, Marques and Cantano (2020) pointed out that the pollution haven hypothesis occurs merely for poor and middle-income nations and remained absent for high-income countries when looking at a different group of countries. However, in recent times the relationship between CO<sub>2</sub> emissions and FDI remains unclear and needs further empirical investigation to cross-check the direction and their nature over time. Going further, this vast body of existing literature on this nexus mainly focuses on the direct nexus of CO<sub>2</sub> emissions (increase/decreases) and FDI inflows.

Simultaneously, the existing studies mostly have ignored the indirect association between these two, which primarily accounts for an economy's different structures and components, such as industrial structure, energy consumption, and carbon technology. These three components of any economy's structure are the highly significant mediating channels to materialize any form of investment from abroad (Menghan, 2018). To examine the effect of such mediating channels of FDI on CO<sub>2</sub> emissions, we follow Menghan's (2018) study to develop this paper. However, the research limited the Chinese economies' carbon productivity and cannot extend or generalize to a growing democratic economy like India.

With significant time data spanning the years 1980 to 2014, this study selects India to explore the direct and indirect impact of FDI inflows on CO<sub>2</sub> emissions. This is because of the following reasons; India's economy is among the world's fastest expanding (Chaturvedi, 2017) and the hottest destinations of FDI inflows in the globe (Ibrahim, Muthusamy, 2014). As per the UNCTAD report (2018), India's gross FDI touched the US \$ 60.1 billion during 2016-17; its average growth performance has grown from 0.8 percent of domestic GDP during the global financial crisis to 1.3 percent of the same post-crisis period. Extending further, India ranks top 100 clubs on ease of doing business and ranks first in the green-field investment (Chaturvedi, 2017).

However, India is significantly vulnerable to the melting of the Himalayan glaciers<sup>1</sup> ice caps; the region is susceptible to climate change and changes to the monsoon. Simultaneously, the Carbon Brief Profile Report (2019) indicates that India is third-largest emitter in the world and contributing 3,571m tonnes of CO<sub>2</sub> emissions, i.e., increased over threefold since 1970. According to World Bank (2018), “India could see \$1.2tn of lost GDP, plus lower living standards for nearly half of its population by 2050, compared to a scenario with no climate change”. In addition, carbon dioxide emissions supplement environmental change that is likely to harm human health for growing economies like India (Prasad, Mishra, 2017). Moreover, Watts et al. (2018) mentioned that India's agriculture and its agricultural workforce are significantly hurt by the heat resulting from growing carbon emissions and, ultimately, climate change. The trend of FDI inflows and the severity of CO<sub>2</sub> emissions in India can be well noticed in Figure

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<sup>1</sup> On February 7, 2021 the most recent disaster witnessed in India when a glacier broke after a heavy avalanche in the Joshimath area of Uttarakhand's Chamoli district. The environmentalist claiming that the incident was induced by climate change and highlights the negative consequence of human activities on the environment (Tewari 2021).

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1. Thus, it is necessary to minimize the uncertain climatic events and balance between foreign investment and the sustainable environment of India.

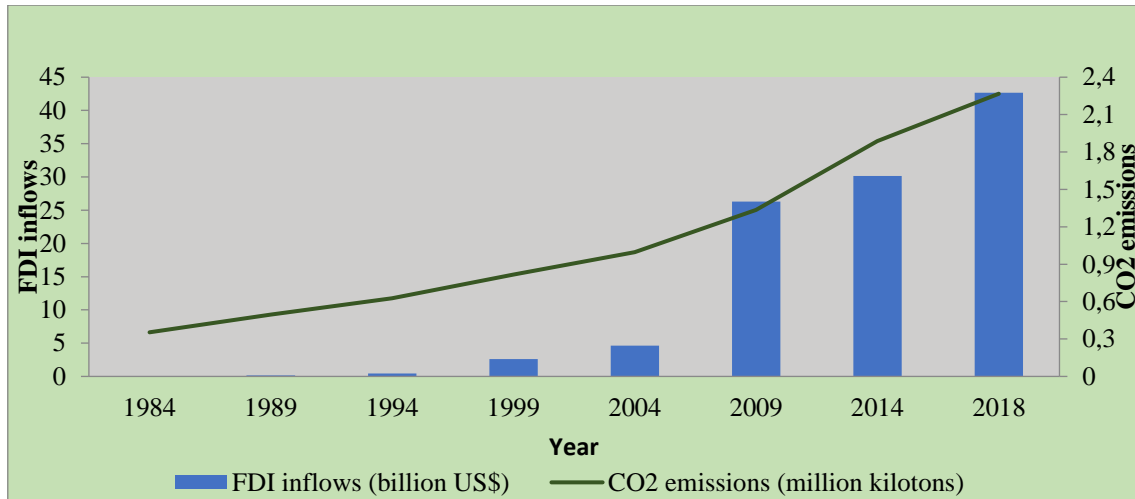


Figure 1. Trend of FDI inflows and CO<sub>2</sub> emissions in India

Source: Authors' compilation

This paper attempts to deal with two broad research questions: first, does FDI inflow directly impact CO<sub>2</sub> emissions? Second, does FDI have any significant indirect effect on CO<sub>2</sub> emissions? To investigate the affiliation between FDI inflows and CO<sub>2</sub> emissions, our paper aims to verify both the "pollution halo" and "pollution haven" hypotheses. To examine the indirect consequence of FDI inflows and CO<sub>2</sub> emissions, we consider three mediating channels of FDI: energy structure, industry structure, and high-carbon technology of the Indian economy. This study has considered energy use in terms of the kg of oil equivalent to measuring the energy structure. The industrial structure accounts for the total industrial value-added as a significant measure to value it. The consumption of fossil fuels as a percentage of total energy consumption is considered as multiple transmitters of carbon dioxide emissions for the high-carbon technology. The novelty of our research lies two-fold. First, we examine the mediating effect of FDI on CO<sub>2</sub> emissions which measures the indirect nexus between these two variables. However, during the measurement of the mediating effects of FDI, this study assumes the mediating factors are independent of each other. Second, along with cointegration and Granger causality, the research employs the SUR model to measure all equations together in a simultaneous framework.

## LITERATURE REVIEW

This section provides a detailed insight into theoretical and empirical literature on FDI-environmental quality nexus and the effects of mediating factors of FDI on CO<sub>2</sub> emissions.

The initial hypothesis that emphasizes the Environmental Kuznets Curve (EKC) theory links economic development and environmental deterioration. The EKC hypothesis of Grossman and Krueger (1991, 1995) empirically revealed the link between environmental deprivation and economic growth. The researcher explained the nexus such that in an initial phase of economic growth, the rate of pollution increases, thus a higher level of environmental degradation up to a specific point and then after the economic evolution surges with the reduction of pollution level and signifies the 'inverted U-shaped'





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EKC hypothesis. In contrast, many existing studies on EKC literature also reveal no significant relationship between these two (Stern, 2004). The argument for that this might be due to the usage of inappropriate and weak econometric approaches.

Based on Grossman and Krueger's (1991, 1995) theoretical EKC approach, literature has proposed three channels to describe the influence of FDI on CO<sub>2</sub> emissions in terms of scale, composition, and technique effects. The scale impact underlines that foreign direct investment promotes industrial production and increases energy demand, subsequently increasing carbon dioxide emissions in the host nations (Pao, Tsai, 2011). It becomes a threat to the environment as the pollution level is positively associated with the scale of its economy. It is due to the rise in the production of that economy; high production will prime to a higher level of environmental deterioration (Pazienza, 2019). However, some new literature suggests that environmental destruction due to the economy's advancement will reach a limit. Then a turning point started, and environmental quality improvement started (Gill et al., 2018). The structural effect explains the economy's structure with energy intensity (Shahbaz et al., 2018). It is also identified as the composition effect and explains the changes in industrial design and how it affects free-market policy (Pazienza, 2019). It is argued that with the help of free-market policy, an economy can boost its environmentally profitable investment and encourage the allocative efficiency of resources among economies (OECD, 2001).

In contrast, Cole and Elliott (2003) have argued that the composition effect in a free trade economy can be undesirable or encouraging as it depends on the country's competitive advantage and productive specialization. The technique effect is based on the dissemination of introduction of newer machinery via FDI. The effect indicates that the present production technique's emission level determines the cost per unit of items produced. A free market can liberally invest in neighboring countries, and with the allocative efficiency, the countries will update their technology and adopt the development with more energy-efficient technology. The technique effect is assumed to be environmentally beneficial for all (Shahbaz et al., 2018; Pazienza, 2019). However, in our analysis, our prime objective is to analyze the effects of these three mediating factors of FDI inflows on CO<sub>2</sub> emissions for India but not to examine the EKC hypothesis.

From these three channels, the theoretical literature has been extended. If the scale effect and the composition effect outweigh the technique effect, it creates the pollution haven hypothesis. Suppose the technique and composition effect overcomes the scale effect, the pollution halo effect (Pazienza, 2019, Shahbaz et al., 2018). The PHH and the PHHH effect are the two main hypotheses accustomed to describe the link between FDI and environmental pollution. The PHH hypothesis pioneered by Pethig (1976) argued that multinational corporations (MNCs) relocate pollution-intensive industries to less stringent environmental regulated countries from a more stringent environmental regulated country. Supporting the above argument, Zhang and Zhou (2016) revealed that MNCs are driven to shift their heavy and polluting activities to nations with more permissive environmental legislation to minimize regulatory compliance expenses in their home nation. On the other side, the PHHH hypothesis demonstrates a positive connotation between FDI and quality of environment with higher economic growth and provides environmentally friendly and cutting-edge technologies, enhancing environmental quality (Dinda, 2004, Zarsky, 1999). To strengthen the idea that Heil and Selden (2001) and Grimes and Kentor (2003) have argued that FDI coming from the advanced countries are with advanced and greener technologies, thus increasing economic growth on the one side and the environmental quality on the opposite point.

The empirical literature covers four-part of existing literature. The first part covers the CO<sub>2</sub> emissions and FDI inflows; the link between CO<sub>2</sub> emissions and mediating factors are presented in the second section. The third part of this literature section explains the affiliation between FDI inflows and the mediating factors. The final sub-section of this section narrates the association between CO<sub>2</sub> emissions and other control variables such as economic growth and urbanization, following up with the research gap and hypothesis.



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### CO<sub>2</sub> emissions and FDI

To date, a significant number of empirical studies have discussed the relationship between FDI and environmental quality. In the existing literature, many studies support the PHH while others support the PHHH. In between, few studies have either supported both, while others mentioned no significant effect between these two. Employing the Autoregressive Distributed Lag (ARDL) bounds testing and Vector Error Correction Model (VECM) Granger causality techniques, Salahuddin et al. (2018) revealed that CO<sub>2</sub> emissions are caused by economic expansion, increased electricity use, and FDI in the short and long term in Kuwait. Similarly, Lee (2009) showed that FDI Granger causes CO<sub>2</sub> emissions in Malaysia in the short run. Gokmenoglu and Taspinar (2016) notified a bidirectional affiliation between carbon dioxide emissions and FDI, energy ingestion, and CO<sub>2</sub> emissions in Turkey's case.

Further, Solarin et al. (2017) for Ghana evidence and support the PHH hypothesis. The study used the ARDL method from 1980 to 2012 and revealed a favorable and substantial link amid FDI and CO<sub>2</sub> emission. Khan et al. (2018) found that energy consumption, financial development, trade, FDI, and economic, social, and political globalization had a significant and positive effect on carbon dioxide emissions in Pakistan during 1971-2016. However, urbanization, economic expansion, and innovation have a considerable adverse impact on carbon dioxide emissions. A recent paper by Singhanian and Saini (2021) using dynamic panel data estimations for 21 developed and developing countries mentioned that FDI inflows significantly impact environmental quality and evidence a pollution haven hypothesis. Similarly, applying empirical techniques such as the Dynamic Ordinary Least Squares, the Fully Modified OLS, the System-GMM estimation, as well as forecasting approaches for a set of G6 countries from 1978 to 2014. Nguyen et al. (2021) revealed a very beneficial link between FDI and CO<sub>2</sub> emissions.

In addition, applying similar techniques (except the system-GMM), Nasir et al. (2019) revealed that in the ASEAN-5 countries, FDI and CO<sub>2</sub> emissions are highly co-integrated over time. Using the structural vector autoregressive and the seemingly unrelated regression models for China's macro economy from 1980 to 2017, Pu et al. (2020) revealed natural disaster losses economic and the macro-industry development. Following the earlier study by applying the SUR technique, Zangoei et al. (2021) established a substantial and progressive relation amid FDI and carbon dioxide emissions in the case of 14 developing countries during 1986-2016. In the context of India, Acharyya (2009), applying a cointegration technique, has revealed a positive association between FDI and CO<sub>2</sub> emissions. In addition, Rana and Sharma (2019), applying yearly time-series data during the period 1982-2013, identified the existence of the pollution haven hypothesis in India. This study further highlighted that FDI inflows cause economic growth through carbon dioxide emissions.

In contrast to the preceding findings, Zhang and Zhou (2016) demonstrated that FDI could reduce CO<sub>2</sub> emissions in China. Similarly, using panel data of 280 selected Chinese cities during 2003-2012, Ning and Wang (2018) revealed that FDI brought positive environmental knowledge externalities and improved China's environmental quality. Similarly, using the simultaneous equation method, Ayamba et al. (2019) have also revealed that FDI and environmental quality have a good connection from 1995 to 2016 in China. This paper argued that FDI has the advantage of advanced production technology, green production, positive pollution control, and environmental conditions. Thus China should encourage such inward FDI for more economic growth industrial structure.

Further, the concluding findings of a meta-analysis of FDI on environmental pollutions highlighted that FDI inflows significantly reduce the environmental quality degradation (Demena, Afesorgbor, 2020). In addition, using first- and second-generation panel econometric techniques for central and Eastern European (CEE) economies, Christoforidis and Katrakilidis (2021) demonstrated an inverted U-shaped connection concerning FDI and carbon dioxide emissions. The argument lies that in the initial stage,



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with an upturn in energy consumption, the emissions level raises but with a surge in economic growth, the level of emissions reduces. However, Kathuria (2018) highlighted that FDI has no role in influencing the pollution level in India; instead, it helps to progress the environmental quality.

Similarly, Ansari et al. (2019) have not found any significant association between FDI and CO<sub>2</sub> emissions for 29 countries over 1994-2014. Instead, the study confirmed that energy consumption is the prime cause of the high level of CO<sub>2</sub> emission in those countries. Supporting these findings, Ghazouani (2021), after applying the bootstrap ARDL bounds test method, mentioned no significant association between FDI inflows and emission levels in Tunisia from 1980 to 2016. To investigate the role of renewable energy use, foreign direct investment and growth of economy in moderating and mediating carbon dioxide emissions with annual time series data from 1975-2016 in Pakistan, Naz et al. (2019) found that the FDI inflows have a substantial advert effect on CO<sub>2</sub> emissions. The inclusion of moderating and mediating effects results in the positive impact of renewable energy trends towards an adverse impact on the environmental quality, i.e., a negative externality.

### **CO<sub>2</sub> emissions, energy consumption, industry, and fossil fuel consumption**

The existing empirical studies concerning CO<sub>2</sub> emission and energy consumption are well-explored. Using various econometrics techniques such as Fully Modified Ordinary Least Squares regression, ARDL cointegration, VECM causal techniques, Westerlund and Pedroni cointegration estimations Saboori et al. (2014) for OECD countries, Saboori and Sulaiman (2013) for Association of Southeast Asian Nations (ASEAN) countries, Pao et al. (2011) for Russia, Yousefi-Sahzabi et al. (2011) for Iran, Mirza and Kanwal (2017) for Pakistan and Behera and Dash (2017) for South and Southeast Asian (SSEA) regions have explored the impact of energy consumption on CO<sub>2</sub> emissions. All these studies have mentioned that the variables are highly interrelated and that energy consumption substantially causes pollution. The existing literature has highly focused that primary energy consumption, especially fossil fuel consumption have significantly affected CO<sub>2</sub> emissions, thus leading to GHGs in these areas. Similarly, these findings are also supported in developed country cases like the US (Danish et al. 2020). However, limited studies (Tiwari, 2011) have empirically verified this nexus in the Indian context and highlighted that energy usage has a favorable and substantial influence on CO<sub>2</sub> emissions. In contrast, Ouyang and Lin (2015), using the Logarithmic Mean Divisia Index (LMDI), highlighted that China's industrial sector substantially contributed to CO<sub>2</sub> emission while energy intensity helps to reduce the level of CO<sub>2</sub> emission.

Similarly, recent studies have explored the empirical literature on industrial development and its influence on CO<sub>2</sub> emissions in different countries. Employing other econometrics such as threshold regression model, ARDL, VECM models, and non-linear ARDL cointegration techniques, Dong et al. (2019) for 14 developed economies, Liu and Bae (2018) and Liu et al. (2016) for China, Ullah et al. (2020) in Pakistan and Mahmood et al. (2020) in Saudi Arabia have demonstrated a favorable and considerable association between industrialization and CO<sub>2</sub> emissions.

These studies argued that with colossal destruction of resources, high energy consumption, and heavy transportation in production activities, industrialization causes higher CO<sub>2</sub> emissions. At the same time, adopting the STRIPAT framework on a balanced panel dataset of 73 countries Li and Lin (2015) revealed that industrialization causes CO<sub>2</sub> emissions. Supporting these, Parikh et al. (2009) showed a constructive and noteworthy connection between industrialization and carbon dioxide emissions. Further, the electricity sector is responsible for India's carbon dioxide emissions. However, Dong et al. (2020) have argued that industrialization helps in the reduction of CO<sub>2</sub> emissions through upgrading industrial units with advanced technology and new mechanisms. Thus industrial structure can contribute to carbon mitigation and sustainable development.



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Studies also discovered the empirical connection between fossil energy consumption and carbon dioxide emissions. Using the ARDL test, covering the time of 1990-2013 for fifteen developing Asian countries, the empirical result of Hanif et al.'s (2019) paper demonstrated that consumption of fossil fuels causes a significant level of CO<sub>2</sub> emissions. Supporting these with the help of ARDL bound testing technique, Ali et al. (2020a) evidenced a long-term link amid economic development, fossil fuel consumption, inward FDI, and carbon dioxide emission from 1975 to 2014 in Pakistan. Further, Ali et al. (2020b) also verified the same nexus for Pakistan, Bangladesh and India. They revealed that fossil fuel, FDI, and development of an economy cause CO<sub>2</sub> emissions. In contrast, employing the Toda-Yamamoto estimation technique for Iran, Lotfalipour (2010) demonstrated that although GDP and energy consumption causes carbon emission, fossil fuel consumption did not have any leading role in influencing the emission level.

### **Industry, energy consumption, fossil fuel consumption, and FDI**

According to Dinda (2004) and Ghani (2012), FDI has two effects on energy usage. First, FDI induces investment, leading to increased production in the host country and raising energy consumption. Second, it might expand the production capacity with efficient energy use and enable efficient production technologies. It helps the production units transit from dirty or relatively polluted companies to clean-energy structures. The earlier effect of FDI on energy consumption has well explained as the scale effect. Still, the latter signifies its reverse and implies the composition and technical impact during the production process (Zhu et al., 2016).

A recent empirical investigation of three income groups: low, middle, and high, covering the period 1970-2008 by Omri and Kahouli (2014) have highlighted that FDI is a significant cause of energy usage in all cases. Similarly, many empirical studies with different econometrics techniques like Fourier ADL and ARDL test and VECM Granger, Leitao (2015) in Portugal, Uzar and Eyuboglu (2019) in Turkey, Mavikela and Khobai (2018) in Argentina have discovered that FDI has an encouraging and substantial basis of the higher level of energy consumption.

The energy-intensive investor's investment shifted from the more developed and environmentally stringent country to less regulated developing countries. In addition, Saint and Ajmi (2020) also supported the existing findings and highlighted that FDI has a favorable and considerable result of increasing energy consumption for 23 Sub-Saharan Africa (SSA) countries. In contrast, Mielnik and Goldemberg (2000) and Salim et al. (2017) for China, Nepal et al. (2021), and Pao and Tsai (2011) for India revealed a harmful link between FDI and energy consumption. The findings of this paper mentioned that FDI had the significant potentiality to improve environmental quality by inducing energy efficiency. However, Sadorsky (2010) and Hubler and Keller (2010) highlighted no considerable effect of FDI on energy consumption in developing economies.

Similarly, using 12 franc zone and 11 non-franc zone African countries data, Ngouhouo and Ewane (2020) resulted that FDI has a substantial and beneficial impact on industrial development within the franc zone, however, the results become undesirable in the non-franc zone. In addition, applying various cointegration and causality techniques, Adejumo (2020) for Nigeria, Dash and Parida (2013) for India, and Gui-Diby and Renard (2015) for 49 African countries demonstrated a significant link amid FDI and industrialization. The argument followed that foreign direct investment in flows significantly upgrade industrialization and boost the economy's investment and development.

At the same time, the existing studies have examined the empirical nexus between FDI inflows and fossil fuel energy. In addition, Al-Mulali and Ozturk (2015) and Zangoei et al. (2021) explained that



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although countries have tried to find an alternative fuel source to moderate the dependency on fossil energy consumption and mentioned fossil fuel as a significant component to attract FDI at the cost of the quality of environment. However, it remains critical to shift the energy structure away from traditional fossil fuels and toward renewable sources. That to transfer from a low energy technology enterprise to more advanced and clean technology in the production process (Irfan et al. 2020).

### **CO<sub>2</sub> emissions, economic growth, and urbanization**

There are several empirical research on the relationship between economic growth and CO<sub>2</sub> emissions. For example, by using ARDL and Toda-Yamamoto test, Nkengfack and Fotio (2019) revealed a progressive and substantial impact of energy usage and growth of the economy on CO<sub>2</sub> emissions for Algeria, Egypt, and South Africa. In addition, Wang et al. (2019) and Jalil and Mahmud (2009) described that economic development is the primary determinant of carbon dioxide emissions in China. Supporting these, a systematic survey by Mardani et al. (2019) has also revealed economic growth as a significant factor to affect the CO<sub>2</sub> emissions level. However, employing a non-linear panel smooth transition regression (PSTR) estimation technique, Mosikari and Eita (2020) for selected African countries have also highlighted that economic growth affects environmental pollution positively in the early stage after a certain period of pollution can be controlled with high economic growth.

This paper concluded that the urban population has a significant contribution to improving the environmental quality. In the Indian context, using econometrics techniques like the dynamic multivariate Toda-Yamamoto (TY) technique, ARDL, and VECM causality techniques, Rana and Sharma (2019), Ahmad et al. (2016), and Kanjilal and Ghosh (2013) proven that energy use has a large impact on CO<sub>2</sub> emissions in India. In contrast, Ghosh (2010) found no causal association between CO<sub>2</sub> emissions and economic growth in India utilizing ARDL bounds testing, Johansen-maximum likelihood process in multivariate, and causality techniques.

A vast body of empirical literature has scrutinized the connection between urbanization and CO<sub>2</sub> emissions. Using various empirical techniques like ARDL, VECM Granger causality, FMOLS technique Shahbaz et al. (2014) in case of UAE and Al-Mulali et al. (2015) for Europe demonstrated that urbanization is a significant factor to create CO<sub>2</sub> emissions. Similarly, Franco et al. (2017) also showed that urbanization has a better level of significance in the quality of life while promoting economic growth and significantly affecting the emission level in India. In addition, Neli et al. (2012) argued that structural changes of India from rural to urban life are highly associated with heavy industrialization in urban centers and are responsible for increased energy use and emissions. Mahmood et al. (2020) supported the empirical results in this nexus for Saudi Arabia.

The paper demonstrated that urbanization positively and significantly contributes to CO<sub>2</sub> emissions. Using Toda-Yamamoto non-causality methods, Salahuddin et al. (2019) highlighted a bidirectional association amid urbanization and carbon dioxide emissions in the case of South Africa. Similarly, Zhang et al. (2018) found that population urbanization has a positive and large spillover effect on CO<sub>2</sub> emissions in China using spatial econometric models. However, using the Bayer-Hanck combined cointegration and VECM Granger causality, Shahbaz et al. (2016) have mentioned that urbanization significantly granger caused the CO<sub>2</sub> emissions and addressed a U-shaped association amid urbanization and CO<sub>2</sub> emissions in Malaysia. It implies that at the early stage of urbanization, carbon dioxide emissions decrease, but after a threshold level, it increases CO<sub>2</sub> emissions.



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### Research gap and hypotheses

Though there is a large body of literature on the PHH and the PHHH hypothesis for the rest of the globe, there are few studies on India, where the results are mixed and unclear. Therefore, it requires further investigation. The existing studies mostly measure the direct nexus amid foreign direct investment inflows and carbon dioxide emissions. There is hardly any study that attempts the indirect effect of FDI on CO<sub>2</sub> emissions considering the mediating effects of FDI. However, India is a growing economy, the largest FDI receiver, and one of the high emitter countries. To achieve a long-term balance between foreign direct investment inflows and India's CO<sub>2</sub> emissions, the country must prioritize globalization, increased energy consumption investment, and industrialization. It is essential to measure their indirect nexus too. Though several studies are in the relationship amongst CO<sub>2</sub> emissions, industrialization, energy usage and consumption of fossil fuel, no studies have attempted to examine the effect of high-carbon technology based on fossil fuels as the mediating factors of FDI inflows on carbon dioxide emissions in India's case. Our research considers the indirect effect of foreign direct investment inflows on carbon dioxide emissions through three mediating channels to minimize this gap. The following assumptions are proposed in order to investigate both the direct and indirect effects of FDI inflows on CO<sub>2</sub> emissions:

- H1: There exists a substantial association amongst foreign direct investment inflows and CO<sub>2</sub> emissions.
- H2: FDI inflows, energy structure, industrial structure, and carbon technologies are all linked in some way.
- H3: Energy structure, industrial structure, and carbon technologies significantly affect carbon dioxide emissions.
- H4: Inflows of FDI have a large mediating effect on CO<sub>2</sub> emissions.

## EMPIRICAL FRAMEWORK

The data and variables are described in this section. It presents the methodology to demonstrate the relevance of the econometric methods, namely, unit root test, cointegration test, Granger causality, and seemingly unrelated regression estimate to verify the hypotheses mentioned above.

### Data and Variables

The current study makes use of India's annual time-series data from 1980 to 2014. The sample duration is limited to 1980-2014 because of two reasons. First, 1980 is when India started its initial liberalization before 1990 (Panagariya, 2008). Second, the upper limit is restricted up to 2014, depending upon the availability of CO<sub>2</sub> emission data in the World Bank data source. To maintain all variables' consistency, we collected data as of the World Development Indicators (WDI) released by the World Bank. The primary dependent variable of our study is CO<sub>2</sub> emission. CO<sub>2</sub> emission is the commonly used indicator among other components to measure the degree of environmental degradation due to its long data availability period. Following the study by Bakhsh et al. (2017), we have considered the carbon dioxide emissions (kg per 2010 US\$ of GDP) as a significant dependent variable of our empirical analysis.



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The primary explanatory variable of our study is inward foreign direct investment. Following Salahuddin et al. (2018), we measure FDI inflows as a portion of gross domestic product (GDP) in this estimation. The three important mediating variables are energy structure (Wada et al., 2020, Shahbaz et al., 2016, Danish et al., 2020), the industrial structure (Mahmood et al., 2020, Zhang, Zhou, 2016), and the high carbon technology structure (Ali et al., 2020a, Ali et al., 2020b). The energy structure is dignified in energy usage (kg of oil equivalent per capita). The industrial structure is proxied with industry (including construction) value added (constant 2010 US\$) in our study. Following Ali et al. (2020b), our research takes fossil fuel consumption (% of total energy usage) as a proxy to measure the high carbon technology.

To ensure our regression estimation results are free from a variable omission or not affected by other unobservable factors (Li et al., 2020), our paper controls two commonly influential factors of CO<sub>2</sub> emission, namely economic growth and urbanization (Rustemoglu, Andres, 2016, Mahmood et al., 2020, Parikh et al., 2009). The growth of the economy is considered with the GDP per capita (constant 2010 US\$) and signifies the consequence of economic expansion on CO<sub>2</sub> emission. Simultaneously, the economy's urban structure (degree of urbanization) is proxied with the growth of the urban population (% of the total population).

During the estimation, all data is turned into the natural logarithm. In this paper, the CO<sub>2</sub> indicates the natural logarithm of carbon dioxide emissions, and FDI shows FDI inflows in its natural logarithm form. ES indicates the natural log of the energy structure of the economy, IS indicates the natural log of industrial structure, and HCT shows the natural log of high-carbon technology structure. The natural log of gross domestic development (economic development) is captured through GDP, and URBAN shows the natural log of the degree of urbanization in this paper.

Table 1 lists all variables, together with their measurement, definition, sources, and predicted indications.

Table 1 Description of variables, sources, and expected signs

Variables	Description	Representation	Source	Signs
CO <sub>2</sub>	CO <sub>2</sub> emission	Carbon dioxide (CO <sub>2</sub> ) emissions (kg per 2010 US\$ of GDP)	WDI, WB	+/-
FDI	FDI inflows	Foreign Direct Investment, net inflows (% of GDP)	WDI, WB	+/-
ES	Energy structure	Energy use (kg of oil equivalent per capita)	WDI, WB	+/-
IS	Industrial structure	Industry (including construction), value added (constant 2010 US\$)	WDI, WB	+/-
HCT	High carbon technology	Fossil fuel energy consumption (% of total energy)	WDI, WB	+/-
GDP	GDP per capita	GDP per capita (Constant 2010 US\$)	WDI, WB	+/-
URBAN	Urban structure	The urban population (% of the total population) growth	WDI, WB	+/-

Note: + ve sign and is –ve signs indicate positive and negative effects, respectively; the sign (+/-) means that impacts depend on the measurement scale.

*Source: Authors' compilation*



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# METHODOLOGY

This section includes the unit root test, co-integration test, causality test and the seemingly unrelated regression equations. The unit root test is the first measure to ensure stationarity before any time-series estimation. Following the previous research concentrated upon the interaction between FDI and carbon dioxide emissions at the aggregate level, such as single country or cross-country level, to verify the equilibrium and causality (Salahuddin et al., 2018, Lee, 2009, Gokmenoglu, Taspinar, 2016; Solarin et al., 2017, Singhania, Saini, 2021, Ayamba et al., 2019, Nguyen et al., 2021), have mentioned that detecting cointegration is the first step.

After ascertaining the equilibrium or cointegration relationship, the second phase entails deciding on Granger causality that is appropriate (Pu et al., 2020). For Granger causality, two strands of tests are available. The first aspect changes the test statistics but still not distribution. It contains Toda and Yamamoto (1995), Dolado and Lutkepohl's (1996) modified Granger causality test, a simple method for calculating a Wald statistic by adding VAR delays to the conventional asymptotic distribution.

The modified Granger causality test can be applied to a variety of regardless of whether they are stationary or not. As a result, pre-testing for integration and cointegration is not essential as long as the process's maximal order of integration is less than the VAR system's lag number. However, Shukur and Mantalos (2000) discovered that a modified version of the Granger-causality test underperforms, especially in small samples, using Monte Carlo experiments; consequently, an alternative is required.

Therefore, the second strand changes the distribution instead of the statistics. It uses standard Wald statistics while substituting an empirical bootstrap distribution obtained through bootstrap simulation for the non-standard distribution. The present study applies the Granger causality to survey the preliminary causal linkage involving FDI and CO<sub>2</sub> emissions. In the final step, our study applies the seemingly unrelated regressions (SUR) considering the bootstrap causality and measures the bootstrap samples' structure. At the same time, the SUR is more suitable when all regressors are assumed to be exogenous, and it produces comparatively reliable estimates.

## Unit root test

To know whether the time series implemented in our study is stationary, it is wise to go for a stationarity test. To determine the research's stationary properties, this paper applies the Augmented Dickey-Fuller (ADF) (1981) test and Phillips-Perron (PP) (1988) unit root test. The ADF test screens for unit roots while allowing for serial correlation in the residual. Simultaneously, the ADF test has the advantage of tackling the more complex models over the Dickey-Fuller test (1979). The study has taken both intercept ( $\alpha$ ) and Trend (T) having intercept with at lag order of one to detect unit root problem. The ADF test is based on the following equation:

$$\Delta Y_t = \alpha + \gamma T + \delta Y_{t-1} + \beta_1 \Delta Y_{t-1} + \dots + \beta_m \Delta Y_{t-m} + \mu_t \quad \dots\dots\dots(1)$$

where:

$\Delta$  – denotes difference operator;

$\mu_t$  – denotes residual term at time t;

$Y_t$  – denotes time series variable and  $\Delta Y_{t-1} + \dots + \Delta Y_{t-m}$  is used to correct the problem of serial correlation.





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However, the complexity lies with the ADF test as it is prone to produce a high rate of type-1 error if not handled carefully (Naz et al.2019). We employ the PP test together and handle the type-1 error to keep safe from this ADF limitation. Based on the ADF methodology, Phillips and Perron (1988) proposed a unit root test, which deals with the problem of heteroscedasticity and serial correlation. The method of PP test estimates non-augmented Dickey-Fuller test of equation (1) by ignoring  $\Delta Y_{t-1} + \dots + \Delta Y_{t-m}$ .

In addition, to remove the serial correlation, it provides rank to the residuals, and the equation of the PP test is as follows:

$$\Delta Y_t = \alpha + \gamma T + \delta Y_{t-1} + \mu_t \quad \dots \dots \dots (2)$$

The null hypothesis in both ADF and PP tests of non-stationarity is measured by the t-statistic with critical values computed by MacKinnon (1991). The null hypothesis is rejected in this case, implying that the series is stationary. This work employs the automatic lag length selection in the residual using the Akaike Information Criterion (AIC).

## Cointegration test

Co-integration is a time series econometric feature and a prerequisite for any long-run equilibrium relationship among multiple variables. If each series is non-stationary, two variables are cointegrated; yet, a linear combination is stationary (Engle, Granger, 1987). Using the Johansen cointegration technique, this study examines the long-run link between FDI and CO<sub>2</sub> emissions. The Johansen cointegration test can be implemented to check cointegration only if all the sequences are in the equal order (Engle, Granger, 1987). In addition, this test can be useful if the variables are of first order integrated, i.e. variables are not stationary at their level but become stationary after their first differencing (Boamah et al., 2018).

If this condition exists, the Johansen (1988, 1991) cointegration test will be used in our research, to check the collaborative flow between these two variables. This method provides two tests: Trace ( $J_{Trace}$ ) and Max-eigenvalue ( $J_{Max}$ ). Here, the Trace and the Max-Eigen statistic values are used (Johansen 1988, Johansen, Juselius 1990). The Max-Eigen statistic value test is preferred (Boamah et al., 2018). The reason lies in the Max-Eigen test having greater power than the Trace-Eigen test (Johansen, Juselius, 1990). Two statistical values of the Johansen cointegration test can be represented mathematically by Eq. 3-4 as follows:

$$J_{Trace}(K) = -T \sum_{j=K+1}^m \ln(1 - \lambda_j) \quad \dots \dots \dots (3)$$

$$J_{Max}(K + 1) = -T \ln(1 - \lambda_{K+1}) \quad \dots \dots \dots (4)$$

Here K implies the number of cointegrating vectors, and T is the sample size.  $\lambda_j$  is the most significant canonical correlation. The null hypothesis of trace test that there are r cointegration vectors against the alternative of n cointegration vectors. On the opposite side, the Max-Eigen test exams the null hypothesis of r cointegration against the alternative hypothesis of r+1 cointegrating vectors. These null hypotheses' rejection criterion depends on the asymptotic critical values at a 5% significance level and is available mainly by econometric software packages. There is no cointegration among the variables if the null hypothesis cannot be rejected at the given critical value.



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### Granger causality

The work of verifying the long-run link between CO<sub>2</sub> emissions and FDI inflows does not end once the study has established it. The long-run association between variables is insufficient to provide a concrete conclusion between two-time series (Granger, 1969). Thus, our objective's next logical footstep is to check for any causal connection among these two variables when the time series is cointegrated (Rahman, Kashem, 2017). The study follows the Granger (1969) framework to examine this nexus. Following Wen and Dai (2020), we used the Granger causality between our variables in an enhanced VAR framework. Granger causality provides the opportunity intended for both unidirectional (whether CO<sub>2</sub> emissions cause FDI inflows or FDI inflows cause CO<sub>2</sub> emissions) and bi-directional causality (both become the cause of each other). However, our prime motive is to check do FDI inflows cause CO<sub>2</sub> emissions in India?

### SUR regression

This research looks into the impacts of the mediator variables of FDI inflows on CO<sub>2</sub> emission. When more than one or more variables achieve the independent variable's influence on the dependent variable, more variables are referred to as mediator variables (M) (Wen, Ye, 2014). For simplicity, the study follows single-step multiple mediator models to analyze the internal mechanism of FDI inflows affecting India's carbon emission level. One approach to measuring such an effect is the seemingly unrelated regression equations.

The SUR method is a multivariate regression technique and is commonly known as Zellner's method for estimating the model's parameters. According to Zellner (1962), SUR is helpful when several equations seem irrelevant, but a secret and significant relationship exists between them<sup>1</sup>. The reasons might be as follows:

- 1) some coefficients should be the same or equal to zero;
- 2) throughout the whole equations the error terms or residuals are interconnected;
- 3) standard independent variables are used (Zellner, 1962).

In the foundational work of Zellner, the approach was applied to firm-level investment data collected annually for 20 years. In any modelling endeavour including pooled data, it remained a popular option. More specifically, the model makes it easy to continue with the data's cross-section, time-series characterisation, but what makes the data unique is that it has two dimensions (Fiebig, 2001).

However, Bartels et al. (1996) applied the SUR technique to cross-section units such as household expenditure on gas and electricity. Extending further Fernandez and Harvey (1990) reported that the SUR model is helpful when dealing with models that are directly modeled in terms of components of interest, such as trends, seasonals, and cycles, which are known as structural time series models. This model is widely used in time series analysis (Engle, 1978, Gersch, Kitagawa, 1983, Harvey, Todd, 1983, Harvey, Durbin, 1986) in these articles, the unobserved components in each of the individual time series are permitted to be contemporaneously associated with each other to quantify them in multivariate

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<sup>1</sup> The Breusch-Pagan/ Cook-Weisberg test our samples have no heteroscedasticity issues with an insignificant chi-square distribution (chi-square = 0.02 and p-value = 0.8869) The Breusch-Godfrey LM test established the existence of a correlation among the variables in our dataset (chi-square = 6.356 and p-value = 0.0117), thus justifying the use of the SUR to estimate equations (5) to (7).



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structural models,. These models are made to deal with a group of time series that, while not directly related, are influenced in similar ways.

In recent times, many studies have used this technique in environment and energy literature. For example, Alataş (2020) has applied this regression to examine the relationship among the elasticity of substitution between four inputs such as capital, labor, energy, and materials at the aggregate level for Germany from 1978 to 2005. Bello et al. (2020) employed the econometrics techniques of seemingly unrelated regression using data information from 1988 to 2016 to demonstrate the elasticity of substitution between hydropower and the principal non-renewable fuels of natural gas and coal used in generating electricity in Malaysia. In addition, Pan et al. (2020) have used the SUR method to study the impact of FDI on energy efficiency in China from 2003 to 2016 at the national and province levels.

The implication behind this application lies in the method that takes account of the error term correlations across equations in the estimations and allows us to obtain more precise and efficient coefficient estimates than the ordinary least squares (OLS) estimator. Another reason for the SUR approach is that it is more suitable when all regressors are assumed to be exogenous; it produces more reliable estimates. Extending further, Pu et al. (2020) have addressed that the seemingly unrelated regression is suitable for estimating a model when the time series data have fewer variables, and there is a correlation between the error terms of the dependent variables.

Therefore, this method is helpful to estimate the system's parameters, accounting for contemporaneous correlation in the errors across equations (Khan et al., 2014). The SUR model is a set of feasible generalized squares with a particular form of the variance-covariance matrix. As a result, this model is considered as either a simplified version of the general linear model or a generalisation into the simultaneous equations model, with the right-hand side regressors set to be the endogenous variable. Thus, this model helps measure the equations' jointness and the covariances associated with this. The empirical analysis accounts for the following model specification:

$$CO_{2,t} = \alpha + cFDI_t + u_t \quad \dots (5)$$

$$M_{i,t} = \beta_i + a_i X_t + u_{i,t} (i = 1,2,3) \quad \dots (6)$$

$$CO_{2,t} = \gamma + c' \ln X_t + \sum_{i=1}^3 b_i M_{i,t} + u'_t \quad \dots (7)$$

where:

$\alpha, \beta_i, \gamma$  – are the intercepts,

$u, u_i$  and  $u'$  – are residual errors, and

$t$  – shows the time,

$FDI_t$  – is the independent variable and implies FDI inflows, and

$CO_{2,t}$  – is the dependent variable and shows the CO<sub>2</sub> emissions,

$M_i$  – comprise the mediator variables where  $M_1$  is energy structure,  $M_2$  is the industrial structure, and  $M_3$  is the economy's high-carbon technology.

In equation (5), we include economic growth and urbanization as two control variables:

$c$  – is the total impact of FDI inflows on CO<sub>2</sub> emissions,



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$a_i$  – is the impact of FDI inflows on  $M_i$ .  $b_i$  is the effect of  $M_i$  of  $CO_2$  emissions, after controlling the influence of  $X$ ,  $a_i b_i$  – is the specific indirect effect of FDI inflows on  $CO_2$  emissions via  $M_i$ ,  $c'$  – is the direct effect of FDI inflows on  $CO_2$  emissions after controlling the mediators.  $\sum_{i=1}^3 b_i M_i$  is the total mediation effect.

## EMPIRICAL RESULTS AND DISCUSSION

### Descriptive Statistics

The descriptive statistics of our variables are presented in their original form in Table 2. This empirical analysis is based on 35 observations. The statistics show that the average value of carbon dioxide emissions is about 1.136 units, while its maximum values are about 1.292 units, the minimum value is 1.010 units, the standard deviation is 0.089 units. The mean value of FDI is 0.800, and the standard deviation is 0.889 units. Its maximum value is about 3.620 units, and the minimum value is 0.002. The mean value of energy structure, industrial structure, and high-carbon technology is 413.111, 257.341, and 59.252.

At the same time, the standard deviation values of these three variables are 98.090, 163.739, and 9.948 units, respectively. The maximum and minimum value of the energy structure lies between 636.570 and 286.164. The maximum and minimum value of the industrial structure lies at 611.834 and 77.641, respectively. Similarly, the maximum value of HCT is 73.576, and the minimum value stands at 39.383. The mean value of GDP is 833.321, the standard deviation is 356.818, while the maximum value is 1640.181, and the minimum value is 422.904. The mean and standard deviation value of URBAN is 2.839 and 0.369, respectively. At the same time, the maximum and minimum value of URBAN is 3.889 and 2.329, respectively.

Table 2. Descriptive Statistics

Variable	Observation	Mean	Std. Dev.	Min	Max
CO <sub>2</sub>	35	1.136	0.089	1.01	1.292
FDI	35	0.800	0.89	0.003	3.620
ES	35	413.112	98.091	286.164	636.570
IS	35	257.340	163.739	77.641	611.834
HCT	35	59.252	9.949	39.383	73.577
GDP	35	833.321	356.818	422.904	1640.181
URBAN	35	2.839	0.369	2.329	3.889

Source: Authors' calculation

### Correlation results

Before the mediating effect analysis, the study correlates the dependent variable  $CO_2$  emissions, the prime independent variable FDI inflows with its mediating factors, and the control variables.

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Table 3. Correlation results of FDI inflows with its mediating factors

	CO <sub>2</sub>	FDI	ES	IS	HCT	GDP	URBAN
CO <sub>2</sub>	1.000						
FDI	-0.248 (0.150)	1.000					
ES	-0.391** (0.020)	0.861*** (0.000)	1.000				
IS	-0.415** (0.013)	0.898 *** (0.000)	0.989*** (0.000)	1.000			
HCT	-0.180 (0.301)	0.907*** (0.000)	0.938*** (0.000)	0.959*** (0.000)	1.000		
GDP	-0.456*** (0.006)	0.879*** (0.000)	0.993*** (0.000)	0.997*** (0.000)	0.941*** (0.000)	1.000	
URBAN	0.058 (0.742)	-0.829*** (0.000)	-0.906*** (0.000)	-0.900*** (0.000)	-0.958*** (0.000)	-0.886*** (0.000)	1.000

Source: Authors' calculation

Note: \*\* and \*\*\* indicate that the correlation coefficients are significant at 5% and 1 % significance levels, respectively.

The correlation and covariance results for FDI inflows and mediating factors are reported in Table 3. This indicates that FDI negatively correlates with CO<sub>2</sub> emissions; however, its p-values indicate it is insignificant to affect CO<sub>2</sub> emissions. Three mediating factors of FDI have also shown a negative association with the dependent variable, where all variables remain significant at a 5% level of significance except high carbon technology. GDP per capita has shown an adverse association with carbon dioxide emissions and remains substantial at a 1% significance level. The urban factor positively correlates with the dependent variable; however, it is insignificant. Based on the findings, it is worth noting that there is a substantial beneficial link between FDI and ES, FDI and IS, and FDI and HCT.

Table 3 also illustrates a favorable and considerable link between per capita GDP and FDI. However, URBAN presents a negative association with FDI but remains insignificant. The correlation analysis also shows that IS and ES are correlated positively and significantly. Finally, the result noted that IS and HCT have a positive and significant correlation. At the same time, the correlation results also highlighted that three mediating factors are positively and significantly associated with GDP but possess a negative but significant association with urbanization. The correlation result of GDP with URBAN has shown a negative and significant association. This can be noted that all the correlation coefficients of mediating factors are significant at a 1% level with FDI inflows. All three factors show a positive association with FDI inflows requiring further attention for empirical investigation regarding CO<sub>2</sub> emissions.

## Unit root results

The ADF and PP-unit root test are used in the study to check stationarity, which is the initial stage in our empirical estimation. The ADF and PP-unit root test results with intercept and trend & intercept are shown in Table 4. The ADF results show that all variables remain non-stationary at a level with intercept except HCT. Similarly, none of our variables are stationary at a level with intercept and trend, according to the ADF test results. However, the PP-test also reveals that most variables are non-stationary at levels with intercept except HCT. Unlike the ADF test, the PP-test shows that all the variables are non-stationary at the level with intercept and trend except the HCT. In Table 4, the ADF result exhibits that all the variables become stationary at the first difference with intercept except the ES. However, all variables become stationary in their first



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difference with intercept and trend. Similar to the ADF first difference test, the PP-test results reveal that all variables become stationary after their first difference with intercept and intercept and trend.

Table 4. ADF and PP-unit root test results

Variables	Level		First Difference	
	Intercept	Intercept and trend	Intercept	Intercept and trend
<b>ADF Test Statistics</b>				
CO <sub>2</sub>	-0.087 (0.670)	-0.137 (0.674)	-0.959 (0.000)	-1.016 (0.000)
FDI	-0.089 (0.643)	-0.479 (0.123)	-1.400 (0.000)	-1.401 (0.001)
ES	0.028 (0.999)	0.003 (0.995)	-0.602 (0.111)	-0.947 (0.001)
IS	0.004 (0.986)	-0.270 (0.173)	-0.719 (0.003)	-0.734 (0.011)
HCT	-0.054 (0.000)	-0.108 (0.134)	-0.521 (0.052)	-1.008 (0.000)
GDP	0.021 (1.000)	-0.074 (0.916)	-0.884 (0.000)	-1.097 (0.000)
URBAN	-0.076 (0.329)	-0.272 (0.131)	-0.677 (0.003)	-0.709 (0.013)
<b>Phillips-Perron Test Statistics</b>				
CO <sub>2</sub>	-0.087 (0.623)	-0.137 (0.685)	-0.959 (0.000)	-1.016 (0.000)
FDI	-0.089 (0.746)	-0.479 (0.123)	-1.114 (0.000)	-1.114 (0.000)
ES	0.028 (0.999)	0.003 (0.989)	-0.812 (0.000)	-0.947 (0.000)
IS	0.004 (0.984)	-0.186 (0.495)	-0.719 (0.004)	-0.733 (0.016)
HCT	-0.053 (0.000)	-0.108 (0.096)	-0.598 (0.002)	-1.008 (0.003)
GDP	0.021 (1.000)	-0.073 (0.979)	-0.884 (0.000)	-1.097 (0.000)
URBAN	-0.096 (0.117)	-0.246 (0.138)	-0.677 (0.004)	-0.709 (0.018)

Source: Authors' calculation

Note: p-values are in parenthesis.

The ADF and PP-unit root test results give a stable conclusion of stationary at the first difference for all the variables in this study during 1980-2014. As the CO<sub>2</sub> emissions and FDI inflows follow the single integer of the same order, this study can carry out the cointegration analysis. Similar finding have also obtained in the existing studies with Acharyya (2009) and Tang and Tan (2015) and suggested a cointegration test to investigate the long-run association between FDI inflows and CO<sub>2</sub> emissions in India and Vietnam.

## Cointegration test result

The Johansen test is preferred to see any long-run, steady, and balanced link between CO<sub>2</sub> emissions and FDI inflows in India over the study period. The cointegration test results are shown in Table 5.

Table 5. Cointegration test result

Test Form (c, t, p)	Statistics value	5% critical value	Null Hypothesis (H <sub>0</sub> )	Alternative Hypothesis (H <sub>1</sub> )	Eigenvalue	Hypothesized No. of CE (s)	Conclusion
<b>Trace Statistics</b>							
(1, 0, 1)	15.791**	15.494	h=0	h≠0	0.303	None*	Cointegration relationship exists

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(1,1, 1)	27.156 **	25.872	h=0	h≠0	0.502	None*	Cointegration relationship exists
(0,0,1)	21.538***	12.321	h=0	h≠0	0.391	None*	Cointegration relationship exists
<b>Max-Eigen statistic</b>							
(1, 0, 1)	4.608**	3.841	h=0	h≠0	0.138	At most 1*	Cointegration relationship exists
(1, 1, 1)	20.229**	19.387	h=0	h≠0	0.213	None*	Cointegration relationship exists
(0, 0, 1)	6.126***	11.224	h=0	h≠0	0.392	None*	Cointegration relationship exists

*Source: Authors' calculation*

Note: 1. h represents the cointegration rank. 2. In the test form (c, t, p), "c=0" means no constant, "c=1" means a constant; "t=0" means no trend and "t=1" means having a trend; p represents the lagged rank. 3. \*\*\*, \*\* indicates 1% and 5% level of significance, respectively.

The cointegration test outcomes for CO<sub>2</sub> emissions and FDI inflows reveal that the trace statistic and maximum eigenvalue tests are substantial at a 5 percent critical level. After rejecting the null hypothesis, the trace statistics, and maximum eigenvalue tests, the investigation uncovers a fairly long cointegration link between these two variables in India's case. This outcome is in line with expectations with Salahuddin et al. (2018) for Kuwait, Solarinet al. (2017) for Ghana, Tang and Tan (2015) for Vietnam, and Acharyya (2009) for India. Thus the cointegration results indicate that FDI inflows and CO<sub>2</sub> emissions have a reasonably long association.

## Granger causality test result

This study needs to investigate the causal association between FDI inflows and CO<sub>2</sub> emissions once the cointegration result is obtained. Thus, the next step of our paper is to examine whether FDI inflows cause carbon emission or not in the case of India. Our estimation applies the Granger causality (1969) test to explore this relationship for this study's variables. The lag-order, the F-statistics, and the p-values are used in the test.

Table 6. Granger causality test result

Lag order	F statistics	p-values	No. of observations	Conclusion
1	3.47*	0.072	34	FDI inflows cause CO <sub>2</sub> emissions
2	2.553*	0.095	33	FDI inflows cause CO <sub>2</sub> emissions
3	2.155	0.118	32	FDI inflows do not cause CO <sub>2</sub> emissions
4	1.296	0.302	31	FDI inflows do not cause CO <sub>2</sub> emissions
5	1.076	0.404	30	FDI inflows do not cause CO <sub>2</sub> emissions

*Source: Authors' calculation*

Note: \* indicates 10 % level of significance



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From Table 6, it is shown that in two cases, i.e., at lag one and lag two, our results show that FDI inflows positively cause CO<sub>2</sub> emission at a 10 percent significance level. This implies that one unit change in FDI demonstrated 3.47 unit changes in CO<sub>2</sub> emission at the first lag and 2.553 unit changes at the second lag. In other words, FDI has a favorable and consistent effect on CO<sub>2</sub> emission levels in India. This result is in line with previous research of Salahuddin et al. (2018), Acharyya (2009), Lee (2009) and supports the pollution haven hypothesis in Kuwait, India, and Malaysia, respectively. These results mean that FDI is also influencing the increasing carbon dioxide emissions level.

## SUR regression result

This calculation will look at how FDI inflows affect carbon dioxide emissions with different mediating factors. This research follows the seemingly unrelated regression model to check the multiple effects of FDI inflows. This helps control the error terms between the different equations, which might be correlated (Menghan 2018). Table 7 displays the OLS estimates and the results of the SUR model. Model 1 gives the OLS model estimation. Model 2-4 provides the impact of FDI on the mediating variables, and Model 5 presents the mediating effect of FDI on CO<sub>2</sub> emissions.

Table 7. SUR regression result

Dependent Variables →	Model 1 CO <sub>2</sub>	Model 2 ES	Model 3 IS	Model 4 HCT	Model 5 CO <sub>2</sub>
<b>Independent Variables ↓</b>					
<b>FDI</b>	0.014* (0.013)	0.107*** (0.0106)	0.315*** (0.026)	0.088*** (0.007)	0.014** (0.006)
<b>ES</b>					0.856*** (0.144)
<b>IS</b>					-0.716*** (0.064)
<b>HCT</b>					1.246*** (0.096)
<b>GDP</b>	-0.398*** (0.040)				
<b>URBAN</b>	-0.956*** (0.113)				
R-squared	0.790	0.741	0.807	0.823	0.883
Adj. R-Squared	0.770				
F-statistics or Chi <sup>2</sup> -statistic	38.93***	100.40***	146.49***	162.04***	264.50***
No. of Observations	35	35	35	35	35

Source: Authors' calculation

Notes: 1. Model 1 presents the OLS estimates. 2. Model 2, Model 3, and Model 4 correspond to equation (6) containing variable M<sub>1</sub> (energy structure), M<sub>2</sub> (industrial structure), and M<sub>3</sub> (high-carbon technology). 3. The parenthesis values are the robust standard errors. 4. \*\*\* and \*\* indicate significance at 1% and 5 %, respectively. 5. Because the intercepted item has no substantial meaning in the mediating effect analysis, it is omitted here.





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Table 7 Model 1 shows that the total effect on the carbon emission level is beneficial and consistent. The OLS measurement of FDI demonstrates a 0.014 unit change due to one unit change in FDI. This shows that FDI significantly affects carbon emission levels in India due to direct investment from abroad. This finding is supported by previous literature of Shahbaz et al. (2018) for France. This outcome aligns with Acharyya's (2009) previous findings and implies the PHH hypothesis's existence in India's case. The regression results also show a harmful and substantial effect of economic expansion and urbanization on carbon dioxide emissions. The empirical result demonstrates that one unit change in economic development offers a significant negative effect of -0.398 units on CO<sub>2</sub> emissions. This finding supports the recent literature (Wang et al., 2018). This means that increased economic expansion has no negative impact on environmental quality; instead, it improves sustainability. Similarly, the coefficient of urbanization also highlights a significant negative effect of -0.956 units on CO<sub>2</sub> emissions. This outcome supports the existing literature (Yao et al., 2018). It implies that urbanization can improve environment quality with eco-friendly techniques and environmental awareness in urban India.

However, the OLS regression is limited to explaining the effect of the mediating channels on CO<sub>2</sub> emissions. Thus, our study employs the SUR estimators. The SUR technique provides four models (Model 2-5) results simultaneously in Table 7. Model 2 demonstrated coefficient  $a_1$ , i.e., the direct impact of FDI on energy structure is 0.107 at the 1% level of significance. This result is reliable with Pao and Tsai (2011), where the findings highlighted a bidirectional relationship between FDI and CO<sub>2</sub> emissions. At the same time, Model 5 can identify coefficient  $b_1$ , i.e., the direct effect of energy structure on carbon dioxide is 0.856, which is still considerable at 1%. This is in line with the recent research (Pao et al., 2011, Ozturk, Acaravci, 2013, Saboori et al., 2014, Khan et al., 2018).

This implies that energy consumption has significantly contributed to pushing up the emissions line upward. Since  $a_1$  and  $b_1$  are significant, the mediation effect through the energy structure is substantial, which is  $a_1b_1=0.092$ . This implies that FDI inflows use higher energy in terms of kg of oil use. It can be assumed that this might be a heavy burden on India's transportation sector. This sector is highly energy-intensive and has become one of India's significant contributors to CO<sub>2</sub> emissions. Therefore, India's government must take immediate measures to reduce the energy intensity in oil consumption and substitute for renewable energy or less intensive resources. It needs high investment in energy-consuming sectors and demands serious actions to build an unfavorable connection between energy resources and environmental quality through FDI. It can be possible with the advancement of adaptive, less energy-intensive technologies.

Similarly, Model 3 represents the coefficient  $a_2$  is 0.315 at a 1% level of significance, where  $a_2$  implies the direct effect of FDI on the industrial structure. This shows that FDI inflow has a significant role in increasing the industrial structure by increasing the industrial value-added. This result supported the earlier findings of Adejumo (2020), Dash and Parida (2013), and Gui-Diby and Renard (2015). It emphasized the direct and upward relationship between FDI inflows abroad and industrial development. In other words, these papers claimed that FDI boosts industrialization and modernizes the economy with new investment and growth.

At the same time, the coefficient of  $b_2$  in Model 5 shows a significant and a negative value (-0.716) which implies that CO<sub>2</sub> emissions are adversely affected by the industrial structure. This finding stands in contrast with the earlier literature by Liu and Bae (2018), Ullah et al. (2020), and Mahmood et al. (2020). The findings of these existing studies revealed a positive association between industrial activities and economies' emission levels. However, our results supported the recent literature by Lin et al. (2017), Dong et al. (2020), and Ghazouani (2021). They argued that with environment-friendly and energy-efficient technologies and skilled workers, industries could reduce environmental degradation and help countries sustain their economies. Thus the mediating effect of industrial structure is substantial with a value of  $a_2b_2=-0.226$ .



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This illustrates that while FDI inflows have a beneficial direct influence on the industrial structure, the industrial structure harms CO<sub>2</sub> emissions. The implication is that FDI inflows increase the value-added of industries by introducing innovative technologies and environmentally friendly methods; thus, the industrial sector improves India's environmental quality. The direct impact of FDI on third mediating factor (high-carbon technology) coefficient values are shown in Model 4. The coefficient value demonstrates that  $a_3$  is 0.088, which becomes statistically relevant at the 1% level. This means that an uptick in the inflow of FDI would be beneficial. This implies that an increase in FDI inflows significantly affects promoting high-carbon technology.

These findings are supported with the earlier empirical findings of Lindmark (2002) and Zangoei et al. (2021). These papers demonstrated that developing countries generate economic growth from inward foreign investment by using more fossil fuel energy. At the same time, the mediating factors coefficient value  $b_3$  is 1.250 and remains significant at a 1% level. The interpretation lies that the rise in consumption of fossil resources as a percentage of total energy can significantly increase India's carbon emission level. This finding is in accordance with Mert and Boluk (2016), Ali et al. (2020a) and Ali et al. (2020b), Ahmad et al. (2016). The findings of these studies revealed that economic development, fossil fuel, and CO<sub>2</sub> emissions have a positive and strong correlation. Thus the high-carbon technology mediation effect is significant with a value of  $a_3b_3 = 0.110$ .

From this result, it can be assumed that India's inflows favorably influence the fossil fuel consumption and adopt a high-carbon technology. Thus investment through FDI in fossil fuel-intensive units generates a rising amount of carbon emissions in India. These results can be verified with the previous findings of Pao and Tsai (2011) and suggested that nations with fossil energy-oriented inward FDI should shift their paradigm to more eco-friendly investment and control the level of emissions without compromising their economic growth. Along with the significant three mediating coefficients, our SUR model presents a substantial direct effect of FDI on carbon emission is  $c' = 0.014$  in Model 5. This indicates that in addition to the three mediating variables, other mediators may play a role in this mechanism by which FDI affects India's carbon dioxide emission level.

Then the bootstrap test is used to examine the individual mediation effect and the total mediation effects. The single-step multiple mediator models are tested using the non-parametric percentile bootstrap method and the biased-corrected non-parametric percentile bootstrap method.

Table 8. Bootstrap test result

Mediation effect	Observed coefficient	95% confidence interval	95% biased confidence interval	Conclusion
$a_1b_1$	0.092	(0.051, 0.133)	(0.054, 0.134)	Significant
$a_2b_2$	-0.226	(-0.302, -0.150)	(-0.308, -0.165)	Significant
$a_3b_3$	0.110	(0.083, 0.138)	(0.083, 0.137)	Significant
$a_1b_1+a_2b_2+a_3b_3$	-0.024	(-0.049, 0.001)	(-0.053, -0.005)	Significant

Source: Authors' calculation

Table 8 presents the mediating factors that significantly affect carbon emission levels. The bootstrap test results show that the individual and the combining indirect impact of FDI inflows on carbon emissions are substantial. While the individual mediating effect of the energy structure and the high carbon technology positively impacts CO<sub>2</sub> emissions, the industrial structure negatively affects India's emission level. However, the combined mediating effect shows an undesirable consequence of FDI on carbon emissions. This suggests that FDI inflows in India are not directly deteriorating the environment quality offered as the OLS estimators in Model 1. Instead, it helps to improve the environmental quality with

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different mediating channels. This findings is in keeping with Kong's past research (2021). This implies a positive and sustainable economy with high FDI inflows and improved environmental quality.

Finally, the results demonstrate that the total mediation effect of FDI inflows are significant and accounts for the overall proportion of the carbon dioxide in the Indian economy, which accounts for around 82.8 percent in India; thus, it can visualize the necessity of the proper structural distribution and its utilization of FDI inflows in India. The above analysis can be shown in a path of the diagram (see Figure 2).

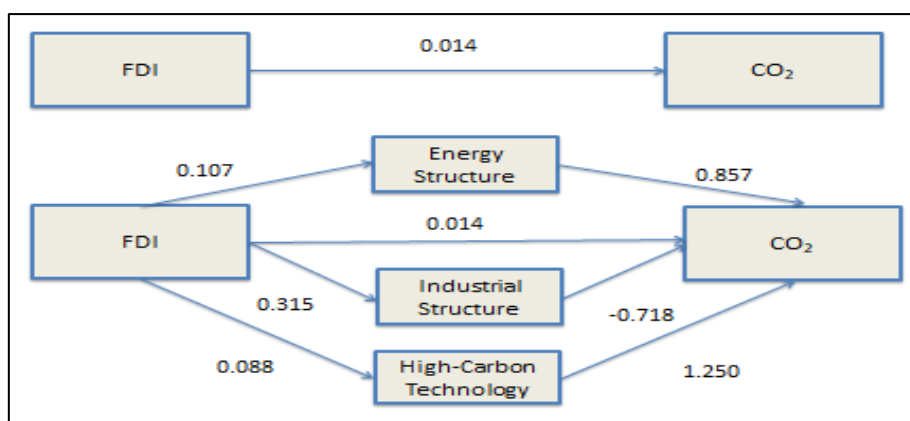


Figure 2. The direct and mediating effect of FDI inflows on CO<sub>2</sub> emission

*Source: Authors' calculation*

Figure 2 gives the path chart of FDI inflows affecting carbon emissions directly and indirectly. The first part of the figure shows the OLS regression results and shows the entire impact on carbon emissions. Throughout the second part, the figure gives the mediating effect of FDI inflows by energy structure, industrial structure, and high carbon technology on the CO<sub>2</sub> emission level of India.

In summary, this study highlighted an indirect effect of FDI inflows on CO<sub>2</sub> emissions once after verifying its long-run cointegration and unidirectional causal relationship from inward foreign investment to carbon dioxide emissions in India. However, the existing studies have well explored the relation amid FDI inflows and CO<sub>2</sub> emissions (Acharyya, 2009, Rana, Sharma, 2019, Pu et al., 2020, Zangoei et al., 2021) and found a positive association and supported the theoretical pollution haven hypothesis. Similar findings can also prove while interpreting the direct relationship between FDI inflows and carbon dioxide emissions in this paper. In contrast, a set of existing studies (Zhang, Zhou, 2016, Ning, Wang, 2018, Ayamba et al., 2019) have revealed a negative linkage among them, and it was materialized in the bootstrap result in the SUR model.

The novelty of this study lies with its investigation of mediating effects of FDI inflows on emissions. With the application of the seemingly unrelated regression, our study enables us to find out the relationship between FDI on CO<sub>2</sub> emissions, energy structure, industrial structure, fossil fuel consumption, and the effect of these three mediating channels of FDI on CO<sub>2</sub> emissions. However, the existing studies (Mirza, Kanwal, 2017, Ullah et al., 2020, Dong et al., 2020, Ali et al., 2020a) have revealed the relationship considering these variables for a different group of countries focused on the direct associations. The findings also demonstrate that the two control variables in the first model are negative and significant. This implies economic growth and urbanization have reached a threshold, and environmental awareness and energy-efficient technology together helped to reduce CO<sub>2</sub> emissions. This result is in accordance with Wang et al. (2018) and Yao et al. (2018) and inconsistent with Jalil, Mahmud (2009), Mardani et al. (2019), Shahbaz (2014), and Al-Mulali et al. (2015). These findings have several theoretical and practical implications concerning future studies and policy suggestions and can be better understood in the next section.



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# CONCLUSION AND POLICY IMPLICATION

The research on FDI inflows and environmental quality in India is covered in this paper. The analysis focused on the FDI inflow's direct and indirect impact on CO<sub>2</sub> emissions in the presence of mediating channels. This research accounts an extensive time-series data for 35 years. We use the ADF and the PP-unit root test, the Johansen cointegration test, the Granger causality test, and the SUR method for empirical analysis. After giving a brief of variables with descriptive statistics, our research found that FDI inflows and CO<sub>2</sub> emissions are stationary at the same integer. Our research employs the Johansen cointegration test shows that these two have a long-term association. Then this research applies the Granger causality and evidences a one-way connection from FDI to CO<sub>2</sub> emissions.

To examine the mediating effects of FDI inflows, we estimate using the SUR technique. According to the SUR estimates, the mediating effect of FDI inflows on India's carbon dioxide emissions is greater than the direct impact. High-carbon technology and energy structure coefficient are positive in the mediating channels of FDI inflows. This shows that foreign investors invest FDI in India are highly energy-intensive with high oil consumption. At the same time, our result evidenced that foreign investment in India is significantly fossil fuel-intensive and produces more carbon emissions with high-carbon technologies. This result backs up the pollution haven theory in the internationalization and environmental quality nexus. However, the industrial structure's mediating influence demonstrates an inverse link between FDI inflows and CO<sub>2</sub> emissions. This result contrasts the energy structure and the carbon technology, supporting the recent environmental and internationalization nexus mentioned in the pollution halo effect. Therefore, FDI inflows on CO<sub>2</sub> emissions depend on redistribution across the structures. Thus, this study has several theoretical and practical implications that can be used as a road map for the researcher, industrial agents, policy makers, and government.

The findings of this paper contribute to the debate between "pollution haven" and "pollution halo" effects by synthesizing the existing relation between FDI inflows and carbon dioxide emissions and determining whether FDI is favourable or unfavourable for the quality of the environment. The findings of our estimation control the mediating effects and explain that part of FDI inflows is invested in the energy-intensive and fossil fuel sector. This further contributes to emissions and might provide polluting industries with a less environment-friendly approach to invest in India. This indicated a 'capital flight' of polluted units from a highly regulated and high production cost economy to India to use its cheap labor supply and enjoy the less stringent environmental regulations.

However, the results also revealed that FDI inflows in industrial sectors significantly boost the industrial outcome. At the same time, the SUR estimates revealed that investment in the industrial sector is energy efficient and helps control emissions. It is further can be notified that the net SUR bootstrap result shows that FDI inflows create a "pollution halo" in India after comprising the negative effect of FDI on the environment. Therefore our findings suggest dealing with the theoretical ambiguity about the FDI-environment nexus; studies should control the heterogeneous effect of foreign investment and its consequence on the environment. This paper has also suggested some practical implications for the industrial units. As FDI inflows in the industrial sector are helping for a sustainable environment, industrial entities can increase their competency and attract more FDI.

At the same time, the industrial sector can boost the economy for more output and employment sustainably. Considering its priority Indian government and reputed industrial chairs should encourage programs like "Mission Innovation (MI)" to formulate new and more "transformative innovation policy (TIP)," as mentioned by Carayannis et al. (2022) in the case of the US in 2015. This program's primary



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goal is to make clean energy more accessible and generate more sustainable jobs and investment opportunities for enterprises.

Thus, the implications of the results have a broader scope for future research. Firstly, research can undertake for other countries or at cross country level considering this set of macro-economic variables. Secondly, studies can further investigate other mediating channels of FDI inflows while considering their effect on the environment. Next, this study can extend to verify such nexus at a more dis-aggregate level such as region or districts, industry or firm level. Finally, future research can encourage case studies for specific industries to change their competitiveness and competency. Therefore, this research will help the researchers and policymakers choose where to invest the FDI inflows and generate more benefits with good environmental quality. A concrete policy implication of this study can be explained in the following section.

Being the most prominent growing country globally, India needs more foreign investment to grow and develop faster. Thus, similar to Singhanian and Saini (2021) our research suggests government intervention with clear environmental disclosures by establishing stringent regulations is essential to reduce the direct volume of carbon emissions and reduce greenhouse gas (GHGs) levels. Though the government of India has taken many initiatives (such as a target of by 2030, emissions linked with each unit of economic output will be reduced by 33-35 percent compared to the 2005 levels, the National Electricity Plan (NEP)-2018 and also the National Action Plan on Climate Change (NAPCC) in 2008) to curb the climate change effects nationally and globally, some measures are still necessary to achieve a sustainable India.

Therefore to achieve the COP26's "net zero" emission target by 2070 and attain sustainable development, India needs to encourage the ability to cut emissions and complement the best use of resources. Thus, an incentivized policy may be proposed at the macro and micro level with tax exemptions to the cleaner units. Similar to Zhu et al. (2016), our research suggests the government may impose strict legal and non-legal barriers to control various production units' energy consumption. For example, a carbon tax can be imposed on those production units emitting a higher level of carbon dioxide. At the same time, MNCs should follow a strict disclosure index on environmental quality within the host country. This will pressure the domestic units to improve their environmental quality to stay more competitive in the world market (RobecoSAM2019). Simultaneously, as India is a source of renewable energies, it may encourage the production units to invest more by using solar energy, wind energy, and biofuel energy instead of fossil fuel energy. Thus, India should improve its economic performance and enable further FDI inflows with efficient energy use and the latest eco-friendly technologies to achieve a cleaner and sustainable environment.

## REFERENCES

- Abdoul, M., Kamoun, O., Hamdi, B. (2018). The impact of economic growth, population density, and FDI inflows on CO<sub>2</sub> emissions in BRICS countries: Does the Kuznets curve exist? *Empirical Economics*, 54(4), 1717-1742.
- Acharyya, J. (2009). FDI, growth and the environment: Evidence from India on CO<sub>2</sub> emission during the last two decades. *Journal of economic development*, 34(1), 43-58.
- Acheampong, A., O., Adams, S., Boateng, E. (2019). Do globalization and renewable energy contribute to carbon emissions mitigation in Sub-Saharan Africa? *Science of the Total Environment*, 677, 436-446.



## Conference Proceedings

- Adejumo, A.V. (2020). Foreign direct investment-led industrialisation: any direction for spillovers in Nigeria? *Journal of Co-operative and Business Studies*, 5, 839-861.
- Ahmad, A., Zhao, Y., Shahbaz, M., Bano, S., Zhang, Z., Wang, S., Liu, Y. (2016). Carbon emissions, energy consumption and economic growth: An aggregate and disaggregate analysis of the Indian economy. *Energy Policy*, 96, 131-143.
- Alataş, S. (2020). Towards a carbon-neutral economy: The dynamics of factor substitution in Germany. *Environmental Science and Pollution Research*, 27(21), 26554-26569.
- Ali, M.U., Gong, Z., Ali, M.U., Wu, X., Yao, C. (2020a). Fossil energy consumption, economic development, inward FDI impact on CO<sub>2</sub> emissions in Pakistan: Testing EKC hypothesis through ARDL model. *International Journal of Finance & Economics*, 26(3), 3310-3221.
- Uzair, A., Gong, Z., Ali, M.U., Asmi, F., Muhammad, R. (2020b) CO<sub>2</sub> emission, economic development, fossil fuel consumption and population density in India, Pakistan and Bangladesh: a panel investigation. *International Journal of Finance & Economics*, 27(1), 18-31.
- Cole, M.A., Elliott, R.J. (2003). Determining the trade–environment composition effect: the role of capital, labor and environmental regulations. *Journal of environmental economics and management*, 46(3), 363-383.
- Al-Mulali, U., Ozturk, I. (2015). The effect of energy consumption, urbanization, trade openness, industrial output, and the political stability on the environmental degradation in the MENA (Middle East and North African) region. *Energy*, 84, 382-389.
- Al-Mulali, U., Ozturk, I., Lean, H.H. (2015). The influence of economic growth, urbanization, trade openness, financial development, and renewable energy on pollution in Europe. *Natural Hazards*, 79(1), 621-644.
- Ansari, M.A., Khan, N.A., Ganaie, A.A. (2019). Does foreign direct investment impede environmental quality in Asian countries? A panel data analysis. *OPEC Energy Review*, 43(2), 109-35.
- Apergis, N., Payne, J.E. (2009). CO<sub>2</sub> emissions, energy usage, and output in Central America. *Energy Policy*, 37(8), 3282-3286.
- Ayamba, E.C., Haibo, C., Musah, A.A., Ruth, A., Osei-Agyemang, A. (2019). An empirical model on the impact of foreign direct investment on China's environmental pollution: analysis based on simultaneous equations. *Environmental Science and Pollution Research*, 26(16), 16239-16248.
- Bakhsh, K., Rose, S., Ali, M.F., Ahmad, N., Shahbaz, M. (2017). Economic growth, CO<sub>2</sub> emissions, renewable waste and FDI relation in Pakistan: New evidences from 3SLS. *Journal of environmental management*, 196, 627-632.
- Balsalobre-Lorente, D., Gokmenoglu, K.K., Taspinar, N., Cantos-Cantos, J.M. (2019). An approach to the pollution haven and pollution halo hypotheses in MINT countries. *Environmental Science and Pollution Research*, 26(22), 23010-23026.
- Bartels, R., Fiebig, D.G., Plumb, M.H. (1996). Gas or electricity, which is cheaper? An econometric approach with application to Australian expenditure data. *The Energy Journal*, 17(4), 1055-1074.
- Behera, S.R., Dash, D.P. (2017). The effect of urbanization, energy consumption, and foreign direct investment on the carbon dioxide emission in the SSEA (South and Southeast Asian) region. *Renewable and Sustainable Energy Reviews*, 70, 96-106.
- Bello, M.O., Solarin, S.A., Yen, Y.Y. (2020). Interfuel substitution, hydroelectricity consumption and CO<sub>2</sub> emissions mitigation in Malaysia: evidence from a transcendental logarithm (trans-log) cost function framework. *Environmental Science and Pollution Research*, 27(14), 17162-17174.



## Conference Proceedings

- Bhat, J.A., Haider, S., Kamaiah, B. (2018). Interstate energy efficiency of Indian paper industry: A slack-based non-parametric approach. *Energy*, 161, 284-298.
- Boamah, K.B., Du, J., Boamah, A.J., Appiah, K. (2018). A study on the causal effect of urban population growth and international trade on environmental pollution: evidence from China. *Environmental Science and Pollution Research*, 25(6), 5862-5874.
- Carayannis, E.G., Draper, J., Crumpton, C.D. (2022). Reviewing Fusion Energy to Address Climate Change by 2050. *The Journal of Energy and Development*, 47(1), 1-45.
- Chaturvedi, A. (2017). Consolidated FDI policy circular, Department of Industrial Policy and Promotion, Government of India, D/o IPPF. No. 5 (1)/ 2017-FC-1.
- Christoforidis, T., Katrakilidis, C. (2021). Does foreign direct investment matter for environmental degradation? Empirical Evidence from Central–Eastern European Countries. *Journal of the Knowledge Economy*, 13, 2665-2694
- Dash, R.K., Parida, P.C. (2013). FDI, services trade and economic growth in India: empirical evidence on causal links. *Empirical Economics*, 45(1), 217-38.
- Demena, B.A., Afesorgbor, S.K. (2020). The effect of FDI on environmental emissions: Evidence from a meta-analysis. *Energy Policy*, 138, 111-192.
- Dinda, S. (2004). Environmental Kuznets curve hypothesis: a survey. *Ecological Economics*, 49(4), 431-355.
- Dolado, J.J., Lütkepohl, H. (1996). Making Wald tests work for cointegrated VAR systems. *Econometric Reviews*, 15(4), 369-386.
- Dong, F., Wang, Y., Su, B., Hua, Y., Zhang, Y. (2019). The process of peak CO<sub>2</sub> emissions in developed economies: A perspective of industrialization and urbanization. *Resources, Conservation and Recycling*, 141, 61-75.
- Dong, J., He, J., Li, X., Mou, X., Dong, Z. (2020). The effect of industrial structure change on carbon dioxide emissions: a cross-country panel analysis. *Journal of Systems Science and Information*, 8(1), 1-16.
- Ehigiamusoe, Ku. (2020). The drivers of environmental degradation in ASEAN+ China: Do financial development and urbanization have any moderating effect? *The Singapore Economic Review*, 1-44.
- Engle, R.F. (1978). Estimating structural models of seasonality. In: *Seasonal Analysis of Economic Time Series*: pp. 281-308. NBER, Cambridge.
- Engle, R.F., Granger, C.W. (1987). Co-integration and error correction: representation, estimation, and testing. *Econometrica: Journal of the Econometric Society*, 1, 251-276.
- Fernández, F.J., Harvey, A.C. (1990). Seemingly unrelated time series equations and a test for homogeneity. *Journal of Business & Economic Statistics*, 8(1), 71-81.
- Fiebig, D.G. (2001). Seemingly unrelated regression. In: *Acompanion to theoretical econometrics*, ed. B. Baltagi. Blackwell, Oxford.
- Franco, S., Mandla, V.R., Rao, K.R.M. (2017). Urbanization, energy consumption and emissions in the Indian context A review. *Renewable and Sustainable Energy Reviews*, 71, 898-907.
- Gersch, W., Kitagawa, G. (1983). The prediction of time series with trends and seasonalities. *Journal of Business & Economic Statistics*, 1(3), 253-264.
- Ghani, G.M. (2012). Does trade liberalization effect energy consumption?. *Energy Policy*, 43, 285-290.



## Conference Proceedings

- Ghazouani, T. (2021). The Effect of FDI Inflows, Urbanization, Industrialization, and Technological Innovation on CO<sub>2</sub> Emissions: Evidence from Tunisia. *Journal of the Knowledge Economy*, 1-31.
- Ghosh, S. (2010). Examining carbon emissions economic growth nexus for India: a multivariate cointegration approach. *Energy policy*, 38(6), 3008-3014.
- Gokmenoglu, K., Taspinar, N. (2016) The relationship between CO<sub>2</sub> emissions, energy consumption, economic growth and FDI: the case of Turkey. *The Journal of International Trade & Economic Development*, 25(5), 706-723.
- Granger, C.W. (1969). Investigating causal relations by econometric models and cross-spectral methods. *Econometrica*, 424-438.
- Grimes. P., Kentor, J. (2003). Exporting the greenhouse: foreign capital penetration and CO<sub>2</sub> Emissions 1980 1996. *Journal of world-systems research*, 261-275.
- Grossman, G.M., Krueger, A.B. (1991). Environmental impacts of a North American free trade agreement. National Bureau of Economic Research, Cambridge.
- Grossman, G.M., Krueger, A.B. (1995). Economic growth and the environment. *The quarterly journal of economics*, 110(2), 353-377.
- Gui-Diby, S.L., Renard, M.F. (2015). Foreign direct investment inflows and the industrialization of African countries. *World Development*, 74, 43-57.
- Guzel, A.E., Okumus, I. (2020). Revisiting the pollution haven hypothesis in ASEAN-5 countries: new insights from panel data analysis. *Environmental Science and Pollution Research*, 27(15), 18157-18167.
- Haider, S., Adil, M., Ganaie, A. (2019). Does industrialisation and urbanisation affect energy consumption: a relative study of India and Iran. *Economics Bulletin*, 39(1), 176-185.
- Hanif, I., Raza, S.M., Gago-de-Santos, P., Abbas, Q. (2019). Fossil fuels, foreign direct investment, and economic growth have triggered CO<sub>2</sub> emissions in emerging Asian economies: some empirical evidence. *Energy*, 171, 493-501.
- Hargrove, A., Qandeel, M., Sommer, J.M. (2019). Global governance for climate justice: A cross-national analysis of CO<sub>2</sub> emissions. *Global Transitions* 1, 190-199.
- Harvey, A.C., Durbin, J. (1986). The effects of seat belt legislation on British road casualties: A case study in structural time series modelling. *Journal of the Royal Statistical Society: Series A (General)*, 149(3), 187-210.
- Harvey, A.C., Todd, P.H. (1983). Forecasting economic time series with structural and Box-Jenkins models: A case study. *Journal of Business & Economic Statistics*, 1(4), 299-307.
- Heil, M.T., Selden, T.M. (2001). International trade intensity and carbon emissions: a cross-country econometric analysis. *The Journal of Environment & Development*, 10(1), 35-49.
- Huang, J., Chen, X., Huang, B., Yang, X. (2017). Economic and environmental impacts of foreign direct investment in China: A spatial spillover analysis. *China Economic Review*, 45, 289-309.
- Hubler, M., Keller, A. (2010). Energy savings via FDI? Empirical evidence from developing countries. *Environment and Development economics*, 1, 59-80.
- Ibrahim, M.S., Muthusamy, A. (2014). Role of foreign direct investment (FDI) in India's economic development-An analysis. *Journal of International Relations*, 2(2), 101-113.





## Conference Proceedings

- Irfan, M., Zhao, Z.Y., Li, H., Rehman, A. (2020). The influence of consumers' intention factors on willingness to pay for renewable energy: a structural equation modeling approach. *Environmental Science and Pollution Research*, 27(17), 21747-61.
- Jalil, A., Mahmud, S.F. (2009). Environment Kuznets curve for CO<sub>2</sub> emissions: a cointegration analysis for China. *Energy policy*, 37(12), 5167-5172.
- Johansen, S. (1988). Statistical analysis of cointegration vectors. *Journal of economic dynamics and control* 12(2-3), 231-254.
- Johansen, S. (1991). Estimation and hypothesis testing of cointegration vectors in Gaussian vector autoregressive models. *Econometrica: Journal of the Econometric Society*, 1551-1580.
- Johansen, S., Juselius, K. (1990). Maximum likelihood estimation and inference on cointegration—with applications to the demand for money. *Oxford Bulletin of Economics and Statistics*, 52(2), pp. 69-210.
- Jun, W., Zakaria, M., Shahzad, S.J.H., Mahmood, H. (2018). Effect of FDI on pollution in China: New insights based on wavelet approach. *Sustainability*, 10(11), 3859.
- Kanjilal, K., Ghosh, S. (2013). Environmental Kuznets curve for India: Evidence from tests for cointegration with unknown structural breaks. *Energy Policy*, 56, 509-515.
- Kathuria, V. (2018). Does environmental governance matter for foreign direct investment? Testing the pollution haven hypothesis for Indian States. *Asian Development Review*, 35(1), 81-107.
- Khan, A.Q., Saleem, N., Fatima, S.T. (2018). Financial development, income inequality, and CO<sub>2</sub> emissions in Asian countries using STIRPAT model. *Environmental Science and Pollution Research*, 25(7), 6308-6319.
- Khan, M.A., Khan, M.Z., Zaman, K., Arif, M. (2014). Global estimates of energy-growth nexus: Application of seemingly unrelated regressions. *Renewable and Sustainable Energy Reviews*, 29, 63-71.
- Kong, S. (2021). Environmental cost of energy consumption and economic growth: can China shift some burden through financial development? An asymmetric analysis. *Environmental Science and Pollution Research*, 28(20), 25255-25264.
- Kuznets, S. (1955). Economic growth and income inequality. *The American economic review*, 45(1), 1-28.
- Lee, C.G. (2009). Foreign direct investment, pollution and economic growth: evidence from Malaysia. *Applied Economics*, 41(13), 1709-1716.
- Leitao, N.C. (2015). Energy consumption and foreign direct investment: a panel data analysis for Portugal. *International Journal of Energy Economics and Policy*, 5, 138-147.
- Li, K., Hu, E., Xu, C., Musah, M., Kong, Y., Mensah, I.A., Zu, J., Jiang, W., Su, Y. (2021). A heterogeneous analysis of the nexus between energy consumption, economic growth and carbon emissions: Evidence from the Group of Twenty (G20) countries. *Energy Exploration & Exploitation*, 39(3), 815-837.
- Li, K., Lin, B. (2015). Impacts of urbanization and industrialization on energy consumption/CO<sub>2</sub> emissions: does the level of development matter?. *Renewable and Sustainable Energy Reviews*, 52, 1107-1122.
- Lin, S., Wang, S., Marinova, D., Zhao, D., Hong, J. (2017). Impacts of urbanization and real economic development on CO<sub>2</sub> emissions in non-high income countries: Empirical research based on the extended STIRPAT model. *Journal of cleaner production*, 166, 952-966.



## Conference Proceedings

- Lindmark, M. (2002). An EKC-pattern in historical perspective: carbon dioxide emissions, technology, fuel prices and growth in Sweden 1870–1997. *Ecological economics*, 42(1-2), 333-347.
- Liu, X., Bae, J. (2018). Urbanization and industrialization impact of CO<sub>2</sub> emissions in China. *Journal of cleaner production*, 172, 178-186.
- Liu, Y., Huang, J., Zikhali, P. (2016). The bittersweet fruits of industrialization in rural China: The cost of environment and the benefit from off-farm employment. *China Economic Review*, 38, 1-10.
- Lotfalipour, M.R., Falahi, M.A., Ashena, M. (2010). Economic growth, CO<sub>2</sub> emissions, and fossil fuels consumption in Iran. *Energy*, 35(12), 5115-5120.
- MacKinnon, J.G. (1991). Critical values for cointegration tests. In Eds. *Long-Run Economic Relationship: Readings in Cointegration*. Oxford University Press, Oxford.
- Mahmood, H., Alkhateeb, T.T., Furqan, M. (2020). Industrialization, urbanization and CO<sub>2</sub> emissions in Saudi Arabia: Asymmetry analysis. *Energy Reports*, 6, 1553-1560.
- Mardani, A., Streimikiene, D., Cavallaro, F., Loganathan, N., Khoshnoudi, M. (2019). Carbon dioxide (CO<sub>2</sub>) emissions and economic growth: A systematic review of two decades of research from 1995 to 2017. *Science of the total environment*, 649, 1-49.
- Marques, A.C., Caetano, R. (2020). The impact of foreign direct investment on emission reduction targets: Evidence from high-and middle-income countries. *Structural Change and Economic Dynamics*, 55, 107-118.
- Mavikela, N., Khobai, H. (2018). Investigating the Link Between Foreign direct investment. *Energy consumption and Economic growth in Argentina*.
- Menghan, S. (2018). Multiple Mediation Effects of Foreign Direct Investment on China's Carbon Productivity. *China-USA Business Review*, 23.
- Mert, M., Bölük, G. (2016). Do foreign direct investment and renewable energy consumption affect the CO<sub>2</sub> emissions? New evidence from a panel ARDL approach to Kyoto Annex countries. *Environmental Science and Pollution Research*, 23(21), 21669-21681.
- Mielnik, O., Goldemberg, J. (2000). Converging to a common pattern of energy use in developing and industrialized countries. *Energy Policy*, 28(8), 503-508.
- Mirza, F.M., Kanwal, A. (2017). Energy consumption, carbon emissions and economic growth in Pakistan: Dynamic causality analysis. *Renewable and Sustainable Energy Reviews*, 72, 1233-1240.
- Mosikari, T.J., Eita, J.H. (2020). CO<sub>2</sub> emissions, urban population, energy consumption and economic growth in selected African countries: A Panel Smooth Transition Regression (PSTR). *OPEC Energy Review*, 44(3), 319-333.
- Muhammad, B., Khan, M.K., Khan, M.I., Khan, S. (2021). Impact of foreign direct investment, natural resources, renewable energy consumption, and economic growth on environmental degradation: evidence from BRICS, developing, developed and global countries. *Environmental Science and Pollution Research*, 1-10.
- Muhammad, B., Khan, S. (2019). Effect of bilateral FDI, energy consumption, CO<sub>2</sub> emission and capital on economic growth of Asia countries. *Energy Reports*, 5, 1305–1315.
- Narayanan, K., Sahu, S.K. (2016). Effects of climate change on household economy and adaptive responses among agricultural households in eastern coast of India. *Current Science*, 1240-1250.



## Conference Proceedings

- Nasir, M.A., Huynh, T.L.D., Tram, H.T.X. (2019). Role of financial development, economic growth & foreign direct investment in driving climate change: A case of emerging ASEAN. *Journal of Environmental Management*, 242, 131-141.
- Naz, S., Sultan, R., Zaman, K., Aldakhil, A.M., Nassani, A.A., Abro, M.M. (2019). Moderating and mediating role of renewable energy consumption, FDI inflows, and economic growth on carbon dioxide emissions: evidence from robust least square estimator. *Environmental Science and Pollution Research*, 26(3), 2806-2819.
- Nepal, R., Paija, N., Tyagi, B., Harvie, C. (2021). Energy security, economic growth and environmental sustainability in India: Does FDI and trade openness play a role?. *Journal of Environmental Management*, 281, 111886.
- Ngouhouo, I., Ewane, E.I. (2020). The Effects of Foreign Direct Investments on Industrialization: A Comparative Approach between the Franc and the Non-Franc Zone. *Asian Journal of Economic Modelling*, 8(2), 123-132.
- Nguyen, D.K., Huynh, T.L.D., Nasir, M.A. (2021). Carbon emissions determinants and forecasting: Evidence from G6 countries. *Journal of Environmental Management*, 285, 1-10.
- Ning, L., Wang, F. (2018). Does FDI bring environmental knowledge spillovers to developing countries? The role of the local industrial structure. *Environmental and Resource Economics*, 71(2), 381-405.
- Nkengfack, H., Fotio, H.K. (2019). Energy consumption, economic growth and carbon emissions: Evidence from the top three emitters in Africa. *Modern Economy*, 10(1), 52-71.
- Omri, A., Nguyen, D.K., Rault, C. (2014). Causal interactions between CO<sub>2</sub> emissions, FDI, and economic growth: Evidence from dynamic simultaneous-equation models. *Economic Modelling*, 42, 382-389.
- Opoku, E.E., Boachie, M.K. (2020). The environmental impact of industrialization and foreign direct investment. *Energy Policy*, 137, 111178.
- Ouyang, X., Lin, B. (2015). An analysis of the driving forces of energy-related carbon dioxide emissions in China's industrial sector. *Renewable and sustainable energy reviews*, 45, 838-849.
- Ozturk, I., Acaravci, A. (2013). The long-run and causal analysis of energy, growth, openness and financial development on carbon emissions in Turkey. *Energy Economics*, 36, 262-267.
- Pan, X., Guo, S., Han, C., Wang, M., Song, J., Liao, X. (2020). Influence of FDI quality on energy efficiency in China based on seemingly unrelated regression method. *Energy*, 192, 116463.
- Panagariya, A. (2008). *India: The emerging giant*. Oxford University Press, Oxford.
- Panayotou, T. (1993). Empirical tests and policy analysis of environmental degradation at different stages of economic development (No. 992927783402676). International Labour Organization, Geneva.
- Pao, H.T., Tsai, C.M. (2011). Multivariate Granger causality between CO<sub>2</sub> emissions, energy consumption, FDI (foreign direct investment) and GDP (gross domestic product): evidence from a panel of BRIC (Brazil, Russian Federation, India, and China) countries. *Energy*, 36(1), 685-693.
- Pao, H.T., Yu, H.C., Yang, Y.H. (2011). Modeling the CO<sub>2</sub> emissions, energy use, and economic growth in Russia. *Energy*, 36(8), 5094-5100.
- Parikh, J., Panda, M., Ganesh-Kumar, A., Singh, V. (2009). CO<sub>2</sub> emissions structure of Indian economy. *Energy*, 34(8), 1024-1031.



## Conference Proceedings

- Pazienza, P. (2019). The impact of FDI in the OECD manufacturing sector on CO<sub>2</sub> emission: Evidence and policy issues. *Environmental Impact Assessment Review*, 77, 60-68.
- Pethig, R. (1976). Pollution, welfare, and environmental policy in the theory of comparative advantage. *Journal of environmental economics and management* 2(3), 160-169.
- Phillips, P.C.B., Perron, P. (1988). Testing for a Unit Root in Time Series Regression. *Biometrika*, 75, 335–346.
- Prasad, M., Mishra, T. (2017). Low-carbon growth for Indian iron and steel sector: exploring the role of voluntary environmental compliance. *Energy policy*, 100, 41-50.
- Pu, C., Liu, Z., Pan, X., Addai, B. (2020). The impact of natural disasters on China's macroeconomy. *Environmental Science and Pollution Research*, 27(35), 43987-43998.
- Rahman, M.M., Kashem, M.A. (2017). Carbon emissions, energy consumption and industrial growth in Bangladesh: Empirical evidence from ARDL cointegration and Granger causality analysis. *Energy Policy*, 110, 600-608.
- Rana, R., Sharma, M. (2019). Dynamic causality testing for EKC hypothesis, pollution haven hypothesis and international trade in India. *The Journal of International Trade & Economic Development*, 28(3), 348-364.
- Rehman, A., Radulescu, M., Ma, H., Dagar, V., Hussain, I., Khan, M.K. (2021). The impact of globalization, energy use, and trade on ecological footprint in Pakistan: does environmental sustainability exist? *Energies*, 14(17), 5234.
- RobecoSAM (2019) *The Sustainability Yearbook 2019*, SAM, Zürich.
- Rustemoglu, H., Andres, A.R. (2016). Determinants of CO<sub>2</sub> emissions in Brazil and Russia between 1992 and 2011: A decomposition analysis. *Environmental Science & Policy*, 58, 95-106.
- Sabir, S., Qayyum, U., Majeed, T. (2020). FDI and environmental degradation: the role of political institutions in South Asian countries. *Environmental Science and Pollution Research*, 27, 1-10.
- Saboori, B., Sapri, M., Bin Baba, M. (2014). Economic growth, energy consumption and CO<sub>2</sub> emissions in OECD transport sector: A fully modified bi-directional relationship approach. *Energy*, 66, 150-161.
- Saboori, B., Sulaiman, J. (2013). CO<sub>2</sub> emissions, energy consumption and economic growth in Association of Southeast Asian Nations (ASEAN) countries: a cointegration approach. *Energy*, 55, 813-822.
- Sadorsky, P. (2010). The impact of financial development on energy consumption in emerging economies. *Energy policy*, 38(5), 2528-2535.
- Sahu, S.K., Narayanan, K. (2010). Decomposition of industrial energy consumption in Indian manufacturing: The energy intensity approach. *Journal of Environmental Management & Tourism*, 1(1), 22-38.
- Saint, A.S., Ajmi, A.N. (2020). Causality relationship between energy consumption, economic growth, FDI, and globalization in SSA countries: a symbolic transfer entropy analysis. *Environmental Science and Pollution Research*, 27(35), 44623-44628.
- Salahuddin, M., Alam, K., Ozturk, I., Sohag, K. (2018). The effects of electricity consumption, economic growth, financial development and foreign direct investment on CO<sub>2</sub> emissions in Kuwait. *Renewable and Sustainable Energy Reviews*, 81, 2002-2010.



## Conference Proceedings

- Salahuddin, M., Gow, J., Ali, M.I., Hossain, M.R., Al-Azami, K.S., Akbar, D., Gedikli, A. (2019). Urbanization-globalization-CO<sub>2</sub> emissions nexus revisited: empirical evidence from South Africa. *Heliyon*, 5(6). e01974.
- Salim, R., Yao, Y., Chen, G., Zhang, L. (2017). Can foreign direct investment harness energy consumption in China? A time series investigation. *Energy Economics*, 66, 43-53.
- Seetanah, B., Sannassee, R.V., Fauzel, S., Soobaruth, Y., Giudici, G., Nguyen, A.P. (2019). Impact of economic and financial development on environmental degradation: evidence from small island developing states. *Emerging Markets Finance and Trade*, 55(2), 308-322.
- Shahbaz, M., Balsalobre-Lorente, D., Sinha, A. (2019) Foreign direct Investment–CO<sub>2</sub> emissions nexus in Middle East and North African countries: Importance of biomass energy consumption. *Journal of Cleaner Production*, 217, 603-614.
- Shahbaz, M., Loganathan, N., Muzaffar, A.T., Ahmed, K., Jabran, M.A. (2016). How urbanization affects CO<sub>2</sub> emissions in Malaysia? The application of STIRPAT model. *Renewable and Sustainable Energy Reviews*, 57, 83-93.
- Shahbaz, M., Nasir, M.A., Roubaud, D. (2018). Environmental degradation in France: the effects of FDI, financial development, and energy innovations. *Energy Economics*, 74, 843-857.
- Shahbaz, M., Nasreen, S., Abbas, F., Anis, O. (2015). Does foreign direct investment impede environmental quality in high-, middle-, and low-income countries? *Energy Economics*, 51, 275-287.
- Shahbaz, M., Sbia, R., Hamdi, H., Ozturk, I. (2014). Economic growth, electricity consumption, urbanization and environmental degradation relationship in United Arab Emirates. *Ecological Indicators*, 45, 622-631.
- Sharma, S.S. (2011). Determinants of carbon dioxide emissions: empirical evidence from 69 countries. *Applied Energy*, 8, 376-382.
- Shukur, G., Mantalos, P. (2000). A simple investigation of the Granger-causality test in integrated-cointegrated VAR systems. *Journal of Applied Statistics*, 27(8), 1021-1031.
- Singhania, M., Saini, N. (2021). Demystifying pollution haven hypothesis: Role of FDI. *Journal of Business Research*, 123, 516-528.
- Solarin, S.A., Al-Mulali, U., Musah, I., Ozturk, I. (2017). Investigating the pollution haven hypothesis in Ghana: an empirical investigation. *Energy*, 124, 706-719.
- Stern, D.I. (2004). The rise and fall of the environmental Kuznets curve. *World development*, 32(8), 1419-1439.
- Tang, C.F., Tan, B.W. (2015). The impact of energy consumption, income and foreign direct investment on carbon dioxide emissions in Vietnam. *Energy*, 79, 447-454.
- Tewari, S. (2021). Chamoli glacier burst: It is time to learn from our mistakes. DownToEarth. <https://www.downtoearth.org.in/blog/climate-change/chamoli-glacier-burst-it-is-time-to-learn-from-our-mistakes-75419>. Accessed 7 February 2021
- The Carbon Brief Profile: India (2019) <https://www.carbonbrief.org/the-carbon-brief-profile-india>.
- Tiwari, A.K. (2011). Energy consumption, CO<sub>2</sub> emissions and economic growth: Evidence from India. *Journal of International Business and Economy*, 12(1), 85-122.



## Conference Proceedings

Toda, H.Y., Yamamoto, T. (1995). Statistical inference in vector autoregressions with possibly integrated processes. *Journal of Econometrics*, 66(1-2), 225-250.

Ullah, S., Ozturk, I., Usman, A., Majeed, M.T., Akhtar, P. (2020). On the asymmetric effects of premature deindustrialization on CO<sub>2</sub> emissions: evidence from Pakistan. *Environmental Science and Pollution Research*, 27(39), 1-11.

Ulucak, R., Khan, S.U. (2020). Relationship between energy intensity and CO<sub>2</sub> emissions: Does economic policy matter? *Sustainable Development*, 28(5), 1457-1464.

Uzair, A.M., Gong, Z., Ali, M.U., Asmi, F., Muhammad, R. (2020b). CO<sub>2</sub> emission, economic development, fossil fuel consumption and population density in India, Pakistan and Bangladesh: a panel investigation. *International Journal of Finance & Economics*, 27(1), 18-31.

Uzar, U., Eyuboglu, K. (2019). Is foreign direct investment an engine for energy consumption? An empirical investigation for Turkey. *Environmental Science and Pollution Research*, 26(27), 28092-28105.

Wada, I., Faizulayev, A., Khademolomoom, A.H., Alzubi, A. (2020). Energy use, real output-growth, FDI, energy-intensity and CO<sub>2</sub> emission; the case of Kazakhstan. *Journal of Public Affairs*, 22(4), e2300.

Wang, Y., He, X. (2019). Spatial economic dependency in the Environmental Kuznets Curve of carbon dioxide: The case of China. *Journal of Cleaner Production*, 218, 498-510.

Wang, Z., Zhang, B., Wang, B. (2018). The moderating role of corruption between economic growth and CO<sub>2</sub> emissions: Evidence from BRICS economies. *Energy*, 148, 506-513.

Watts, N., Amann, M., Arnell, N., Ayeb-Karlsson, S., Belesova, K., Berry, H., Costello, A. (2018). The 2018 report of the Lancet Countdown on health and climate change: shaping the health of nations for centuries to come. *The Lancet*, 392(10163), 2479-2514.

Wen, H., Dai, J. (2020). Trade openness, environmental regulation, and human capital in China: based on ARDL cointegration and Granger causality analysis. *Environmental Science and Pollution Research*, 27(2), 1789-1799.

Wen, Z., Ye, B. (2014) Analyses of mediating effects: The development of methods and models. *Advances in Psychological Science*, 22(5), 731-745.

World Bank (2018). *Climate Change Could Force Over 140 Million to Migrate within Countries by 2050: World Bank Report*, Washington DC.

Yao, X., Kou, D., Shao, S., Li, X., Wang, W., Zhang, C. (2018). Can urbanization process and carbon emission abatement be harmonious? New evidence from China. *Environmental Impact Assessment Review*, 71, 70-83.

Yousefi-Sahzabi, A., Sasaki, K., Yousefi, H., Sugai, Y. (2011). CO<sub>2</sub> emission and economic growth of Iran. *Mitigation and adaptation strategies for global change*, 16(1), 63-82.

Zangoei, S., Salehnia, N., Mashhadi, M.K.A. (2021). A comparative study on the effect of alternative and fossil energy consumption on economic growth and foreign direct investment in selected countries using SUR approach. *Environmental Science and Pollution Research*, 26(16), 19799-19809.

Zarsky, L.H. (1999). halos and spaghetti: untangling the evidence about foreign direct investment and the environment. *Foreign Direct Investment and the Environment*, 13(8), 47-74.

Zellner, A. (1962). An efficient method of estimating seemingly unrelated regressions and tests for aggregation bias. *Journal of the American statistical Association*, 57(298), 348-368.



## Conference Proceedings

Zhang, C., Zhou, X. (2016). Does foreign direct investment lead to lower CO<sub>2</sub> emissions? Evidence from a regional analysis in China. *Renewable and Sustainable Energy Reviews*, 58, 943-951.

Zhang, G., Zhang, N., Liao, W. (2018). How do population and land urbanization affect CO<sub>2</sub> emissions under gravity center change? A spatial econometric analysis. *Journal of Cleaner Production*, 202, 510-523.

Zhu, H., Duan, L., Guo, Y., Yu, K. (2016). The effects of FDI, economic growth and energy consumption on carbon emissions in ASEAN-5: evidence from panel quantile regression. *Economic Modelling*, 58, 237-248.



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# INEQUALITIES THROUGHOUT HISTORY IN THEORY AND PRACTICE – THE EXAMPLE OF SERBIA

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DOI: 10.5937/EEE24074C  
JEL: A10, A14, D30, M20  
Review Scientific Paper

## ABSTRACT

*Inequalities have existed for as long as anyone can remember. They mostly had its ups, but sometimes also downs. The twenty-first century is the century in which societies should be organized so that inequalities are at a low level. They also have a positive side, because if there is formal equality, then it affects productivity, innovation, commitment, education, and the like. Inequality is most often looked at from the standpoint of income, although other forms are also very significant. The aim of this paper is to show that inequalities have always existed and that they will exist in the future, but at the same time to show that inequalities should be reduced to an acceptable level. When it comes to economic inequality, the balance of labor and capital must be taken into account. This paper aims to present inequalities in Serbia throughout its history. During the preparation of the paper, the methods of analysis, synthesis, description and deduction were used.*

## KEYWORDS

*inequality, Serbia, history, poverty*

## INTRODUCTION

This paper was predominantly inspired by the discussions, thoughts and views of Thomas Piketty in his works "Capital in the Twenty-First Century", "Capital and Ideology", "A Brief History of Equality and Measuring Racism", "Overcoming Discrimination", as well as by authors such as B. Begović, B. Milanović and others. Inequality has existed since ancient times. The authors of this paper are of the opinion that inequality is natural, since people are not born exactly the same, but on the contrary, completely different, and there can never be two identical people, even if they are identical twins. However, this difference does not necessarily imply a difference in wealth as an irreconcilable difference and is measured by different indicators. One of those indicators is the Gini coefficient (Gini index, Gini ratio), which is most often used as a measure of wealth inequality, that is, wealth distribution. It was first introduced by the Italian statistician and sociologist Corrado Gini in his work Variability and Mutability. It shows the concentration of wealth, and it derived from the Lorenz curve. The Gini

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coefficient has a value from 0 to 1 (from zero to one hundred). The value of the Gini coefficient 0 (zero) implies that the wealth is equally distributed, that everyone has the same wealth value, and a high Gini coefficient represents an unequal distribution, that is, the Gini coefficient 1 (one hundred) implies that one person owns all the wealth, and the others do not own any value. This coefficient can theoretically be greater than 1 (one hundred) if the wealth of one person includes the negative wealth of others. The measurement of inequality can also be seen by the Quintile Share Ratio (or S80/S20). This indicator represents the ratio of total income received by the 20% of the population with the highest income to that received by the 20% of the population with the lowest income.

## A BRIEF HISTORY OF INEQUALITY

Unquestionably, there was a continuous striving towards equality until the 18th century, but with different extents, if different spheres are observed. The pursuit of equality implied social, economic and political equality. If you look at the world today, it would not be wrong to say that it is unfair. But it is also not wrong to state that the second decade of the 21st century was fairer than the fifth decade of the 20th century or that people in 1900 strived for equality more than in 1850, etc. (Piketty, 2023). Therefore, it can be concluded that each subsequent era reduced inequality and increased equality. The extent of inequality throughout history and certain epochs depends on whether inequality is observed among social classes, income levels, labor and gender equality, educational opportunities, ethnic and racial origin, access to law and justice, etc.

However, whichever criterion is taken, the indisputable conclusion is that the largest number of regions and societies in the world strived towards increasing equality. Discussions about inequality often use the term "global inequality", which refers to the income disparities between all the inhabitants of the Earth at a given time (Milanović, 2023). From the Industrial Revolution at the beginning of the 19th century to the middle of the 20th century, global inequality continuously grew, and wealth was concentrated in the industrial countries of the Western world, which were also colonial countries at the same time. After that, global inequality began to decline thanks to the economic rise of China, today the second most populous country on the planet. It should also be noted that global inequality was at its highest level in 1988 when the Gini coefficient was 69.4 (Milanović, 2023).

In the second decade of the 21st century, the need for equality in areas such as human rights is particularly emphasized (the authors of this paper emphasize that the term "human rights" should be replaced with the term "men's, women's and children's rights" because if there are human rights then there should also be non-human ones, and that term is neither used nor is it possible to use it because one would not know what it refers to), gender equality, equal pay for the same job, etc. The pursuit of equality in the 21st century compared to earlier periods and eras is far more complicated and there are numerous contradictions, if it is viewed from different aspects in terms of scope and content. It should also be noted that there are still many inequalities in the 21st century, especially if they are looked at through status, power, closeness to the government, income, gender, etc. In addition, these inequalities have a cumulative effect and encourage further inequalities.

Today we can look at the history of inequality thanks to numerous valid studies that are available to all researchers in the world. One of the most important works in this field was published by Kenneth Pomeranz in 2000 in his book on "The Great Divergence" between Europe and China in the 18th and 19th centuries (Pomeranz, 2000). He points out that the development of Western industrial capitalism is very closely connected with the system of international division of labor (the authors of this paper add – with a globalist approach), the exploitation of resources (the authors of this paper add - other people's



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resources) as well as the military and colonial domination that Western countries have established over the rest of the world. This claim has been confirmed in theory by other authors such as Prasannan Parthasarathi, Beckert or works related to the new history of capitalism, as well as in practice during the Covid-19 pandemic and with the conflict between the Russian Federation and Ukraine.

Namely, these two events showed that the Western European countries, as Pomeranz claims, developed on the basis of the exploitation of other people's cheap resources, cheap labor force, and cheap energy sources, when the Covid-19 pandemic and the conflict in Ukraine interrupted trade flows, which enabled European countries, especially Germany, to develop economically and acquire enormous wealth. With the beginning of the conflict between the Russian Federation and Ukraine, the EU and the USA imposed many sanctions on the Russian Federation (14,000 sanctions, which no one can control whether they are implemented or not), which backfired mostly on the European countries themselves (mainly Germany), and the USA only profited from it, which for European countries resulted in a drop in the GDP rate, inflation, lack of consumer goods, non-functioning of the common market, etc. Thus, the dominance of Europe unequivocally showed to be a consequence of globalist changes in the world, the exploitation of other people's resources and colonial domination, all of which resulted in an increase in inequality between the rich and the poor.

As mentioned above, the topic of equality and inequality goes back a long way, and has been dealt with by numerous authors. For the purposes of this paper, we will mention only a few such as F. Cooper, C. Hall, E. Saada, P. Singeravelou, A. Stanziani, E. Labrousse, J. Bouvier, and many others. Interestingly, the topic of inequality-equality was addressed by Jean-Jacques Rousseau, who pointed out that private property is the cause of inequality (Piketty, 2023). The new economic and social history of inequality imposes at least two very significant conclusions (Piketty, 2023).

The first refers to the establishment of such relations in the area of property, tax policy, education, income, etc. at different stages of social and any other development in certain societies. These relations are always of a political nature, and established by the ruling oligarchy. It should also be said that all wealth has been created as a collective product, but that throughout the history of civilization, people have tried to create such mechanisms and rules through which they would distribute wealth and power, which is always done using a tool called political decisions. The second conclusion is the fact that at the end of the 18th century, a long-term movement towards equality, i.e., the reduction of poverty, began.

It should be noted that it is an ongoing process which will continue for many decades, and perhaps even centuries. The movement towards equality has been attempted through rebellions due to apparent injustice and inequality all over the world. The fight for equality (the authors of this paper emphasize - the fight to reduce inequality, because total equality will never be achieved, but objectively it should not even exist), is carried out by destroying the institutions that support the ruling oligarchy that encourages inequality in favor of the government and individuals and social groups close to the government. By destroying existing institutions and establishing new ones, the goal is to create fairer societies and reduce inequality. Some of the rebellions that were successful and led to a more just state are the peasants' revolts from the period 1788-1789, as well as the French Revolution.

These events led to the abolition of the privileges of the nobility. It is also important to mention Saint-Domingue's slave revolt in 1791, which led to the end of slavery. There are many other rebellions that aimed to free us from colonialism and foreign rule, as was the case in our region (the First and Second Serbian Uprising, the assassination of Archduke Franz Ferdinand in 1914 in Sarajevo, two anti-fascist movements during World War II, etc.). Some of these were more or less successful, but their main idea was the establishment of a more just order and freedom from foreign exploitative rule.



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### SOME FORMS OF INEQUALITY

Previous theory and practice have shown that the core of the problem is the distribution of income from production between labor and capital. This problem used to be very pronounced and can be vividly presented if we take the ratio of farmers and peasants. Namely, there is an essential inequality between those who own land and those who cultivate it, that is, those who receive rent and those who pay it. Industrialization, instead of reducing inequality, increased it because production became more capital-intensive, on the one hand, but at the same time, democratic expectations related to a fairer distribution did not come true. Every rebellion during the 19th century aimed at reducing inequality and increasing wages ended in favor of the owners of capital, not labor - workers. Here we have to keep in mind the following: if the entire income from production was distributed according to any criteria to labor, then that company would not survive in the long term, on the one hand, and the capital owners would have no motive to maintain production.

Therefore, this is not about total equality, because owners of capital must and should be more equal than others, but it is necessary to find an acceptable balance between labor and capital, because without labor there is no capital either. Although this problem was noticed more than two hundred years ago, it still exists today. There are countless examples when capital owners minimally satisfy the interest of labor even though that labor brings them capital. However, in order to establish that balance, real and accounting transparency is needed (Piketty, 2015). He further points out that there can be no economic democracy without sufficient transparency and sharing of information. However, all that is not enough, the workers' right to vote in the competent authorities (Board of Directors or Supervisory Board) is necessary. In addition to membership in the Board of Directors or Supervisory Board, the knowledge of those workers who represent labor is needed, because it is quite certain that those who represent capital have enough knowledge and skills to ensure decision-making that benefits them.

Thus, the knowledge and skills of labor representatives are key to influencing those representing capital. When it comes to global inequalities, it should be borne in mind that the average growth will not significantly exceed the limit of 1-1.5%. That limit for developed countries is enough to maintain and increase their wealth. Underdeveloped and less developed countries with growth rates of 4-5% on an annual basis will continue to show inequality compared to developed countries that have lower growth rates, because they do not start from the same base (Piketty, 2015). Although inequality will never disappear, it can be reduced, that is, mitigated.

One of the instruments for reducing inequality is the establishment of a progressive tax system. But, even when establishing a progressive tax system, the motives and interests of capital owners must be taken into account. Any unreasonable progressive tax burden can backfire on the working population and leave them with nothing to do. Therefore, a progressive tax burden is desirable and necessary, but balanced with the interests and motives of capital owners. But science also has a stake in achieving balanced inequality. If science does not get involved in the study of the incomes of various classes in the 21st century, inequalities will not decrease, but, quite the opposite, will increase, as those who have a lot will never give up their wealth and will never fail to defend their interests and desire to increase their already great wealth.

Third co-author of this paper points out the following example: As the executive director of the Serbian Chamber of Commerce, he talked to a businessman from the private sector. He told him that his company was doing excellent, that he had a turnover of 45,000,000 euros, and that the net profit was 4,500,000 euros. The co-author asked him what his average salary was, and he said 250-280 euros. The co-author suggested him to increase the salary, but he said that he had no way to do so. When he



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reminded him that only a minute ago he said that he had a net profit of 4,500,000 euros, he said that he needed that money for other purposes. A few years later, his company had certain problems.

This is an obvious example of how capital owners protect their interests. It should be noted that Europe and the USA developed on the basis of other countries' resources, cheap labor and thanks to total or partial colonization of underdeveloped and less developed countries in Africa and Asia. However, the creation of wealth at the expense of the underdeveloped and less developed also resulted in the mixing of nations of different ethnicities. Income inequality stems from general social inequality and discrimination. So far, no universal method has been invented that would enable any society to avoid discrimination and inequality. In order for a society to work on finding a model of how to reduce inequality and abolish discrimination, that is, to establish such a form in which there will be equality of rights and opportunities regardless of origin, it is necessary to promote social equality in general. Social equality in general implies equal access to education, health care, housing, government services, etc. Thus, in order to reduce the inequalities associated with multiple ethnic-racial and national origins, it is necessary to resolve the inequalities in the social classes as a whole (Piketty, 2023).

The extent of inequality is very difficult to see. Some societies leave economic and financial issues to experts of questionable competence, despite the fact that the economy is always at the heart of politics (Piketty, 2023). Data on inequalities are incomplete because there are no difficulties in accessing tax data, administrative and banking sources, as well as the extent and content of assets of individuals, families, and companies. It should be highlighted here that access to data from which inequalities could be determined is not only related to rich countries but also to poor ones. However, despite numerous inequalities, there is progress in the world, which is visible in many areas, especially in computing and the IT sector, resulting in progress in many other branches of the economy, medicine, agriculture, mining, tourism and the like.

If you take a look at the field of healthcare alone, you can see how much progress has been made in just two centuries. In 1820, life expectancy at birth was 26 years, and in 2020 it was 72 years. At the beginning of the 19th century, infant mortality in the first year of life was 20%, and today it is 1%. This information should be taken with a grain of salt, because at the beginning of the 19th century, one mother gave birth to a large number of children, but today this is not the case. Many countries today encourage the birth of two or more children, while some countries (e.g. China) limit the number of children allowed per family. The life expectancy of children who survive their first year has increased from 32 years in 1820 to 73 years today. Today, pensioners stay in good health for more than 5 years (Piketty, 2023). These data lead to the conclusion that obvious progress has been achieved in the last two centuries. However, not the same progress was achieved in all countries, since in some countries there was significantly less progress.

The number of inhabitants on Earth has also experienced a huge progress. In 1700, there were 600 million inhabitants on Earth, and today there are close to 8 billion, with the tendency for that number to reach 9 billion in 2050. The purchasing power of 80 euros monthly per inhabitant in 1700 increased to 1000 euros on average per month in 2020 (Piketty, 2023). For the purposes of this paper, only some indicators of progress are listed. But this progress, which is shown through statistical data, cannot ignore the huge inequalities and weaknesses in societies.

Namely, although the average purchasing power per inhabitant was 1000 euros in 2020, there is still inequality between rich and poor countries. In poor countries, the average income was not 1,000 euros per month, but 100-200 euros, and in the richest countries, it was also not 1,000 euros per month, but 3,000-4,000 euros (Piketty, 2023). Therefore, inequality in the distribution of wealth is not a problem only in some rich and poor countries, but in the whole world. Namely, 40% of the world's population



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lives with less than \$2 a day, and the richest 10% control 54% of the world's wealth. There is a tendency for the rich to get richer and the poor to get poorer.

Inequality in the world is best shown by the fact that the five richest people in the world have doubled their wealth to 869 billion dollars since 2020, while in the same period 60% of the poorest, that is, almost five billion people, have further impoverished, according to the report of the Oxford organization that fights inequality to end poverty and injustice – Oxfam. This organization's report notes a dramatic increase in global inequality after the Covid-19 pandemic. This statement is proven by the data that the world's billionaires are richer by 3.3 billion dollars as of 2020, and that their wealth grew three times faster than inflation. From all these statements, it can be seen that as progress grows, so does the degree of inequality. One of the future tasks of the next generations is to reduce the rate of inequality in both developed and underdeveloped countries where inequalities are greater.

## INEQUALITIES IN SERBIA

Since 2013, the Survey on income and living conditions (SILC) has been carried out in Serbia, so the conditions have been created to measure income inequality in the same way as in other European countries, especially with EU countries, so that it can be compared with them. In 2019, at the Conference of the American Economic Association, which gathers the most famous economists in the world, the question was – what are the problems that the whole world will face in the 21st century and what topic should be the focus of attention and consideration for economists. The largest number of respondents said that it is reducing inequality.

In their study, "Inequality in Serbia: Is there a problem in measurement or in public policies", Arandarenko et al. (2019) point out that the rate of relative poverty, which is a direct measure of inequality, and the Gini coefficient in Serbia are the highest or among the highest compared to all European countries. These data encouraged certain authors to dispute the SILC method, as well as the rate of inequality in Serbia obtained by this method, pointing out that it is not that high, but at the same time they do not state or determine how high it is by applying the Household Budget Survey (HBS).

However, it should be borne in mind that when applying two research methods (in this case SILC and HBS), data from the same survey must be analyzed, which means that there will be no consistent data if income data is analyzed from one survey and budget data from another survey. If the data from two different surveys are analyzed, different data are obtained and therefore it is not possible to draw valid conclusions. The authors of this paper believe that in the study of the Statistical Office of the Republic of Serbia from 2015, when the results of the first survey using the SILC method were analyzed, it was accurately concluded that inequality is greater in Serbia than in other European countries, and that the consequence of this situation is the insufficient social security and the lack of progressive income taxation. Further analyzes showed that there were other very important reasons that were the cause of inequality, but insufficient social security and lack of progressive taxation still remain very relevant causes.

Table 1. Poverty and social inequality in Serbia

Description	Year				
	2018	2019	2020	2021	2022
At-risk-of-poverty rate in %	24.3	23.2	21.7	21.2	20.0
At-risk-of-poverty or social exclusion rate in %	33.9	31.1	29.8	28.4	28.1
At-risk-of-poverty threshold (monthly average) in RSD	16.615	19.381	22.000	24.064	26.509

Source: The Statistical Office of the Republic of Serbia



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The at-risk-of-poverty rate and the at-risk-of-poverty threshold are causally related. The at-risk-of-poverty rate shows the percentage of persons whose income is lower than the at-risk-of-poverty threshold. In 2022, the at-risk-of-poverty threshold was RSD 26,509 on average per month for a single-member household. This data does not show how many people are really poor, but how many people have an income below the at-risk-of-poverty threshold. For a household with two adults and one child under the age of 14, the at-risk-of-poverty threshold was RSD 47,715, and for a household with two adults and two children under the age of 14, it was RSD 55,668.

The at-risk-of-poverty or social exclusion shows the percentage of people who are at risk of poverty, or are significantly materially and socially deprived or live in households with very low work intensity.

According to the data of the Statistical Office of the Republic of Serbia in 2022, 22.6% of persons aged 65 and older, 21.6% of persons aged between 55 and 64, and 17.9% of persons aged between 25 and 54 were exposed to the risk of poverty.

According to the type of household, the highest at-risk-of-poverty rate of 37.5% was experienced by single-member households aged 65 and over, while the lowest poverty risk rate was in households with three or more adults, that is, 15.4%.

When it comes to those who are unemployed, 49.2% of them aged 18 and over were exposed to the risk of poverty, 11.2% of those who are self-employed, while persons employed by an employer were exposed to the risk of poverty by 5.6%. The at-risk-of-poverty rate for pensioners was 19.7%.

Table 2. Indicators of poverty and social exclusion

Description	Year				
	2018	2019	2020	2021	2022
<b>At-risk-of-poverty rate, %</b>	24.3	23.2	21.7	21.2	20.0
At-risk-of-poverty threshold (monthly average), RSD					
One-member household	16.615	19.381	22.000	24.064	26.509
Household with two adults and one child under 14	29907	34886	39600	43315	47715
Two adults with two children under 14	34892	40700	46200	50533	5566
<b>At-risk-of-poverty or social exclusion rate, %</b>	33.9	31.1	29.8	28.4	28.1
At-risk-of-poverty rate before social transfers, %					
Social transfers are not included in income	29.6	28.3	26.7	29.5	25.3
Pensions and social transfers are not included in income	48.7	46.6	44.8	46.4	
Relative at-risk-of-poverty gap	37.4	32.1	27.1	28.3	25.7
Quintile share ratio S80/S20	8.6	6.5	6.1	5.9	5.5
Gini coefficient	35.6	33.3	33.3	33.3	32.0
Permanent at-risk-of-poverty rate	35.6	33.3	33.3	33.3	32.0

Source: The Statistical Office of the Republic of Serbia

Table 3. At-risk-of-poverty rate by gender and age

	<b>Total</b>	<b>Male</b>	<b>Female</b>
<b>Total</b>	<b>20</b>	<b>19.3</b>	<b>0.7</b>
0–17	20.3	20.1	20.6

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18–64	19.0	18.8	19.2
18–24	20.4	18.4	22.3
25–54	17.9	17.8	17.9
55–64	21.6	22.2	21.1
65 and over	22.6	20.0	24.

Source: The Statistical Office of the Republic of Serbia

Table 4. At-risk-of-poverty rate by household type

<b>All households without children</b>	<b>21.2</b>	<b>19.8</b>	<b>21</b>	<b>20.9</b>	<b>20.8</b>
Single person household	34.3	31.8	34	36.5	35.4
Single person household, male	33.7	28.9	30.9	32	33
Single person household, female	34.8	33.8	36.1	39.4	36.9
Single person household, person under 65	37.2	32.7	37.1	36.3	32.1
Single person household, person 65 and over	32.6	31.2	32.2	36.6	37.5
Two adults	19.8	19.4	22.5	21.4	22.8
Two adults, both under 65	24.3	21.4	25.3	22.6	23.7
Two adults, at least one aged 65 or over	16.9	18.4	21	20.7	22.3
Three or more adults	17.4	15.7	15.1	14.3	15.4
<b>All households with children</b>	<b>26.8</b>	<b>26.1</b>	<b>22.3</b>	<b>21.4</b>	<b>19.2</b>
One parent with one or more children	36.5	41.6	31.9	34.7	33.8
Two adults with one child	24.1	23.9	18.4	16.7	15.7
Two adults with two children	21.3	19.1	18.2	18.6	19.7
Two adults with three or more children	53.6	51.9	37.2	38.8	26.6
Three or more adults with children	25.5	25.4	22.5	20.6	18.5
Single person household, male	33.7	28.9	30.9	32	33
Single person household, female	34.8	33.8	36.1	39.4	36.9

Source: The Statistical Office of the Republic of Serbia

Table 5. At-risk-of-poverty rate by the most common employment status and gender (for persons aged 18 and over), 2022

Employed by an employer			Self employed			Unemployed			Pensioners			Other non-active		
Total	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female
5.6	7.0	3.9	11.2	11.1	11.5	49.2	53.7	44.6	19.7	18.4	20.7	30.9	23.7	33.3

Source: The Statistical Office of the Republic of Serbia



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### Indicators of material deprivation

Table 6. Rate of subjective poverty (Ability of the household to "make ends meet") in %

Description	Very difficult	Difficult	With certain difficulties	Quite easy	Easy	Very easy
	12.7	27.9	48.0	8.9	2.1	0.4

Source: The Statistical Office of the Republic of Serbia

Table 7. The financial burden on the household budget due to housing costs in %

Description	Significant	Somewhat significant	Not significant at all
	49.7	45.5	4.8

Source: The Statistical Office of the Republic of Serbia

## CONCLUSION

Inequality between individuals, groups and countries has always existed. It can be measured and analyzed from very different aspects, but it is most often measured according to income, although other forms of equality-inequality can by no means be ignored. Equality before the law, equality in access to education, equality in access to healthcare, equality in access to government services, gender equality, etc. So far, there has not been a single instrument or method that would be universal for all countries and that would regulate equality. Inequality throughout history has had both its ups and downs. Today, inequality, especially in income, seems to be increasing as it can be seen and noted that the rich are getting richer and the poor are getting poorer. In Serbia, inequality measured by the Gini coefficient is among the highest in Europe.

The reason for the increase in inequality in the world and in Serbia is that, among other measures, progressive taxation is not used. There are other measures in the area of social security that contribute to the reduction of inequality. These measures are mostly used by Scandinavian countries because their inequality is the lowest compared to other countries in the world. Economists believe that the main goal in the 21st century is to act towards reducing inequality. However, the current situation in the world (wars in a large number of countries, especially in Ukraine and Gaza) does not favor action in the direction of reducing inequality, on the contrary, it seems that it will continue to increase.

## REFERENCES

- Arandarenko, M., Krstić, G., Žarković Rakić, J. (2019). Nejednakost u Srbiji: da li je problem u merenju ili u politikama? *Ekonomске ideje i praksa*, 32, 89-96.
- Arandarenko, M., Krstić, G., Žarković Rakić, J. (2017). *Dohodovna nejednakost u Srbiji: od podataka do politike*. Friedrich Ebert Stiftung, Belgrade.
- Pomeranz, K. (2000). *The Great Divergence: China, Europe, and the Making of the Modern World Economy*. Princeton University Press, New Jersey.





## Conference Proceedings

Piketty, T. (2023). *Kratka istorija jednakosti*. Akademska knjiga, Novi Sad.

Piketty, T. (2023). *Merenje rasizma, prevazilaženje diskriminacije*. Akademska knjiga, Novi Sad.

Piketty, T. (2023). *Kapital i ideologija*. Akademska knjiga, Novi Sad.

Piketty, T. (2015). *Kapital u 21. veku*. Akademska knjiga, Novi Sad.

### Online sources

Milanović, B. (2023). *Velika konvergencija nejednakosti*. <https://pescanik.net/velika-konvergencija-nejednakosti/>

The Statistical Office of the Republic of Serbia: <https://www.stat.gov.rs/sr-latn/vesti/statisticalrelease/?p=13838&a=01&s=0102?s=0102>

UNDP (2018). *A study on human development dedicated to income inequality in the Republic of Serbia. Reducing inequality as an integral part of the Sustainable Development Agenda*. The United Nations Development Programme, Belgrade. Available at: [https://www.undp.org/sites/g/files/zskgke326/files/migration/rs/UNDP\\_SRB\\_Studija-o-humanom-razvoju.fin.pdf](https://www.undp.org/sites/g/files/zskgke326/files/migration/rs/UNDP_SRB_Studija-o-humanom-razvoju.fin.pdf)



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# COMPARATIVE ANALYSIS OF TRADE PERFORMANCE INDICATORS OF THE EUROPEAN UNION AND SERBIA BASED ON DIBRA AND CODAS METHODS

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DOI: 10.5937/EEE24075V  
JEL: L81, M31, M41, O32  
Original Scientific Paper

## ABSTRACT

*Recently, the application of multi-criteria decision-making methods in the evaluation and selection of trade performance has been very challenging. Because in this way more precise evaluations of trade performance are obtained compared to the classic methodology. Bearing that in mind, this study comparatively analyzes the trade performance positioning of the countries of the European Union and Serbia using the DIBR and CODAS methods. The obtained empirical results indicate that German trade is in first place. The other top five countries include France, Italy, Poland, and Spain. So, the leading countries of the European Union in terms of trade performance are at the very top. Trade Croatia is in the twenty-seventh place. In twenty-eighth place is the trade of Slovenia. Trade Croatia is better positioned than trade Slovenia. As far as the trade of Serbia is concerned, it is positioned in the twenty-sixth place. It is in a better position than the trade between Croatia and Slovenia. It is in a very bad position about the trade of the leading countries of the European Union. To improve the performance positioning of Serbian trade, it is necessary to take relevant measures. The target performance positioning of the trade of the countries of the European Union and Serbia can be achieved, among other things, by managing the number and size of companies as effectively as possible, human resources, added value, employee costs, profit, sales, and increasing labor productivity. To that end, effective control of other relevant factors is necessary.*

## KEYWORDS

*performance, positioning, determinants, trade of the European Union and Serbia, DIBR-CODAS method*

## INTRODUCTION

It is very important to know the performance positioning of the trade of the countries of the European Union and Serbia. It is in the function of improvement in the future. In addition to classical analysis, multi-criteria decision-making methods play a significant role in this. Recently, considerable attention has been paid in the literature to the application of multi-criteria differentiation methods in the evaluation of trade performance (Ersoy, 2017). In this context, special attention is paid to the application of multi-

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criteria differentiation methods in the evaluation of the trade performance of the European Union and Serbia (Lukić, 2022a,b,c,d,2023a,c,d,e,f). In the literature, the performance indicators of transport and storage of the European Union and Serbia are analyzed based on multi-criteria decision-making methods (Lukić, 2022e, 2023b, Lukić, Hadrović Zekić, 2023). The effects of the application of multi-criteria decision-making methods in the analysis are a significant improvement in trade performance. This study investigates the performance positioning of the trade of the countries of the European Union and Serbia based on the DIBR and CODAS methods. Data from Eurostat statistics were used in the analysis of the treated problem in this study. They are methodologically "produced" so that the initial data and the results obtained in this study are comparable for individual countries of the European Union and Serbia. Likewise with other comparable countries.

## IMPORTANCE OF TRADE IN THE EUROPEAN UNION

The role of trade in the European Union is very important. As an illustration of race, in 2021 it participated in the total number of companies with 18.9%, in the total added value with 16.3%, and in the total number of employees with 19.3%. Labor productivity adjusted for trade wages of the European Union in 2021 was 192%. The gross operating rate of the burden of the European Union in 2021 was 7.05%. In the total added value of trade of the European Union in 2021, according to the size of the company, they participated: micro (0-9 employees) with 21.7%, small (10-49 employees) with 22.1%, medium (50-249 employees) with 18.4% and large (250 + employees) with 37.8%. In the total number of employees in the trade of the European Union in 2021, they participated according to the size of the company: micro (0-9 employees) with 34.8%, small (10-49 employees) with 20.3%, medium (50-249 employees) with 14.1% and large (250 + employees) with 30.9%. In the total number of employees in the European Union, small and medium-sized enterprises (SMEs 0-249 employees) participate with 69.1% and large enterprises (250+ employees) with 30.9% (Eurostat (sbs\_sc\_ovw)). The data presented themselves indicate that trade plays a significant role in creating the overall performance of the European Union, which is why it is given special attention to the European Union's development strategy and policy. The top five countries by participation in the total number of employees in the trade of the European Union include Germany at 23.99%, France at 13.75%, Italy at 10.97%, Poland at 8.46%, and Spain at 8.38%. In the total number of employees in the trade of the European Union, Croatia participates with 0.73%, and Slovenia with 0.46%. The top five countries by participation in the total added value of trade of the European Union are Germany 36.09%, France 15.24%, Italy 8.87%, Spain 6.41%, and the Netherlands 5.48%. In the total added value of trade of the European Union, Croatia and Slovenia participate with 0.29% each. Therefore, the number of employees and added value are concentrated in the trade of the leading countries of the European Union (Eurostat (sbs\_sc\_ovw)).

## RESEARCH METHODOLOGY

The applied methodology of analysis of the investigated problem in this study is based on the use of DIBR and CODAS methods. The DIBR (Defining Interrelationships Between Ranked criteria) method is based on defining the relationship between ranked criteria, ie. adjacent criteria. It consists of five steps (Pamucar et al., 2021, Tešić et al., 2022 ):

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### Step 1. Ranking of criteria according to importance.

On a defined set of  $n$  criteria,  $C = \{C_1, C_2, \dots, C_n\}$  the criteria are ranked according to their importance as  $C_1 > C_2 > C_3 > \dots > C_n$ .

### Step 2. Comparison of criteria and definition of mutual relations.

By comparing the criteria, the values were obtained  $\lambda_{12}, \lambda_{13}, \dots, \lambda_{n-1,n}$  and  $\lambda_{1n}$ . Thus, for example, when comparing criteria  $C_1$  and  $C_2$ , the value, etc. was obtained  $\lambda_{12}$ . All compared values must satisfy the condition  $\lambda_{n-1,n}, \lambda_{1n} \in [0,1]$ . Based on the defined conditions and relationships, the following relationships between the criteria were derived:

$$\mathcal{W}_1 : \mathcal{W}_2 = (1 - \lambda_{12}) : \lambda_{12} \quad (1)$$

$$\mathcal{W}_2 : \mathcal{W}_3 = (1 - \lambda_{23}) : \lambda_{23} \quad (2)$$

$$\mathcal{W}_{n-1} : \mathcal{W}_n = (1 - \lambda_{n-1,n}) : \lambda_{n-1,n} \quad (3)$$

$$\mathcal{W}_1 : \mathcal{W}_n = (1 - \lambda_{1,n}) : \lambda_{1,n} \quad (4)$$

Ratios (1-4) and values  $\lambda_{n-1,n}$  can be viewed as ratios of criteria to which the decision-maker assigns total importance in the interval of 100% for the two observed criteria.

### Step 3. Defining equations for calculating weight criteria.

Based on the relationship from step 2, the expressions for determining the weighting coefficients of the criteria  $\mathcal{W}_1, \mathcal{W}_2, \dots, \mathcal{W}_n$  are derived:

$$\mathcal{W}_2 = \frac{\lambda_{12}}{(1 - \lambda_{12})} \mathcal{W}_1 \quad (5)$$

$$\mathcal{W}_3 = \frac{\lambda_{23}}{(1 - \lambda_{23})} \mathcal{W}_2 = \frac{\lambda_{12}\lambda_{23}}{(1 - \lambda_{12})(1 - \lambda_{23})} \mathcal{W}_1 \quad (6)$$

$$\mathcal{W}_n = \frac{\lambda_{n-1,n}}{(1 - \lambda_{n-1,n})} \mathcal{W}_{n-1} = \frac{\lambda_{12}\lambda_{23} \dots \lambda_{n-1,n}}{(1 - \lambda_{12})(1 - \lambda_{23}) \dots (1 - \lambda_{n-1,n})} \mathcal{W}_1 = \frac{\prod_{i=1}^{n-1} \lambda_{i,i+1}}{\prod_{i=1}^{n-1} (1 - \lambda_{i,i+1})} \mathcal{W}_1 \quad (7)$$

### Step 4. Calculation of the weight coefficient of the most influential criterion.

Based on equations (5) - (7) and conditions  $\sum_{j=1}^n \mathcal{W}_j = 1$ , the following mathematical relationship is defined

$$\mathcal{W}_1 \left( 1 + \frac{\lambda_{12}}{(1 - \lambda_{12})} + \frac{\lambda_{12}\lambda_{23}}{(1 - \lambda_{12})(1 - \lambda_{23})} + \dots + \frac{\prod_{i=1}^{n-1} \lambda_{i,i+1}}{\prod_{i=1}^{n-1} (1 - \lambda_{i,i+1})} \right) = 1 \quad (8)$$

From expression (8), the final expression for defining the weight coefficient of the most influential criterion is derived:

$$\mathcal{W}_1 = \frac{1}{1 + \frac{\lambda_{12}}{(1 - \lambda_{12})} + \frac{\lambda_{12}\lambda_{23}}{(1 - \lambda_{12})(1 - \lambda_{23})} + \dots + \frac{\prod_{i=1}^{n-1} \lambda_{i,i+1}}{\prod_{i=1}^{n-1} (1 - \lambda_{i,i+1})}} \quad (9)$$

Based on the obtained value  $\mathcal{W}_1$  and the use of expressions (5) - (7), the weight coefficients of the other criteria  $\mathcal{W}_2, \mathcal{W}_3, \dots, \mathcal{W}_n$  are obtained.

### Step 5. Defining the degree of satisfaction of the subjective relationships between the criteria.



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Based on expression (4), the value of the weighting coefficient of the criterion  $\mathcal{W}_n$  is defined

$$\mathcal{W}_n = \frac{\lambda_{1n}}{(1 - \lambda_{1n})} \mathcal{W}_1 \quad (10)$$

Expression (4) is a relation for controlling expression (7), which is intended to check the satisfaction of the decision maker's preference, and from which the value  $\lambda'_{1,n}$  is defined, expression (11):

$$\lambda'_{1,n} = \frac{w_n}{w_1 + w_n} \quad (11)$$

If the values  $\lambda_{1n}$   $\lambda'_{1,n}$  are approximately equal, it can be concluded that the decision makers' preference is satisfied. If they differ, it is necessary to first check the ratio for  $\lambda_{1n}$ . If the decision-maker considers that the relationship is  $\lambda_{1n}$  well defined, the relationships between the criteria should be redefined and the weighting coefficients of the criteria should be calculated. If this is not the case, it is necessary to redefine the relationship for  $\lambda_{1n}$ . It is necessary that the deviation of the value  $\lambda_{1n}$  and  $\lambda'_{1,n}$  be a maximum of 10%. If this is not the case, it is necessary to redefine the relations between the criteria to satisfy this condition.

The CODAS (Combinative distance-based assessment) method is a newer method of multi-criteria decision making (MCDM - Multiple Attribute Decision Making) developed based on Euclidean and Hamming distance measures, to choose the best alternative among the available options. The basic principle of the CODAS method is that the best alternative should have the greatest distance from the negative ideal solution (Seker, 2020). In the case when the Euclidean distances of two alternatives have the same value, then the Hamming distances are compared to choose the best alternative (Ghorabae, 2016). The stages of the CODAS method process are as follows (Badi et al., 2018, Panchal et al., 2017, Ghorabae et al., 2016, 2017, Mathew, Sahu, 2018, Seker, 2020, Lukić, 2021):

### Step 1. Defining the decision matrix.

Decision-makers evaluate alternatives according to each attribute (criterion).

$$[x_{ij}]_{n \times m} = \begin{bmatrix} \tilde{x}_{11} & \tilde{x}_{12} & \cdots & \tilde{x}_{1m} \\ \vdots & \ddots & \ddots & \vdots \\ \tilde{x}_{n1} & \tilde{x}_{n2} & \cdots & \tilde{x}_{nm} \end{bmatrix} \quad (12)$$

where  $x_{ij}$  shows the value rating of the  $i$ -th  $i \in \{1, 2, \dots, n\}$  alternative in relation to the  $j$ -th attribute  $j \in \{1, 2, \dots, m\}$ .

### Step 2. Calculation of the normalized decision matrix.

The decision matrix is linearly normalized using the following equation:

$$\tilde{n}_{ij} = \begin{cases} \tilde{x}_{ij} / \max_i \tilde{x}_{ij} & \text{if } j \in N_b \\ \min_i \tilde{x}_{ij} / \tilde{x}_{ij} & \text{if } j \in N_c \end{cases} \quad (13)$$

$N_b$  represents sets of useful, i.e. revenue (a higher value is desirable), and  $N_c$  non-useful (cost) attributes (a lower value is desirable).

### Step 3. Calculation of weight normalized decision matrix.

The weight-normalized decision matrix is determined using the following equation:

$$s_{ij} = w_j \tilde{n}_{ij} \quad (14)$$



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where  $w_j \in [0,1]$  represents the weight coefficient assigned by the decision maker for different attributes  $\sum_{j=1}^m w_j = 1$ .

### Step 4. Identifying negative ideal solutions.

Negative ideal solutions ( *NI* ) are obtained by applying the following equation:

$$NI = [n_{tj}]_{1 \times m} \quad (15)$$

$$n_{tj} = \min s_{ij}$$

### Step 5. Calculation of Euclidean ( *ED* ) and Hamming ( *HD* ) distances of alternatives from the negative ideal solution.

The Euclidean and Hamming distances of the alternatives from the negative ideal solution are calculated using the following equations:

$$ED_i = \sqrt{\sum_{j=1}^m (s_{ij} - n_{tj})^2} \quad (16)$$

$$HD_i = \sum_{j=1}^m |s_{ij} - n_{tj}| \quad (17)$$

### Step 6. Constructing a relative assessment matrix.

The relative assessment matrix ( *Ra* ) is obtained using the following formula:

$$Ra = [p_{il}]_{n \times n}$$

$$p_{il} = (ED_i - ED_l) + (\delta(ED_i - ED_l))x((HD_i - HD_l))$$

where is  $l \in \{1,2, \dots, n\}$  the  $\delta$  threshold function used as follows:

$$\delta(x) = \begin{cases} 1 & \text{if } |x| \geq \rho \\ 0 & \text{if } |x| < \rho \end{cases} \quad (18)$$

The value of the threshold parameter  $\rho$  is between 0.01 and 0.05. It can also be determined by the decision maker ( Ghorabae, 2016). If the difference between the Euclidean distances of two alternatives is less than a defined threshold value, then they are compared according to the Hamming distance.

### Step 7. Assigning a grade ( *AS* ) to each alternative.

*AS* value of each alternative is calculated as follows:

$$AS_i = \sum_{l=1}^n p_{il} \quad (19)$$

According to the higher rating, the most appropriate alternative is chosen.

### Step 8 . Ranking of alternatives according to *AS* value.

Alternatives are ranked by *AS* value in descending order. The alternative with the highest *AS* value is the best option among the alternatives.

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## RESULTS AND DISCUSSION

To research the analyzed problem in this study, key performance indicators according to Eurostat statistics were chosen as criteria, which fully correspond to the nature of trade. Alternatives are the member states of the European Union and Serbia. They are shown in Table 1 for 2021.

Table 1. Initial data

Wholesale and retail trade and repair of motor vehicles and motorcycles										
	Enterprises - number (C1)	Persons employed – number (C2)	Value added – million euro (C3)	Apparent labor producti vity – thousand euro (C4)	Wage adjusted labor producti vity - percenta ge (C5)	Wages and salaries - million euros (C6)	Employee benefits expense – million euro (C7)	Gross operating surplus – million euros (C8)	Gross operativ e rate – percent age (C9)	Net turnover - million euro (C10)
European Union - 27 countries (from 2020)	865,633	3,567,595	181,467.17	50.87	145.04	78,834.17	100,241.78	81,234.86	6.48	1,254,526.53
Belgium (A1)	23,509	81,361	8,604.76	105.76	166.02	3,016.34	3,969.46	4,635.27	4.77	97,084.25
Bulgaria (A2)	16,018	50,272	576.12	11.46	128.14	281.44	324.58	251.54	4.52	5,563.82
Czechia (A3)	36,136	93,539	2,431.37	25.99	115.25	1,034.47	1,390.45	1,040.92	4.33	24,035.46
Denmark (A4)	7,757	51,542	3,894.35	75.56	142.64	2,321.28	2,533.11	1,361.25	4.82	28,263.62
Germany (A5)	107,319	855,810	65,496.20	76.53	201.35	23,707.07	28,775.42	36,720.79	12.20	301,032.84
Estonia (A6)	4,210	13,891	461.97	33.26	145.48	212.79	284.79	177.18	4.22	4,193.83
Ireland (A7)	9,622	37,346	2,166.82	58.02	152.20	1,099.83	1,200.18	966.64	5.67	17,038.26
Greece (A8)	26,964	72,060	1,069.26	14.84	95.91	540.07	667.77	401.49	4.45	9,025.30
Spain (A9)	75,855	298,912	11,629.51	38.91	116.10	6,301.76	8,137.09	3,492.42	4.00	87,357.02
France (A10)	105,219	490,642	27,656.70	56.37	117.18	15,267.87	20,816.08	6,840.62	3.35	204,264.46
Croatia (A11)	6,535	25,967	533.74	20.55	134.06	305.30	347.50	186.24	4.27	4,357.13
Italy (A12)	116,653	391,233	16,100.90	41.15	120.72	6,135.54	8,383.64	7,717.26	5.57	138,551.76
Cyprus (A13)	3,259	9,124	216.27	23.70	131.97	127.08	147.89	68.38	6.60	1,035.69
Latvia (A14)	4,835	17,688	340.67	19.26	152.68	170.25	210.31	130.36	5.06	2,577.35



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Poland (A21)	111,385	301,733	6,007.28	19.91	144.23	2,293.33	2,748.09	3,259.20	6.18	52,757.52
Portugal (A22)	31,967	104,512	2,446.63	23.41	122.32	1,320.43	1,689.73	756.90	3.68	20,573.63
Romania (A23)	32,033	110,416	2,270.15	20.56	226.14	865.76	890.45	1,379.70	9.77	14,123.61
Slovenia (A24)	5,167	16,416	526.74	32.09	115.68	315.97	361.78	164.96	2.57	6,412.05
Slovakia (A25)	10,432	32,009	758.52	23.70	121.32	350.78	474.39	293.78	3.97	7,393.80
Finland (A26)	12,972	43,965	2,756.94	62.71	120.89	1,596.50	1,952.86	804.07	3.97	20,268.71
Sweden (A27)	22,800	96,503	6,807.36	70.54	132.75	2,985.26	4,263.39	2,543.97	5.01	50,812.73
Serbia (A28)	10,562	35,085	398.37	11.35	129.73	194.10	221.37	177.00	5.19	3,411.27
<b>Statistics</b>										
Mean	31292.6786	128667.1429	6495.1975	40.6764	139.3743	2822.4393	3587.9700	2907.5675	5.4046	44926.3514
Median	15112.5000	61801.0000	2218.4850	30.5650	133.4050	950.1150	1045.3150	839.3000	4.8450	16709.6650
Std. Deviation	36304.84655	187276.03930	13060.06542	25.13102	26.51836	5138.86523	6498.11228	6943.90219	2.19683	69542.77679
The minimum	900.00	3532.00	102.58	11.35	95.91	41.16	44.07	58.51	2.57	571.48
Maximum	116653.00	855810.00	65496.20	105.76	226.14	23707.07	28775.42	36720.79	12.20	301032.84

Note: Author's statistics

Source: Eurostat

In this particular case, there is a significant correlation between criterion C3 (Value added) and other criteria, except for criterion C5 (Wage adjusted labor productivity - percentage), at the level of statistical significance. The target added value of trade of the European Union can be achieved by effective management of the observed statistical variables. In this study, the weight coefficients of the criteria were determined using the DIBR method. They are shown in Table 2.

Table 2. Evaluation and importance of criteria

10 criteria			Enter Data Just In This Column					Weights of Criteria		
		1-λ	λ	λ/(1-λ)				w1	0.1713	
w1	w2	0.52	0.48	0.923		0.923		w2	0.1582	
w2	w3	0.56	0.44	0.786		0.725		w3	0.1243	
w3	w4	0.53	0.47	0.887		0.643		w4	0.1102	
w4	w5	0.52	0.48	0.923		0.594		w5	0.1017	
w5	w6	0.51	0.49	0.961		0.570		w6	0.0977	
w6	w7	0.53	0.47	0.887		0.506		w7	0.0867	





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<b>w7</b>	<b>w8</b>	0.61	0.39	0.639		0.323		<b>w8</b>	<b>0.0554</b>	
<b>w8</b>	<b>w9</b>	0.53	0.47	0.887		0.287		<b>w9</b>	<b>0.0491</b>	
<b>w9</b>	<b>w10</b>	0.52	0.48	0.923		0.265		<b>w10</b>	<b>0.0454</b>	
<b>w1</b>	<b>w10</b>	0.78	0.22	0.282051						
						1				
					<b>Sum</b>	<b>5,836</b>	0.209	<b>4.86</b>	<b>It should be less than 10%</b>	

*Note: Author's calculation*

The target added value of European Union trade can be achieved, among other things, by adequate management of the number and size of companies.

The results of the DIBR-CODAS method are shown in Tables 3 – 8.

Table 3. Initial Matrix

<b>Initial Matrix</b>										
<b>weights of criteria</b>	0.1713	0.1582	0.1243	0.1102	0.1017	0.0977	0.0867	0.0554	0.0491	0.0454
<b>kind of criteria</b>	1	1	1	1	1	1	1	1	1	1
	<b>C1</b>	<b>C2</b>	<b>C3</b>	<b>C4</b>	<b>C5</b>	<b>C6</b>	<b>C7</b>	<b>C8</b>	<b>C9</b>	<b>C10</b>
<b>A1</b>	23,509	81,361	8,604.76	105.76	166.02	3,016.34	3,969.46	4,635.27	4.77	97,084.25
<b>A2</b>	16,018	50,272	576.12	11.46	128.14	281.44	324.58	251.54	4.52	5,563.82
<b>A3</b>	36,136	93,539	2,431.37	25.99	115.25	1,034.47	1,390.45	1,040.92	4.33	24,035.46
<b>A4</b>	7,757	51,542	3,894.35	75.56	142.64	2,321.28	2,533.11	1,361.25	4.82	28,263.62
<b>A5</b>	107,319	855,810	65,496.20	76.53	201.35	23,707.07	28,775.42	36,720.79	12.2	301,032.84
<b>A6</b>	4,210	13,891	461.97	33.26	145.48	212.79	284.79	177.18	4.22	4,193.83
<b>A7</b>	9,622	37,346	2,166.82	58.02	152.2	1,099.83	1,200.18	966.64	5.67	17,038.26
<b>A8</b>	26,964	72,060	1,069.26	14.84	95.91	540.07	667.77	401.49	4.45	9,025.30
<b>A9</b>	75,855	298,912	11,629.51	38.91	116.1	6,301.76	8,137.09	3,492.42	4	87,357.02
<b>A10</b>	105,219	490,642	27,656.70	56.37	117.18	15,267.87	20,816.08	6,840.62	3.35	204,264.46
<b>A11</b>	6,535	25,967	533.74	20.55	134.06	305.3	347.5	186.24	4.27	4,357.13
<b>A12</b>	116,653	391,233	16,100.90	41.15	120.72	6,135.54	8,383.64	7,717.26	5.57	138,551.76
<b>A13</b>	3,259	9,124	216.27	23.7	131.97	127.08	147.89	68.38	6.6	1,035.69
<b>A14</b>	4,835	17,688	340.67	19.26	152.68	170.25	210.31	130.36	5.06	2,577.35
<b>A15</b>	12,733	38,506	856.19	22.24	159.45	413.7	421.06	435.14	8.17	5,325.63
<b>A16</b>	900	7,769	563.69	72.56	143.92	340.13	386.82	176.89	3.52	5,021.81
<b>A17</b>	27,452	86,618	1,740.12	20.09	150.26	755.89	865.59	874.53	5.34	16,381.07
<b>A18</b>	1,544	3,532	102.58	29.04	140.49	41.16	44.07	58.51	10.24	571.48
<b>A19</b>	38,150	146,881	9,937.43	67.66	148.45	4,286.00	5,365.48	4,571.79	5.02	91,003.46
<b>A20</b>	14,207	89,348	5,514.89	61.72	127.15	2,748.20	3,589.81	1,925.09	4.87	39,500.28
<b>A21</b>	111,385	301,733	6,007.28	19.91	144.23	2,293.33	2,748.09	3,259.20	6.18	52,757.52
<b>A22</b>	31,967	104,512	2,446.63	23.41	122.32	1,320.43	1,689.73	756.9	3.68	20,573.63
<b>A23</b>	32,033	110,416	2,270.15	20.56	226.14	865.76	890.45	1,379.70	9.77	14,123.61



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<b>A24</b>	5,167	16,416	526.74	32.09	115.68	315.97	361.78	164.96	2.57	6,412.05
<b>A25</b>	10,432	32,009	758.52	23.7	121.32	350.78	474.39	293.78	3.97	7,393.80
<b>A26</b>	12,972	43,965	2,756.94	62.71	120.89	1,596.50	1,952.86	804.07	3.97	20,268.71
<b>A27</b>	22,800	96,503	6,807.36	70.54	132.75	2,985.26	4,263.39	2,543.97	5.01	50,812.73
<b>A28</b>	10,562	35,085	398.37	11.35	129.73	194.1	221.37	177	5.19	3,411.27
<b>MAX</b>	116653	855810	65496.2	105.76	226.14	23707.07	28775.42	36720.79	12.2	301032.84
<b>MIN</b>	900	3532	102.58	11.35	95.91	41.16	44.07	58.51	2.57	571.48

*Note: Author's calculation*

**Table 4. Normalized Matrix**

<b>Normalized Matrix</b>											
<b>weights of criteria</b>	0.1713	0.1582	0.1243	0.1102	0.1017	0.0977	0.0867	0.0554	0.0491	0.0454	
<b>kind of criteria</b>	1	1	1	1	1	1	1	1	1	1	
	<b>C1</b>	<b>C2</b>	<b>C3</b>	<b>C4</b>	<b>C5</b>	<b>C6</b>	<b>C7</b>	<b>C8</b>	<b>C9</b>	<b>C10</b>	
<b>A1</b>	0.2015	0.0951	0.1314	1.0000	0.7341	0.1272	0.1379	0.1262	0.3910	0.3225	
<b>A2</b>	0.1373	0.0587	0.0088	0.1084	0.5666	0.0119	0.0113	0.0069	0.3705	0.0185	
<b>A3</b>	0.3098	0.1093	0.0371	0.2457	0.5096	0.0436	0.0483	0.0283	0.3549	0.0798	
<b>A4</b>	0.0665	0.0602	0.0595	0.7144	0.6308	0.0979	0.0880	0.0371	0.3951	0.0939	
<b>A5</b>	0.9200	1.0000	1.0000	0.7236	0.8904	1.0000	1.0000	1.0000	1.0000	1.0000	
<b>A6</b>	0.0361	0.0162	0.0071	0.3145	0.6433	0.0090	0.0099	0.0048	0.3459	0.0139	
<b>A7</b>	0.0825	0.0436	0.0331	0.5486	0.6730	0.0464	0.0417	0.0263	0.4648	0.0566	
<b>A8</b>	0.2311	0.0842	0.0163	0.1403	0.4241	0.0228	0.0232	0.0109	0.3648	0.0300	
<b>A9</b>	0.6503	0.3493	0.1776	0.3679	0.5134	0.2658	0.2828	0.0951	0.3279	0.2902	
<b>A10</b>	0.9020	0.5733	0.4223	0.5330	0.5182	0.6440	0.7234	0.1863	0.2746	0.6785	
<b>A11</b>	0.0560	0.0303	0.0081	0.1943	0.5928	0.0129	0.0121	0.0051	0.3500	0.0145	
<b>A12</b>	1.0000	0.4571	0.2458	0.3891	0.5338	0.2588	0.2913	0.2102	0.4566	0.4603	
<b>A13</b>	0.0279	0.0107	0.0033	0.2241	0.5836	0.0054	0.0051	0.0019	0.5410	0.0034	
<b>A14</b>	0.0414	0.0207	0.0052	0.1821	0.6752	0.0072	0.0073	0.0036	0.4148	0.0086	
<b>A15</b>	0.1092	0.0450	0.0131	0.2103	0.7051	0.0175	0.0146	0.0118	0.6697	0.0177	
<b>A16</b>	0.0077	0.0091	0.0086	0.6861	0.6364	0.0143	0.0134	0.0048	0.2885	0.0167	
<b>A17</b>	0.2353	0.1012	0.0266	0.1900	0.6645	0.0319	0.0301	0.0238	0.4377	0.0544	
<b>A18</b>	0.0132	0.0041	0.0016	0.2746	0.6213	0.0017	0.0015	0.0016	0.8393	0.0019	
<b>A19</b>	0.3270	0.1716	0.1517	0.6398	0.6565	0.1808	0.1865	0.1245	0.4115	0.3023	
<b>A20</b>	0.1218	0.1044	0.0842	0.5836	0.5623	0.1159	0.1248	0.0524	0.3992	0.1312	
<b>A21</b>	0.9548	0.3526	0.0917	0.1883	0.6378	0.0967	0.0955	0.0888	0.5066	0.1753	
<b>A22</b>	0.2740	0.1221	0.0374	0.2214	0.5409	0.0557	0.0587	0.0206	0.3016	0.0683	
<b>A23</b>	0.2746	0.1290	0.0347	0.1944	1.0000	0.0365	0.0309	0.0376	0.8008	0.0469	
<b>A24</b>	0.0443	0.0192	0.0080	0.3034	0.5115	0.0133	0.0126	0.0045	0.2107	0.0213	
<b>A25</b>	0.0894	0.0374	0.0116	0.2241	0.5365	0.0148	0.0165	0.0080	0.3254	0.0246	
<b>A26</b>	0.1112	0.0514	0.0421	0.5929	0.5346	0.0673	0.0679	0.0219	0.3254	0.0673	
<b>A27</b>	0.1955	0.1128	0.1039	0.6670	0.5870	0.1259	0.1482	0.0693	0.4107	0.1688	
<b>A28</b>	0.0905	0.0410	0.0061	0.1073	0.5737	0.0082	0.0077	0.0048	0.4254	0.0113	

*Note: Author's calculation*



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Table 5. Weighted Normalized Matrix

Weighted Normalized Matrix										
	C1	C2	C3	C4	C5	C6	C7	C8	C9	C10
A1	0.0345	0.0150	0.0163	0.1102	0.0747	0.0124	0.0120	0.0070	0.0192	0.0146
A2	0.0235	0.0093	0.0011	0.0119	0.0576	0.0012	0.0010	0.0004	0.0182	0.0008
A3	0.0531	0.0173	0.0046	0.0271	0.0518	0.0043	0.0042	0.0016	0.0174	0.0036
A4	0.0114	0.0095	0.0074	0.0787	0.0641	0.0096	0.0076	0.0021	0.0194	0.0043
A5	0.1576	0.1582	0.1243	0.0797	0.0906	0.0977	0.0867	0.0554	0.0491	0.0454
A6	0.0062	0.0026	0.0009	0.0347	0.0654	0.0009	0.0009	0.0003	0.0170	0.0006
A7	0.0141	0.0069	0.0041	0.0605	0.0684	0.0045	0.0036	0.0015	0.0228	0.0026
A8	0.0396	0.0133	0.0020	0.0155	0.0431	0.0022	0.0020	0.0006	0.0179	0.0014
A9	0.1114	0.0553	0.0221	0.0405	0.0522	0.0260	0.0245	0.0053	0.0161	0.0132
A10	0.1545	0.0907	0.0525	0.0587	0.0527	0.0629	0.0627	0.0103	0.0135	0.0308
A11	0.0096	0.0048	0.0010	0.0214	0.0603	0.0013	0.0010	0.0003	0.0172	0.0007
A12	0.1713	0.0723	0.0306	0.0429	0.0543	0.0253	0.0253	0.0116	0.0224	0.0209
A13	0.0048	0.0017	0.0004	0.0247	0.0593	0.0005	0.0004	0.0001	0.0266	0.0002
A14	0.0071	0.0033	0.0006	0.0201	0.0687	0.0007	0.0006	0.0002	0.0204	0.0004
A15	0.0187	0.0071	0.0016	0.0232	0.0717	0.0017	0.0013	0.0007	0.0329	0.0008
A16	0.0013	0.0014	0.0011	0.0756	0.0647	0.0014	0.0012	0.0003	0.0142	0.0008
A17	0.0403	0.0160	0.0033	0.0209	0.0676	0.0031	0.0026	0.0013	0.0215	0.0025
A18	0.0023	0.0007	0.0002	0.0303	0.0632	0.0002	0.0001	0.0001	0.0412	0.0001
A19	0.0560	0.0272	0.0189	0.0705	0.0668	0.0177	0.0162	0.0069	0.0202	0.0137
A20	0.0209	0.0165	0.0105	0.0643	0.0572	0.0113	0.0108	0.0029	0.0196	0.0060
A21	0.1636	0.0558	0.0114	0.0207	0.0649	0.0095	0.0083	0.0049	0.0249	0.0080
A22	0.0469	0.0193	0.0046	0.0244	0.0550	0.0054	0.0051	0.0011	0.0148	0.0031
A23	0.0470	0.0204	0.0043	0.0214	0.1017	0.0036	0.0027	0.0021	0.0393	0.0021
A24	0.0076	0.0030	0.0010	0.0334	0.0520	0.0013	0.0011	0.0002	0.0103	0.0010
A25	0.0153	0.0059	0.0014	0.0247	0.0546	0.0014	0.0014	0.0004	0.0160	0.0011
A26	0.0190	0.0081	0.0052	0.0653	0.0544	0.0066	0.0059	0.0012	0.0160	0.0031
A27	0.0335	0.0178	0.0129	0.0735	0.0597	0.0123	0.0128	0.0038	0.0202	0.0077
A28	0.0155	0.0065	0.0008	0.0118	0.0583	0.0008	0.0007	0.0003	0.0209	0.0005
A-	0.0013	0.0007	0.0002	0.0118	0.0431	0.0002	0.0001	0.0001	0.0103	0.0001

Note: Author's calculation

Table 6. Relative Assessment Matrix

Relative Assessment Matrix	
	A1
C1	0.0000
C2	0.2754
C3	0.1863
C4	0.1418
C5	-0.8237
C6	0.2671
C7	0.1819
C8	0.2504
C9	-0.0711
C10	-0.3733
C11	0.2890
C12	-0.2424
C13	0.2842
C14	0.2780
C15	0.2273
C16	0.2000
C17	0.1994
C18	0.2500
C19	0.0189
C20	0.1458
C21	-0.1170
C22	0.1963
C23	0.1018
C24	0.2940
C25	0.2835
C26	0.1854
C27	0.0974
C28	0.2893



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A2	A3	A4	A5	A6	A7	A8	A9	A10	A11	A12	A13	A14	A15	A16	A17	A18	A19	A20
0.0050	0.1030	0.1475	1.1130	0.0090	0.1074	0.0173	0.3604	0.6626	-0.0012	0.5317	0.0025	0.0053	0.0184	0.0893	0.0899	0.0171	0.2684	0.1435
-0.1780	-0.0196	-0.0043	0.9211	-0.1696	-0.0193	-0.1530	0.1686	0.4707	-0.1916	0.3398	-0.1867	-0.1806	-0.1299	-0.0103	-0.1020	-0.1526	0.0168	-0.0141
-0.0900	-0.0010	0.0143	1.0091	-0.0816	-0.0007	-0.0178	0.2566	0.5587	-0.1036	0.4278	-0.0987	-0.0926	-0.0167	0.0083	-0.0083	-0.0180	0.1645	0.0045
0.0054	0.0971	0.1416	1.1072	0.0094	0.1016	0.0177	0.3546	0.6568	-0.0008	0.5259	0.0029	0.0057	0.0189	0.0834	0.0841	0.0176	0.2625	0.1377
0.0046	0.1077	0.1522	1.1177	0.0087	0.1121	0.0170	0.3651	0.6673	-0.0015	0.5364	0.0022	0.0050	0.0181	0.0940	0.0946	0.0168	0.2731	0.1482
-0.1736	-0.0845	-0.0095	0.9255	-0.1653	-0.0801	-0.1486	0.1729	0.4751	-0.1873	0.3442	-0.1824	-0.1763	-0.1255	-0.0155	-0.0976	-0.1482	0.0116	-0.0193
-0.0791	0.0049	0.0545	1.0200	-0.0707	0.0053	-0.0119	0.2675	0.5696	-0.0927	0.4387	-0.0878	-0.0817	-0.0107	0.0143	-0.0023	-0.0120	0.1754	0.0105
-0.3924	-0.3033	-0.2589	0.7067	-0.3841	-0.2989	-0.3674	-0.0459	0.2563	-0.4061	0.1254	-0.4012	-0.3951	-0.3443	-0.3170	-0.3164	-0.3670	-0.1380	-0.2628
-0.1296	-0.0056	0.0098	0.9695	-0.1213	-0.0052	-0.1046	0.2169	0.5191	-0.1433	0.3882	-0.1384	-0.1323	-0.0815	0.0038	-0.0128	-0.1042	0.1248	0.0000
-0.2544	-0.1654	-0.1209	0.8446	-0.2461	-0.1610	-0.2295	0.0921	0.3942	-0.2681	0.2633	-0.2632	-0.2571	-0.2064	-0.1791	-0.1784	-0.2291	0.0000	-0.1248
-0.0122	0.0170	0.1082	1.0737	-0.0081	0.0173	0.0002	0.3211	0.6233	-0.0183	0.4924	-0.0146	-0.0118	0.0013	0.0500	0.0097	0.0000	0.2291	0.1042
-0.0760	0.0072	0.0575	1.0231	-0.0179	0.0076	-0.0096	0.2705	0.5727	-0.0897	0.4418	-0.0848	-0.0787	-0.0084	0.0166	0.0000	-0.0097	0.1784	0.0128
-0.0753	-0.0093	0.0060	1.0237	-0.0670	-0.0090	-0.0504	0.2712	0.5733	-0.0890	0.4424	-0.0841	-0.0780	-0.0273	0.0000	-0.0166	-0.0500	0.1791	-0.0038
-0.0134	0.0157	0.0855	1.0510	-0.0094	0.0160	-0.0011	0.2985	0.6006	-0.0196	0.4697	-0.0159	-0.0131	0.0000	0.0273	0.0084	-0.0013	0.2064	0.0815
-0.0003	0.0917	0.1362	1.1017	0.0037	0.0961	0.0120	0.3492	0.6513	-0.0065	0.5204	-0.0028	0.0000	0.0131	0.0780	0.0787	0.0118	0.2571	0.1323
0.0025	0.0978	0.1423	1.1078	0.0065	0.1022	0.0148	0.3553	0.6574	-0.0037	0.5265	0.0000	0.0028	0.0159	0.0841	0.0848	0.0146	0.2632	0.1384
-0.5178	-0.4287	-0.3842	0.5813	-0.5095	-0.4243	-0.4928	-0.1713	0.0184	-0.5314	0.0000	-0.5265	-0.5204	-0.4697	-0.4424	-0.4418	-0.4924	-0.2633	-0.3882
0.0062	0.1027	0.1472	1.1127	0.0102	0.1071	0.0185	0.3602	0.6623	0.0000	0.5314	0.0037	0.0065	0.0196	0.0890	0.0897	0.0183	0.2681	0.1433
-0.6487	-0.5396	-0.5151	0.4504	-0.6404	-0.5552	-0.6237	-0.3022	0.0000	-0.6623	-0.0184	-0.6574	-0.6513	-0.6006	-0.5733	-0.5727	-0.6233	-0.3942	-0.5191
-0.3465	-0.2575	-0.2130	0.7525	-0.3382	-0.2531	-0.3216	0.0000	0.3022	-0.3602	0.1713	-0.3553	-0.3492	-0.2985	-0.2712	-0.2705	-0.3211	-0.0921	-0.2169
-0.0123	0.0168	0.1086	1.0741	-0.0083	0.0171	0.0000	0.3216	0.6237	-0.0185	0.4928	-0.0148	-0.0120	0.0011	0.0504	0.0096	-0.0002	0.2295	0.1046
-0.0935	-0.0003	0.0150	1.0056	-0.0852	0.0000	-0.0171	0.2531	0.5552	-0.1071	0.4243	-0.1022	-0.0961	-0.0160	0.0090	-0.0076	-0.0173	0.1610	0.0052
-0.0040	0.0807	0.1252	1.0907	0.0000	0.0852	0.0083	0.3382	0.6404	-0.0102	0.5095	-0.0065	-0.0037	0.0094	0.0670	0.0179	0.0081	0.2461	0.1213
-1.0991	-1.0100	-0.9655	0.0000	-1.0907	-1.0056	-1.0741	-0.7525	-0.4504	-1.1127	-0.5813	-1.1078	-1.1017	-1.0510	-1.0237	-1.0231	-1.0737	-0.8446	-0.9695
-0.1335	-0.0153	0.0000	0.9655	-0.1252	-0.0150	-0.1086	0.2130	0.5151	-0.1472	0.3842	-0.1423	-0.1362	-0.0855	-0.0060	-0.0575	-0.1082	0.1209	-0.0098
-0.0890	0.0000	0.0153	1.0100	-0.0807	0.0003	-0.0168	0.2575	0.5596	-0.1027	0.4287	-0.0978	-0.0917	-0.0157	0.0093	-0.0072	-0.0170	0.1654	0.0056
0.0000	0.0890	0.1335	1.0991	0.0040	0.0935	0.0123	0.3465	0.6487	-0.0062	0.5178	-0.0025	0.0003	0.0134	0.0753	0.0760	0.0122	0.2544	0.1296
-0.2754	-0.1863	-0.1418	0.8237	-0.2671	-0.1819	-0.2504	0.0711	0.3733	-0.2890	0.2424	-0.2842	-0.2780	-0.2273	-0.2000	-0.1994	-0.2500	-0.0189	-0.1458



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A21	0.1170	-0.1963	-0.1018	-0.2940	-0.2835	-0.1854	-0.0974	-0.2893
A22	0.3924	0.0791	0.1736	-0.0046	-0.0054	0.0900	0.1780	-0.0050
A23	0.3033	-0.0049	0.0845	-0.1077	-0.0971	0.0010	0.0196	-0.1030
A24	0.2589	-0.0545	0.0095	-0.1522	-0.1416	-0.0143	0.0043	-0.1475
A25	-0.7067	-1.0200	-0.9255	-1.1177	-1.1072	-1.0091	-0.9211	-1.1130
A26	0.3841	0.0707	0.1653	-0.0087	-0.0094	0.0816	0.1696	-0.0090
A27	0.2989	-0.0053	0.0801	-0.1121	-0.1016	0.0007	0.0193	-0.1074
A28	0.3674	0.0119	0.1486	-0.0170	-0.0177	0.0178	0.1530	-0.0173
	0.0459	-0.2675	-0.1729	-0.3651	-0.3546	-0.2566	-0.1686	-0.3604
	-0.2563	-0.5696	-0.4751	-0.6673	-0.6568	-0.5587	-0.4707	-0.6626
	0.4061	0.0927	0.1873	0.0015	0.0008	0.1036	0.1916	0.0012
	-0.1254	-0.4387	-0.3442	-0.5364	-0.5259	-0.4278	-0.3398	-0.5317
	0.4012	0.0878	0.1824	-0.0022	-0.0029	0.0987	0.1867	-0.0025
	0.3951	0.0817	0.1763	-0.0050	-0.0057	0.0926	0.1806	-0.0053
	0.3443	0.0107	0.1255	-0.0181	-0.0189	0.0167	0.1299	-0.0184
	0.3170	-0.0143	0.0155	-0.0940	-0.0834	-0.0083	0.0103	-0.0893
	0.3164	0.0023	0.0976	-0.0946	-0.0841	0.0083	0.1020	-0.0899
	0.3670	0.0120	0.1482	-0.0168	-0.0176	0.0180	0.1526	-0.0171
	0.1380	-0.1754	-0.0116	-0.2731	-0.2625	-0.1645	-0.0168	-0.2684
	0.2628	-0.0105	0.0193	-0.1482	-0.1377	-0.0045	0.0141	-0.1435
	0.0000	-0.3133	-0.2188	-0.4110	-0.4005	-0.3024	-0.2144	-0.4063
	0.3133	0.0000	0.0945	-0.0977	-0.0871	0.0060	0.0989	-0.0930
	0.2188	-0.0945	0.0000	-0.1922	-0.1817	-0.0836	-0.0052	-0.1875
	0.4110	0.0977	0.1922	0.0000	-0.0008	0.1086	0.1966	-0.0003
	0.4005	0.0871	0.1817	0.0008	0.0000	0.0980	0.1861	0.0004
	0.3024	-0.0060	0.0836	-0.1086	-0.0980	0.0000	0.0186	-0.1039
	0.2144	-0.0989	0.0052	-0.1966	-0.1861	-0.0186	0.0000	-0.1919
	0.4063	0.0930	0.1875	0.0003	-0.0004	0.1039	0.1919	0.0000

Note: Author's calculation

Table 7. Euclidean and Taxicab's distance of alternatives from the negative ideal solution

Alternatives	Ei	Ti	threshold parameter	
			$\tau$	0.02
A1	0.1134	0.2480		
A2	0.0290	0.0571		
A3	0.0581	0.1170		
A4	0.0735	0.1462		
A5	0.3084	0.8767		
A6	0.0330	0.0614		
A7	0.0585	0.1211		
A8	0.0413	0.0697		
A9	0.1341	0.2986		
A10	0.2133	0.5214		
A11	0.0228	0.0496		
A12	0.1950	0.4089		
A13	0.0266	0.0508		
A14	0.0293	0.0541		
A15	0.0425	0.0917		
A16	0.0675	0.0940		
A17	0.0509	0.1112		
A18	0.0412	0.0703		
A19	0.0945	0.2460		
A20	0.0637	0.1520		
A21	0.1746	0.3039		
A22	0.0532	0.1119		



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<b>A23</b>	0.0830	0.1767		
<b>A24</b>	0.0244	0.0431		
<b>A25</b>	0.0236	0.0544		
<b>A26</b>	0.0592	0.1169		
<b>A27</b>	0.0778	0.1863		
<b>A28</b>	0.0241	0.0481		

*Note: Author's calculation*

Table 8. Ranking

	Alternatives	Hi	Hi	Ranking
Belgium	<b>A1</b>	<b>3.016</b>	<b>3.016</b>	<b>6</b>
Bulgaria	<b>A2</b>	<b>-4,670</b>	<b>-4,670</b>	<b>22</b>
Czechia	<b>A3</b>	<b>-2,215</b>	<b>-2,215</b>	<b>15</b>
Denmark	<b>A4</b>	<b>-1.013</b>	<b>-1.013</b>	<b>10</b>
Germany	<b>A5</b>	<b>26,081</b>	<b>26,081</b>	<b>1</b>
Estonia	<b>A6</b>	<b>-4,435</b>	<b>-4,435</b>	<b>21</b>
Ireland	<b>A7</b>	<b>-2,140</b>	<b>-2,140</b>	<b>12</b>
Greece	<b>A8</b>	<b>-3,881</b>	<b>-3,881</b>	<b>20</b>
Spain	<b>A9</b>	<b>5,010</b>	<b>5,010</b>	<b>5</b>
France	<b>A10</b>	<b>13,358</b>	<b>13,358</b>	<b>2</b>
Croatia	<b>A11</b>	<b>-4,971</b>	<b>-4,971</b>	<b>27</b>
Italy	<b>A12</b>	<b>9,917</b>	<b>9,917</b>	<b>3</b>
Cyprus	<b>A13</b>	<b>-4,847</b>	<b>-4,847</b>	<b>24</b>
Latvia	<b>A14</b>	<b>-4,712</b>	<b>-4,712</b>	<b>23</b>
Lithuania	<b>A15</b>	<b>-3,586</b>	<b>-3,586</b>	<b>18</b>
Luxembourg	<b>A16</b>	<b>-2,189</b>	<b>-2,189</b>	<b>14</b>
Hungary	<b>A17</b>	<b>-2,670</b>	<b>-2,670</b>	<b>17</b>
Malta	<b>A18</b>	<b>-3,879</b>	<b>-3,879</b>	<b>19</b>
Netherlands	<b>A19</b>	<b>2,304</b>	<b>2,304</b>	<b>7</b>
Austria	<b>A20</b>	<b>-1,251</b>	<b>-1,251</b>	<b>11</b>
Poland	<b>A21</b>	<b>6,294</b>	<b>6,294</b>	<b>4</b>
Portugal	<b>A22</b>	<b>-2,543</b>	<b>-2,543</b>	<b>16</b>
Romania	<b>A23</b>	<b>0.109</b>	<b>0.109</b>	<b>8</b>
Slovenia	<b>A24</b>	<b>-5,038</b>	<b>-5,038</b>	<b>28</b>
Slovakia	<b>A25</b>	<b>-4,867</b>	<b>-4,867</b>	<b>25</b>
Finland	<b>A26</b>	<b>-2,188</b>	<b>-2,188</b>	<b>13</b>
Sweden	<b>A27</b>	<b>-0.030</b>	<b>-0.030</b>	<b>9</b>
Serbia	<b>A28</b>	<b>-4,962</b>	<b>-4,962</b>	<b>26</b>

*Note: Author's calculation*

According to the results of comparative research on the performance positioning of the trade of the countries of the European Union and Serbia using the DIBR-CODAS method, German trade is in first



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place. The other top five countries include France, Italy, Poland, and Spain. So, the leading countries of the European Union in terms of trade performance are at the very top. Trade Croatia is in the twenty-seventh place. In twenty-eighth place is the trade of Slovenia. Trade Croatia is better positioned than trade Slovenia. As far as the trade of Serbia is concerned, it is positioned in the twenty-sixth place. It is in a better position than the trade between Croatia and Slovenia.

However, it is in a very bad position about the trade of the leading countries of the European Union. To improve the performance positioning of Serbian trade, it is necessary to take relevant measures. The target performance positioning of the trade of the countries of the European Union and Serbia can be achieved by managing the number and size of companies as effectively as possible, human resources, added value, employee costs, profit, sales, and increasing labor productivity. In addition to adequate adaptation to the economic and political situation, the application of new business models (multichannel sales - store and electronic, private brand, sale of organic products, etc.), the concept of sustainable development, modern concepts of cost management, the concept of customer management, the concept of management of product categories, a common concept of supply chain management, and digitization of the entire business.

## CONCLUSION

The problem of researching the performance positioning of the trade of the countries of the European Union and Serbia using multi-criteria decision-making methods is very challenging, active, significant, and complex. This in itself shows the analyzed problem in this study. According to the results of comparative research on the performance positioning of the trade of the countries of the European Union and Serbia using the DIBR-CODAS method, German trade is in first place. The other top five countries include France, Italy, Poland, and Spain. So, the leading countries of the European Union in terms of trade performance are at the very top. Trade Croatia is in the twenty-seventh place. In twenty-eighth place is the trade of Slovenia. Trade Croatia is better positioned than trade Slovenia. As far as the trade of Serbia is concerned, it is positioned in the twenty-sixth place. It is in a better position than the trade between Croatia and Slovenia.

However, it is in a very bad position about the trade of the leading countries of the European Union. To improve the performance positioning of Serbian trade, it is necessary to take relevant measures. In any case, the target performance positioning of the trade of the countries of the European Union and Serbia can be achieved by managing the number and size of companies as effectively as possible, human resources, added value, employee costs, profit, sales, and increasing labor productivity. For these purposes, it is necessary to effectively control other relevant influencing factors (economic and political climate, new business models, modern cost management concepts, sustainable development concept, customer management, product category management, Japanese business philosophy, foreign direct investments, supply chain management, energy crisis, digitization of the entire business, etc.).

## REFERENCES

Badi, I., Abdulshaded, A., Shetwan, A. (2018). A case study of supplier selection for a steelmaking company in Libya using combinative distance-based assessment (CODAS) model. *Decision Making: Application in Management and Engineering*, 1(1), 1–12.



## Conference Proceedings

- Ersoy, N. (2017). Performance measurement in the retail industry by using multi-criteria decision-making methods. *Ege Academic Review*, 17(4), 539–551.
- Ghorabae, M., Zavadskas, E. K., Turskis, Z., Antucheviciene, J. (2016). A new combinative distance-based assessment (CODAS) method for multi-criteria decision-making. *Economic Computation and Economic Cybernetics Studies and Research*, 50(3), 25–44.
- Ghorabae, M., Amiri, M., Zavadskas, E.K., Hooshmand, R., Antuchevičienė, J. (2017). Fuzzy extension of the CODAS method for multi-criteria market segment evaluation. *Journal of Business Economics and Management*, 18(1), 1–19.
- Lalić, S., Jovičić, Ž., Lukić, R. (2021). Application of the COPRAS method in the evaluation of trade efficiency in Serbia. *Časopis za ekonomiju i tržišne komunikacije Economy and Market Communication Review*, Godina/Vol. XI • Br./No. II str./pp. 497-509.
- Lukic, R.(2021). Analysis of the efficiency of pharmaceutical companies in Serbia based on the CODAS method. *Poslovna ekonomija*, Godina XV, broj 2, str. 31 – 46.
- Lukic, R. (2022a). Analysis of Productivity of Distribution Trade of Selective Countries of the European Union, Russia, and Serbia Based on the OCRA Method. *Review of International Comparative Management*, 23(1), 65-79.
- Lukic, R. (2022b) Analysis of Investment Efficiency of Distribution Trade of Selective Countries of the European Union and Serbia based on TRUST Method. *Review of International Comparative Management*, 23(2), 382-399.
- Lukic, R. (2022c). Application of the MARCOS Method in Analysis of the Positioning of Electronic Trade of the European Union and Serbia. *Informatika Economică*, 26(3), 50-63.
- Lukic, R. (2022d). Employee costs of distribution trade of the European Union and Serbia. *Business Excellence and Management*, 12(3), 60-76.
- Lukic, R. (2022e). Evaluation of transport and storage performance in the European Union. *Ekonomski pogledi*, 24( 2), 25-44.
- Lukić, R.(2023a). Measurement and Analysis of The Information Performance of Companies in The European Union and Serbia Based on The Fuzzy LMAW and MARCOS Methods. *Informatika Economică*, 27(1), 17 – 31.
- Lukić, R. (2023b). Comparative analysis of transport and storage information systems of the European Union and Serbia using fuzzy LMAW and MARCOS methods. *Economy, Business & Development*, 4(1), 1-17.
- Lukić, R. (2023c). Performance analysis of trading companies in Serbia based on DIBR - WASPAS methods. 28th International Scientific Conference Strategic Management and Decision Support Systems in Strategic Management SM 2023, Proceedings, Faculty of Economics, Subotica, pp. 361-372.
- Lukic, R. (2023d). Application of the LMAW-DNMA method in the evaluation of the environmental problem in the agriculture of selected European Union countries. *Acta Agriculturae Serbica*, 28(55), 49–61.
- Lukić, R. (2023e). Comparative analysis of the trade performance of the countries of the European Union, Serbia, and Bosnia and Herzegovina - an empirical approach. *Novi Ekonomist*, 17(1), 12-27.
- Lukić, R. (2023f). Analysis of Research and Development Performance Indicators of the European Union and Serbia. *European Project Management Journal*, 13(2): 63-77.





## Conference Proceedings

Lukić, R., Hadrović Zekić, B: (2023). Evaluation of transport and storage performance of the European Union and Serbia based on SF-WASPAS and WASPAS methods. 23 rd international scientific conference Business Logistics in Modern Management October 5-6 2023 - Osijek, Croatia, 3-32.

Mathew, M., Sahu, S. (2018). Comparison of new multi-criteria decision-making methods for material handling equipment selection. *Management Science Letters*, 8(3), 139-150.

Pamucar, D., Deveci, M., Gokasar, I., Işık, M., Zizovic, M. (2021). Circular economy concepts in urban mobility alternatives using integrated DIBR method and fuzzy Dombi CoCoSo model. *Journal of Cleaner Production*, 323, 129096.

Panchal, D., Chatterjee, P., Shukla, R. K., Choudhury, T., Tamosaitiene, J. (2017). Integrated fuzzy AHP-CODAS framework for maintenance decisions in the urea fertilizer industry. *Economic Computation and Economic Cybernetics Studies and Research*, 51(3), 179–196.

Seker, S. (2020). A novel interval-valued intuitionistic trapezoidal fuzzy combinative distance-based assessment (CODAS). *Soft Computing*, 24, 2287–2300.

Tešić, D.Z., Božanić, D.I., Pamučar, D.S., Dind, J. (2022). DIBR – FUZZY MARCOS model for selecting a location for a heavy mechanized bridge. *Vojnotehnički glasnik*, 70(2), 314-339.

Tešic, D., Radovanovic, M., Božanic, D., Pamucar, D., Milic, A., Puška, A. (2022). Modification of the DIBR and MABAC Methods by Applying Rough Numbers and Its Application in Making Decisions. *Information*, 13, 353.

Zavadskas, E. K., Kaklauskas, A., Turskis, Z., Tamošaitien, J. (2008). Selection of the effective dwelling house walls by applying attribute values determined at intervals. *Journal of Civil Engineering and Management*, 14 (2), 85-93.



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# TRENDS IN FOREIGN TRADE OF SERBIA: A CASE STUDY OF AGRICULTURAL PRODUCTS

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DOI: 10.5937/EEE24076V  
JEL: F18, F53, Q17  
Review Scientific Paper

## ABSTRACT

*The agriculture sector in the Republic of Serbia holds significant economic and social importance due to its substantial contribution to domestic gross domestic product (GDP) and employment of a large number of people. Agricultural products play a crucial role in Serbia's export structure. Food is one of Serbia's major export products, with a trade surplus steadily increasing since 2005. Fruit cultivation, as part of the agricultural sector, is of great importance, with domestic producers effectively utilizing natural advantages for production, thus achieving recognition and competitiveness internationally. This study aims to analyze the trends in foreign trade parameters over a decade, focusing on one agricultural product, specifically apricots. The research employs a quantitative research method using standard descriptive statistical instruments. Results indicate that Serbia maintains a trade surplus in apricots, with significant fluctuations and varying growth and decline trends in analyzed trade parameters over the period.*

## KEYWORDS

*agriculture, apricots, foreign trade, Serbia*

## INTRODUCTION

It could be said that Serbia's agriculture is characterized by small agricultural holdings with fragmented plots of land mostly owned by individuals (Milanović et al, 2020). Agriculture represents a key sector in the Serbian national economy, evident from various indicators such as its contribution to GDP, employment, exports, and the revitalization of rural areas (Bogdanov et al., 2015, Nikolić et al., 2017). The significance of agriculture for Serbia's development is underscored by its share in total employment, approximately 20%, indicating the predominance of rural population and availability of natural, particularly land resources (Milošević, Milić, 2024). The role of agriculture in foreign trade is primarily influenced by natural conditions and the country's economic policies. Knowledge of the market is crucial because it indirectly enables the marketing of the company's goods and services (Milić et al., 2022) Zakić (2008) argues that in reorienting production and export structure of goods, one must consider the

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marginal costs of import substitution, adding that finding the optimal point of agricultural exports is challenging due to the uncertainties characterizing this issue.

According to reports from the Statistical Office of the Republic of Serbia, real GDP growth in the fourth quarter of 2023 compared to the same period the previous year was 3.8%, while real GDP growth in 2023, based on quarterly calculations, amounted to 2.5% compared to the previous year. Real gross value added growth in the agriculture, forestry, and fishing sector in the fourth quarter of 2023 increased by 7.7% compared to the same period the previous year.

The foreign trade of agricultural and food sectors significantly contributes to the total foreign trade of the Republic of Serbia, maintaining its status as the only sector in the Serbian economy with a positive trade balance. The exchange of agricultural and food products notably contributes to Serbia's overall foreign trade, with agricultural and food products accounting for 12.2% of total trade in 2023, where agricultural and food product exports accounted for 16.2% of total exports, while agricultural and food products accounted for 9.1% of total imports.

Fruit cultivation is a vital branch of agricultural production (Keserović et al., 2014), and currently, fruits are the most competitive group of products in the Republic of Serbia (SEEDEV, 2017). The significance of fruit cultivation for the national economy is evident through its high export value, contribution to a positive trade balance, promotion of employment in rural areas, continuous supply to the domestic market with fresh and processed fruits, and other positive effects on agricultural and rural development sectors. Some authors have conducted earlier studies analyzing fruit production (Vlahović et al., 2015, Milić et al., 2016, Stanković, Vaško, 2018, Užar et al., 2019, Nedeljković, Potrebić, 2020, Nedeljković, 2021) and emphasized its importance in the development of the Serbian economy.

In the European Union, various types of fruits are produced, including pome and stone fruits. It is estimated that during 2022, 35.9 million tons of fruits were produced, with 14.7 million tons of pome fruits (apples and pears), 10.5 million tons of citrus fruits (oranges, lemons), 6.3 million tons of stone fruits (peaches, nectarines, apricots, cherries, plums), 2.6 million tons of subtropical and tropical fruits (figs, kiwi, avocado, and bananas), 1.1 million tons of nuts, and 0.7 million tons of berries (Ministry of Agriculture, Forestry and Water Management, 2024). According to the Ministry of Agriculture, Forestry and Water Management, in 2023, Serbia had 200,228 hectares under fruit cultivation, which is 4.7% more compared to 2022. The most represented areas are under plum, apple, cherry, and raspberry cultivation (Table 1).

Table 1. Area and production of fruits by types, 2021-2023

Fruit type	2021		2022		2023	
	Area (ha)	Production (tons)	Area (ha)	Production (tons)	Area (ha)	Production (tons)
Apples	27.034	513.238	27.253	486.215	27.412	379.690
Pears	5.074	55.938	5.011	59.711	5.046	48.028
Cherries	4.453	15.863	4.518	22.947	4.435	15.576
Sour cherries	19.551	155.137	19.875	164.446	19.614	144.849
Apricots	6.023	31.362	6.092	44.386	6.011	29.087
Quinces	2.009	10.428	2.040	10.865	2.086	10.603
Plums	72.569	412.778	72.323	488.593	74.418	362.713
Peaches	5.063	30.873	5.007	31.840	5.116	30.814



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Nectarines	2.104	13.060	2.072	13.545	2.230	13.926
Walnuts	3.016	7.646	3.411	11.836	3.492	9.900
Hazelnuts	5.083	6.242	7.115	9.328	8.592	10.190
Other nuts	812	1.046	730	877	695	705
Raspberries	20.807	110.589	19.703	116.093	19.016	98.674
Blackberries	5.376	31.036	5.418	32.161	5.784	30.701
Strawberries	6.788	22.427	7.039	32.943	7.229	23.704
Blueberries	2.363	16.451	2.995	19.476	8.318	53.011
Other berries	747	2.009	702	1.641	734	1.522
<b>Total</b>	<b>188.872</b>	<b>1.436.122</b>	<b>191.304</b>	<b>1.546.903</b>	<b>200.228</b>	<b>1.263.692</b>

From the perspective of rakija production, alongside plum and apple as the most prevalent fruit types, apricot, grape, and pear are significantly utilized. A notable quantity of apricots are planted in the flatland areas of Vojvodina (such as Subotica-Horgoš sand dunes and the Fruška Gora region). According to official statistical data, the largest apricot orchard areas regionally are found in the Belgrade region at 43% (2,591 ha), followed by the Šumadija and Western Serbia region at 23% (1,402 ha), the Vojvodina region at 21% (1,262 ha), with the least acreage in the Southern and Eastern Serbia region at 13% (756 ha).

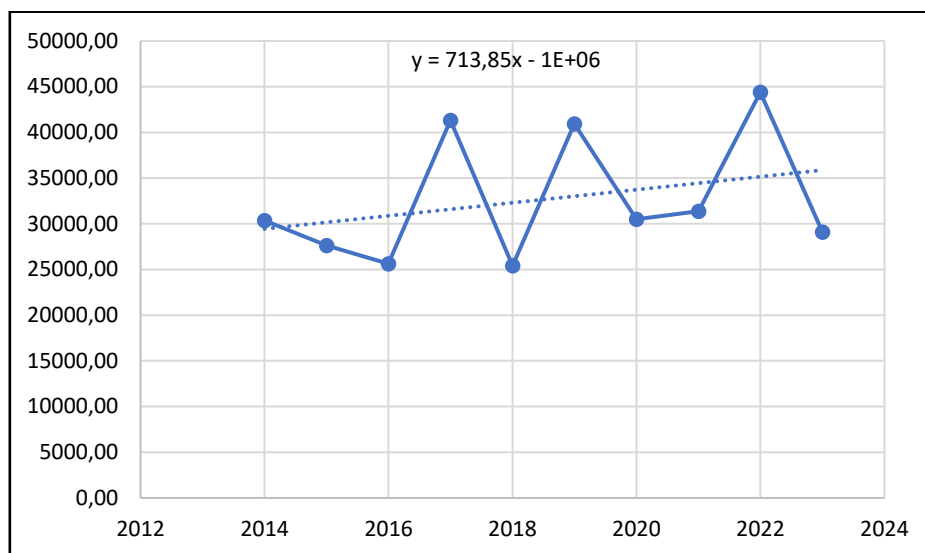
## METHODOLOGY AND DATA SOURCES

For the purpose of this research, available databases such as TradeMap (World Trade Organization), FAOSTAT, the Statistical Office of the Republic of Serbia, and other relevant literature by domestic and foreign authors were utilized. The ten-year period analysis of apricot foreign trade (2014-2023) was processed using descriptive statistics employing common instruments (mean, range, standard deviation, rate of change, coefficient of variation). The trend in indicators was depicted using the annual growth rate, and the variation of specific parameters was calculated using the coefficient of variation. Visual representation of parameter trends was achieved through graphs with calculated linear trend formulas. The results are presented in both tabular and graphical form.

## RESEARCH FINDINGS

According to FAOSTAT data, Turkey indisputably holds the largest production of fresh apricots globally with 803,000.00 tons in 2022, representing 20.70% of global production. Following Turkey are Uzbekistan and Iran with 451,263.00 tons and 305,932.000 tons, respectively. In 2022, Italy was the largest European producer of apricots with 230,080.00 tons according to the same source. Worldwide apricot exports totaled 319,814 tons in 2023, with imports at 13,450 tons, positioning apricots as a fruit with a global trade surplus for the observed year. Spain was the leading exporter of apricots with 75,768 tons, while Russia was the largest importer with 50,886 tons. Regarding Serbia, over the ten-year analyzed period, the average apricot production was 32,657 tons, with the visual representation of production trends depicted in Graph 1.

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Graph 1. Apricot Production in Serbia (tons)

Average apricot exports from Serbia to the world over the observed ten-year period were slightly over 5,135 tons, reaching a maximum of 8,989 tons in 2017. During the same period, there was a mild growth trend of 0.88%, alongside significant variability measured by a coefficient of variation of 63.83%. The highest exports were to Russia, where the average export during the analyzed period exceeded 1,076 tons, accounting for nearly 21% of Serbia's average total apricot exports. Most exports to Russia occurred at the beginning of the observed period and least in 2021. Apricot exports to Russia also exhibited a large variation of up to 116.7% and a relatively significant decline trend of nearly 24%. Romania ranked as the second-largest export destination by export volume, averaging 1,042 tons with pronounced variability in its fluctuations. Other significant export destinations include Bosnia and Herzegovina, Austria, Croatia, and Montenegro (Table 2).

Table 2. Dynamics of apricot exports to key countries in tons (2014-2023)

	Mean (t)	Min.	Max.	Standard deviation	Annual growth rate (%)	Coefficient of variation (%)
World	5135,70	1519,00	8989,00	3278,34	0.88	63.83
Russia	1076,30	168,00	3559,00	1256,65	-23.97	116.76
Romania	1042,00	200,00	2632,00	823,28	10.82	79.01
Bosnia and Herzegovina	801,40	204,00	1901,00	636,34	10.61	79.40
Austria	366,30	3,00	1282,00	463,72	-10.2	126.60
Croatia	276,00	44,00	653,00	218,34	5.98	79.11
Montenegro	258,30	46,00	496,00	158,48	26.77	61.36
Slovakia	129,90	27,00	482,00	130,08	16.39	100.14
Slovenia	69,60	10,00	149,00	47,68	15.42	68.51
Germany	62,20	3,00	186,00	68,05	12.59	109.41

Source: Author's calculation



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It is interesting to note that, similar to Russia, Austria also experienced a declining export trend (-10.2%), accompanied by considerable variability during the observed period. Among the regional countries, the most apricots were exported to Bosnia and Herzegovina, Croatia, and Montenegro. Montenegro recorded a relatively high growth trend in exports and the most stable export movement among all observed destinations (Table 1).

A similar situation arises when considering the value indicators of apricot exports. Specifically, a negative trend has been observed in exports to Russia and Austria, while exceptionally large revenue variability has been recorded in exports to Montenegro (Table 3).

Table 3. Dynamics of apricot exports in euros (2014-2023)

	Mean (euros)	Min.	Max.	Std. dev	Annual change (%)	Coefficient of variation (%)
World	3636500,00	1171000,00	7214000,00	2091394,391	5.66	57.51
Russia	964400,00	192000,00	2733000,00	954496,0509	-18.53	98.97
Romania	791600,00	149000,00	2293000,00	686569,1193	31.65	86.73
Bosnia and Herzegovina	316300,00	78000,00	760000,00	256164,4654	15.59	80.99
Austria	196000,00	2000,00	646000,00	201577,6663	-2.72	102.85
Croatia	230706,80	68,00	652000,00	233161,0623	12.01	101.06
Montenegro	455100,00	22000,00	2888000,00	861995,0309	35.95	189.41
Slovakia	101100,00	23000,00	392000,00	108883,679	23.42	107.70
Slovenia	57900,00	10000,00	122000,00	38951,39421	14.52	67.27
Germany	34500,00	2000,00	116000,00	35609,7677	18.08	103.22

The situation is quite different when it comes to the import of this fruit. The average import of apricots amounts to 491.5 tons, mostly from Greece (300 tons), as well as Spain and Italy. There is a moderate upward trend in imports, except for imports from Italy, where a negative value of this foreign trade indicator (-10.43) was recorded. These are traditionally favorable areas for cultivating this fruit, so it is not surprising that imports are oriented towards them. The highest recorded import was in 2017. (Table 4)

Table 4. Dynamics of apricot imports from major countries in tons (2014-2023)

	Mean (t)	Min	Max.	Standard deviation	Annual change (%)	Coefficient of variation (%)
World	491,50	223,00	946,00	207,06	9.29	42.13
Greece	300,10	108,00	716,00	182,68	10.35	60.88
Spain	69,80	9,00	147,00	42,79	23.69	61.32
Italy	51,20	19,00	98,00	27,83	-10.43	54.36

Source: Author's calculation

The value parameters of apricot imports vary the most during the observed period for imports from Spain (84.7%), while in line with the negative trend in quantities, the value parameter is also negative, with an annual growth rate of -1.05% (Table 5).



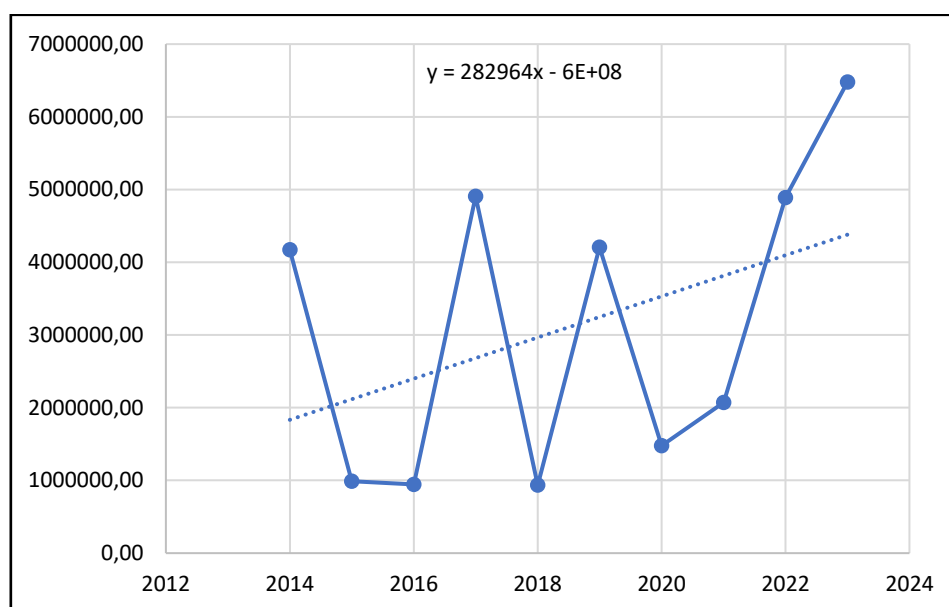
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Table 5. Dynamics of apricot imports in euros (2014-2023)

	Mean (euros)	Min.	Max.	Std. dev	Annual change (%)	Coefficient of variation (%)
World	529800,00	181000,00	890000,00	233438,4525	14.17	44.06
Greece	298100,00	98000,00	483000,00	126957,0794	16.61	42.59
Spain	99000,00	11000,00	274000,00	83851,72098	32.56	84.70
Italy	78200,00	18000,00	184000,00	51436,69248	-1.05	65.78

Source: Author's calculation

Graph 2 depicts the trend of apricot trade balance in Serbia, showing a positive trend, indicating a trade surplus.



Graph 2. Foreign trade balance in apricot trade (Euros)

## CONCLUSION

Based on the preceding discussion in the paper, we can conclude that agriculture represents one of the most important economic sectors, with foreign trade playing a significant role in the country's overall GDP. Using the example of one agricultural product, apricots, we have demonstrated trends observed over the past decade. From these trends, we conclude that Serbia maintains a surplus in this fruit type, exporting more apricots on average globally than it imports. Both exports and imports exhibit high variability, with Russia being the primary destination for Serbian exports on average during the analyzed period, facilitated by a free trade agreement between the two countries. Additionally, exports to Russia show a declining trend and significant variability. Greece is the leading country from which apricots are imported on average, characterized by substantial fluctuations in trade and a slight upward trend. This study provides a solid foundation for future projections in apricot production and overall fruit trade planning.



## Conference Proceedings

## REFERENCES

- Bogdanov, N., Nikolić, A., Dimitrievski, D., Kotevska, A. (2015). Rural areas and rural development policy in Macedonia, Serbia, and Bosnia and Herzegovina. In A. Kotevska, A. Martinovska Stojcheska (Eds.), *The Impact of Socio-Economic Structure of Rural Population on Success of Rural Development Policy. Macedonia, Serbia and Bosnia and Herzegovina* (pp. 21-35). Association of Agricultural Economists of Republic of Macedonia, Skoplje.
- Keserović, Z., Magazin, N., Kurjakov, A., Dorić, M., Gošić, J. (2014). *Voćarstvo. Poljoprivreda u Republici Srbiji – Popis poljoprivrede 2012*. Republički zavod za statistiku, Beograd.
- Milanović, M., Nikitović, Z., Vujičić, S. (2020). The importance of the quality of the agricultural products for sustainable success of agricultural holding. *International Review*, 3-4, 105-112.
- Milić M., Đervida R., Vujičić S. (2022) Marketing strategije u funkciji konkurentnosti preduzeća u Republici Srpskoj. *Trendovi u poslovanju*, 10(2), 92-101
- Milić, D., Lukač Bulatović, M., Vučićević, V. (2016). Tendencije kretanja površina i proizvodnje voća u Vojvodini. *Agroekonomika*, 45(71), pp. 57-66.
- Milošević, M., Milić, M. (2024) Uloga poljoprivrede u privrednom razvoju Republike Srbije, *Glasnik za društvene nauke*, 16(1), pp. 97-117-
- Ministarstvo poljoprivrede, šumarstva i vodoprivrede, Sektor za poljoprivrednu politiku (2024) *Izveštaj o stanju u poljoprivredi u Republici Srbiji u 2023, Knjiga I. horizontalni pregled*, Beograd.
- Nedeljković, M. (2021). Forecasting of Plum Production in Republic of Srpska. X International Symposium on Agricultural Sciences „AgroRes 2021“, *Proceedings*, pp. 210-219.
- Nedeljković, M., Potrebić, V. (2020). Forecasting Apple Production in the Republic of Srpska. *Western Balkan Journal of Agricultural Economics and Rural Development*, 2(1), 21-29.
- Nikolić, R., Fedajev, A., Stefanović, V., Ilić, S. (2017). The Agriculture Sector Characteristics Agriculture, of in Western Balkans–Some Development. *Economics of Agriculture*, 64(1), pp. 275-292.
- SEEDDEV (2017). Konkurentnost poljoprivrede Srbije. Preuzeto sa: [https://www.seeddev.org/publikacije/Konkurentnost\\_poljoprivrede\\_Srbije/Konkurentnost\\_Srbije\\_Analiza.pdf](https://www.seeddev.org/publikacije/Konkurentnost_poljoprivrede_Srbije/Konkurentnost_Srbije_Analiza.pdf)
- Stanković, D., Vaško, Ž. (2018): Forecasting Trends in the Apple Production in Bosnia and Herzegovina Until 2020. *Agroznanje*, 19(1), 8-16.
- Užar, D., Tekić, D., Mutavdžić, B. (2019). Analiza i predviđanje proizvodnje jabuke u Republici Srbiji i Bosni i Hercegovini. *Ekonomija, teorija i praksa*, 12(4), 1-10.
- Vlahović, B., Puškarić, A., Veličković, S. (2015). Izvoz jabuke iz Republike Srbije: Stanje i tendencije. *Agroekonomika*, 44(65), 10-21.
- Zakić, Z., Stojanović, Ž. (2008). *Ekonomika agrara*. Beograd: Centar za izdavačku delatnost Ekonomskog fakulteta, Beograd.
- [www.fao.org/faostat/](http://www.fao.org/faostat/) ; [www.stat.gov.rs](http://www.stat.gov.rs) ; [www.trademap.org](http://www.trademap.org)





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# AN OVERVIEW OF VIRAL MARKETING

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DOI: 10.5937/EEE24077Z  
JEL: M31, M37  
Review Scientific Paper

### ABSTRACT

*Many scholars and practitioners invest a great deal of time and effort to demystify the tools for shining through marketing messages. Harnessing the power of online technologies and quick (online) spread of word of mouth has yielded greatly positive results for markets. However, some of the dimensions of effectiveness are yet to be explored. In view of this, viral marketing has earned itself the reputation of a strategic tool that has the power to influence customers rapidly and offer extra value through means of innovative marketing practices. The aim of this article is to review different definitions of viral marketing (VM), its characteristics and campaign design specifics. On this premise, literature gaps are identified, and a future research agenda is proposed. Results show that on one hand novel marketing experiences can influence positively the consumer response to marketing actions and on the other – can equip companies with opportunities to capture attention quickly and stand out from their main rivals. This paper is particularly relevant to the modern developments in the marketing domain given the growth of social media networks and the ways people communicate with brands.*

### KEYWORDS

*viral marketing, social media, marketing strategy, WOM*

## INTRODUCTION

Effectiveness of marketing campaigns is a major battlefield for most marketing experts. Brands strive to connect with customers in more interactive ways so as they can more successfully capture their attention. Modern-day technologies (including but not limited to A.I., machine learning, deep learning, sentiment analysis) allow market players to engage with clients in a more interactive and intuitive manner. Along with this, customers themselves become influential brand ambassadors with their own (online and offline) networks of contacts. In this respect, companies can identify substantial (and influential) nodes within different social media platforms and attempt to maximize marketing results through sharing of messages. Not only does this multiply the outreach of messages, but it also gives more credibility to the source (given it is often a human being as opposed to algorithm/machine).

Viral marketing (VM) is (often described as) a strategy that utilizes existing relationships within social networks to promote a product/service via sharing. Essentially, customers share information they consider relevant to other users of their network(s) and that is sometimes colloquially viewed as a spread of a virus. Viral marketing has seen unprecedented growth in the last decade given the digital

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breakthroughs and the fact that people tend to trust more other people (rather than marketers) in a marketing world that is more and more leaning towards the absence of human-delivered services.

Taking a more holistic view of the subject matter, one can observe that companies are urging to reward influencers to be the senders of the initial message. It is believed that they can incentivise recipients to disseminate the message further so as a “virus effect” can be achieved (quick circulation of communication). The processes involved can have multiple positive effects:

- 1) customer awareness;
- 2) acquisition;
- 3) retention;
- 4) brand image;
- 5) quick promotion, among others.

Yet, due to the taxonomical challenges (related to defining the borders of the term “viral marketing”) as well the varied practices and tools that are in the same domain, there is a need for further investigation of the characteristics and manifestations of VM.

This article aims to examine the different definitions and manifestations of VM alongside with advantages and disadvantages. Based on that, a viral marketing campaign design is critically analysed and characteristics of VM in existing literature are presented. Finally, the paper takes a closer look at recent studies in the field and provides a future research agenda. The nature of the article is conceptual yet very practically oriented. We acknowledge that the nature of VM is dynamic and multifaceted.

## VIRAL MARKETING AND ITS CHARACTERISTICS

Viral marketing is a term that is first mentioned by D. Rushkoff in his book where it is portrayed as a “media virus” (Salvador, 2014). Nevertheless, Rayport (1996) makes the original formulation of the term. Multiple sources (Moore, 2003, Cruz, Fill, 2008; Salvador, 2014; Kostić et al., 2015), however, put forward the name of T. Draper and the example of Hotmail as the beginning of the VM implementation. It is also important to note that viral marketing has been defined as either a technique (Woerdl et al., 2008, Wolter et al., 2016) or a strategy (Moore, 2003). For the purposes of this study the authors will consider viral marketing as a strategy.

Viral marketing has had multiple name changes with an interpretation that can be seen below.

Table 1. Variations of viral marketing

Buzz marketing	Stealth marketing	Electronic referral marketing (ERM)
Word-of-mouth (marketing)	E-word of mouth (marketing)	Internet WOM
Viral advertising	Network marketing	Interactive marketing

*Source: Goldenberg et al., 2001, De Bruyn, Lilien, 2004, Cruz, Fill, 2008, Chen, Lee, 2014, Kostić et al., 2015*

What can be observed from Table 1 is that VM is sometimes used interchangeably with stealth marketing when according to research, it is considered as part of it (Kaikati, Kaikati, 2004). Another important aspect that must be pointed out is that VM is thought to belong to the so-called guerilla marketing which



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is characterised by the selection of odd marketing activities with the objective to create an impact (Nufer, 2013). What is more, the second row of the table links VM to word-of-mouth (WOM). The WOM communication topic has been at the centre of attention in both the academic and business world for decades (De Bryun, Lilien, 2008).

The WOM facet that can be seen as part of VM’s key characteristics is the one regarding dissemination and sharing speed (Woerdl et al., 2008). According to one study (Wang, 2019), there are two forms of WOM: (1) traditional WOM (face-to-face, offline) and (2) e-WOM. Regarding e-WOM, one source (Hossain et al., 2019) defines it as a VM strategy. This is evidence that while some studies (Chen and Lee, 2014; Kostić et al., 2015) equalise VM to e-WOM, there are others (Hossain et al., 2019) who support a different opinion. Wolter et al. (2016) further differentiates e-WOM from VM on the grounds that e-WOM is rather an “informal bottom-up phenomenon”. What can be concluded is that VM has experienced a change in taxonomy but has also been linked to other families of terms. This creates confusion and further challenges when researchers continue to build over the term itself through their studies.

From the aforementioned, it can be concluded that VM exhibits volatility in interpretation. However, this volatility is only to a certain extent. The reason behind this is that VM shares a base of characteristics from the terms that have been mentioned above. Nonetheless, it is the full combination of attributes that VM has that sets it apart from the rest. These characteristics can be seen below:



Figure 1. VM Characteristics  
Source: Rakic and Rakic, 2014

With regards to the above figure, virality is defined as the pooling of a high number of views in a short period of time due to sharing (Tellis et al., 2019). In order to reach virality, however, one must “get the right people talking about the product or service without it appearing to be company-sponsored” (Kaikati, Kaikati, 2004). The same source also considers this to be the main objective of VM to which the researchers agree. Furthermore, when talking about the “right people” another study (Rakic, Rakic, 2014) has found that the younger consumers are, the higher the chances of them participating in viral communications. This can be considered as another characteristic of VM.

The first typology that is presented is the one mentioned by Woerdl et al. (2008):

Table 2. VM typology

Type	Social Interaction	Unintentional	Commercial
Motive	Communication	Communication	Create interest
Visibility	Intangible	Identifiable	Intention driven
Intention	Not viral	Not viral or concealed viral	Open viral vs. concealed viral
Basis	Social	Social and/or commercial	Commercial

Source: Woerdl et al., 2008



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As can be seen from the table above, VM is broken down into three categories with different characteristics pertaining to them. Diving deeper into the topic of typology, what is presented further is the research surrounding mobile VM strictly. Wiedemann (2007) elaborates on the topic by introducing the following mobile VM types:

Table 3. Mobile VM typology

Level of network externalities	High	Motivated Evangelism	Signaling Use, Group Membership
	Low	Targeted Recommendation	Awareness Creation and Benefits Signaling
		Active	Passive
Role of communicator in persuasion			

Source: Wiedemann, 2007

According to the typology offered above, the authors conclude that depending on the two main variables both researchers and practitioners can craft such a VM strategy that would yield a higher success rate given the risk taken is appropriate. Furthermore, when comparing the overall VM typology with this particular one, what can be seen is that the active role of the communicator in persuasion matches with the commercial basis in the table for VM typology. Moreover, the level of network externalities matches with the visibility and intention aspects of the table prior to the last one. Therefore, what can be concluded is that as expected, mobile viral marketing uses the overall VM typology as a base on which to expand.

The advantages and disadvantages of VM are as follows (Dobele et al., 2005, Woerdl et al., 2008):

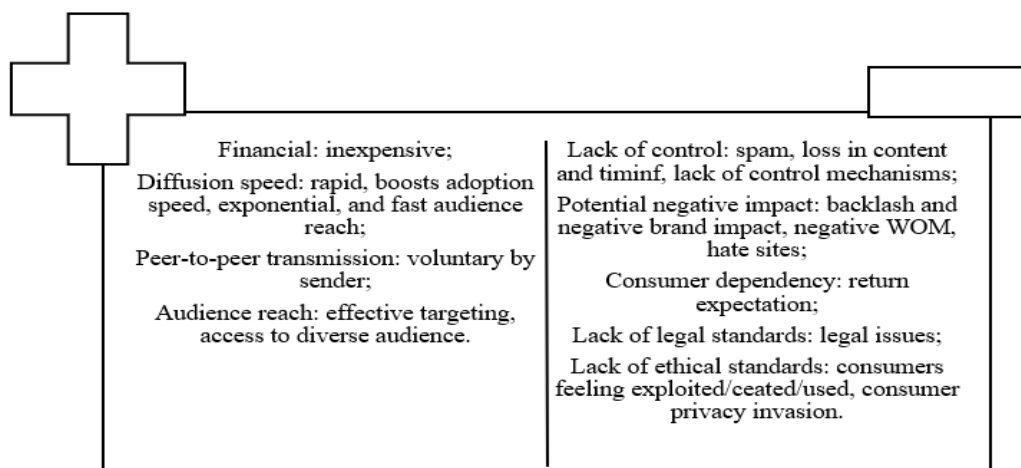


Figure 2. VM advantages and disadvantages

Source: Dobele et al., 2005, Woerdl et al., 2008

What can be observed from Figure 2 above is the fact that the disadvantages are currently outweighing the advantages. This is a barrier for practitioners to opt for applying VM in their campaigns. There will always be variables that will be out of control for the company in terms of the influence of VM outcomes (Baltezarevic, 2016). However, this risk can be lowered if practitioners oversee the variables that can be controlled before the message is released. Moreover, the focal point of VM is the fact that it has a high potential in message dissemination and low cost: two factors that have never been able to be combined

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before given the cost of traditional media. This leaves the authors of the opinion that the potential of VM is higher than the losses that can occur.

With regards to the benefits associated with mobile VM, Persaud and Azhar (2012) also state that this marketing strategy is easy and inexpensive. However, they also highlight a possible negative side of mobile VM (and in the authors' opinion – VM in general): the fact that there is limited guarantee that the consumers will be willing to receive marketing messages on their phones. Comparing the pros and cons of the "normal" and mobile VM there is no clear line that marks a difference. Thus, the authors recognise the differences between them in the characteristics and typology.

## STAGES OF VIRAL MARKETING CAMPAIGN DESIGN

On the topic of VM campaigns what must be discussed is the stages that those type of campaigns go through (Kostić et al., 2015):

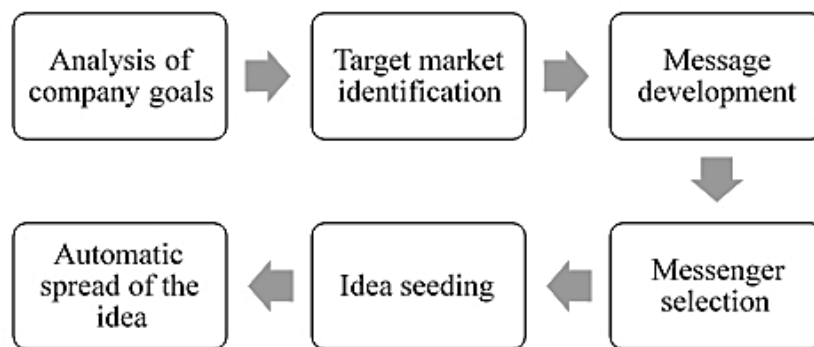


Figure 3. Stages of a VM campaign

Source: Kostić et al., 2015

The best example that portrays the validity of the figure from above according to the authors is the viral marketing campaign coming from ALS (amyotrophic lateral sclerosis) association known as "The ALS Ice Bucket Challenge". The initial state of the campaign included a very "blunt challenge" that later on shifted with the message being re-branded to take the form which is presented above (Baltezarevic et al., 2016). Furthermore, a good message was developed that went from either throw ice at yourself or donate to throw ice at yourself and donate (Baltezarevic et al., 2016) that was then accompanied by the final message. This then resulted in idea seeding and expanded substantially through the automatic spread of the idea (evidence of which is the execution of the challenge by Mark Zuckerberg and Bill Gates). As for the stages of the VM campaign, what is seen in this specific case is that there are clear goals present with a good initial target market since in the end the challenge was made viral. Other examples of VM are The Dark Knight campaign, "Let's Say Thanks" campaign by Xerox, Venus razor campaign by Gillette and "Life's for Sharing" campaign by T-mobile (Larson, 2009). However, even if there are stages that can be anticipated and followed through for a campaign, research is yet to discover possible ways in which the effectiveness of VM campaigns can be measured (Freed, 2019) and controlled.

The study conducted by Kostić et al. (2015) proves that there is an evident process with a well-established structure regarding VM campaigns. However, Chiu et al. (2014) is of the opinion that there are times where "one size fits all" cannot be applied. The reason they give is that such campaigns must



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be tailored to the individual characteristics and the approach (Chiu et al., 2014). The authors agree that the approach does play a vital part in any VM campaign. Two of the reasons for this are the difference in industries and the context (whether it is B2C or B2B) the campaign is situated in. Nonetheless, the first reason given by Chiu et al. (2014) regarding the individual characteristics is already present in the study of Kostić et al. (2015) through the target market identification stage. Thus, this eliminates it as a reason to not be able to have generalised stages of VM campaign development.

## CHARACTERISTICS OF VIRAL MARKETING IN EXTANT LITERATURE

When more thoroughly examined, the roots of VM date back to an era when technology was limited. As Salvador (2014) states, it was only until the boom of social networks when the pattern of mass distribution content was altered. The same study presents as such the start of the social media revolution to be made by Friendster (2002), MySpace (2003), Facebook (2004), and Twitter (2006). Nowadays, what is left in existence from the aforementioned media are Facebook and Twitter (now named X) as well as the new additions – TikTok and Instagram.

Throughout the years, a plethora of research has been conducted on the topic of VM. Almeida et al. (2016) has identified a total of four groups of studies that share the same characteristics which are presented below.

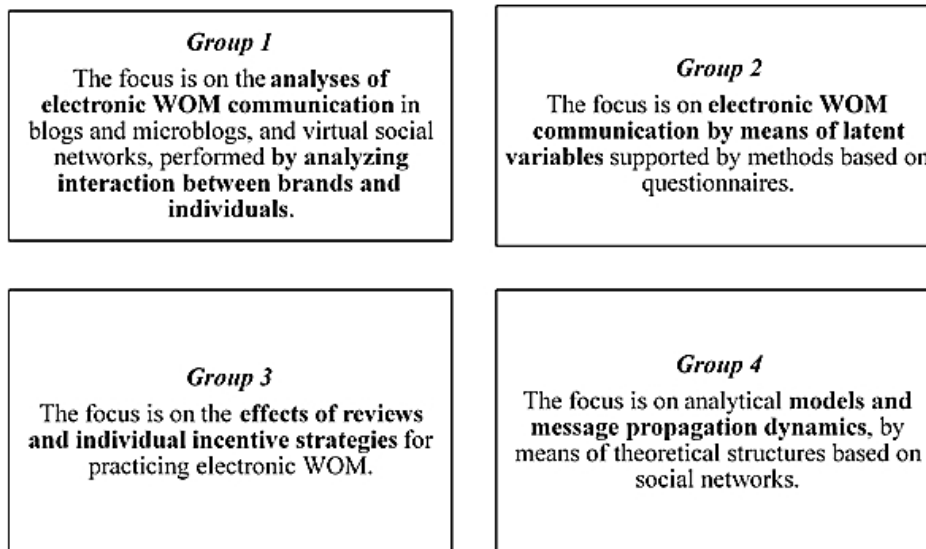


Figure 4. Characteristics of studies on VM  
Source: Almeida et al., 2016

What can be concluded from the table above is that all researchers have focused on the communication process itself and its varying dimensions such as the message, dynamics, brand and individuals' interaction, and reviews. By and large, what can be seen from past studies is WOM's inherent divergence and yet convergence to VM. The communication medium used in VM which is Internet (Woerdl, 2008) and the emergence of social media that lead to exponential growth (Kobia, 2014) in information transfer are the sources of the divergence between the two terms. In other words, technological advances create



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the gap present between VM and WOM (Cruz, Fill, 2008, Kostić et al., 2015). The convergence, however, stems from the fact that the underlying characteristics of the traditional WOM are evidently present in VM (Woerdl et al., 2008, Kobia, 2014). That is why the authors believe that it is not only the technological advancement that has led to the label given to VM as an “electronic extension of WOM” (Cruz, Fill, 2008), but also the existence of the WOM phenomenon itself.

## PRESENT–DAY STUDIES IN THE FIELD OF VM

The most recent trends connected to VM research (between 2021 and 2024) are:

Table 4. Contemporary studies in the VM domain

Research topic from VM perspective	Studies
Purchasing Intentions	Fitriani et al. (2022), Muhajir et al. (2022), Mustikasari et al. (2023), Widyarsih et al. (2023)
Purchasing Decisions	Agesti et al. (2021), Fitri et al. (2021), Hamade (2021), Madjid et al. (2022), Mardiana, Haryanto (2022), Anindya, Indriastuti (2023), Putri, Rahyuda (2023), Alfarez et al. (2024), Lestari et al. (2024), Praditya, Purwanto (2024)
Meme marketing	Ngo (2020)
Banking	Mustafa, Almrafee (2022), Roy et al. (2022)
Live streaming/broadcasting	Wang (2022), Bakti, Sari (2024)
Online opinions/trust	Liyanapathirana (2021), Tu and Neumann (2022)
Impact on SMEs (small and medium-sized enterprises) and micro-companies	Jasin (2022), Erwin et al. (2023), Purwanto et al. (2023)

*Sources: Ngo, 2020, Agesti et al., 2021, Fitri et al., 2021, Hamade, 2021, Fitriani et al., 2022, Jasin, 2022, Liyanapathirana, 2021, Madjid et al., 2022, Mardiana, Haryanto, 2022, Muhajir et al., 2022, Mustafa, Almrafee, 2022, Roy et al., 2022, Tu and Neumann, 2022, Wang, 2022, Anindya, Indriastuti, 2023, Erwin et al., 2023, Purwanto et al., 2023, Putri, Rahyuda, 2023, Mustikasari et al., 2023, Widyarsih et al., 2023, Alfarez et al., 2024, Bakti, Sari, 2024, Lestari et al., 2024, Praditya, Purwanto, 2024*

The first research topic is regarding purchasing intentions. Due to the contrary conclusions (Mustikasari et al. (2023) and Widyarsih et al. (2023) state VM has an insignificant impact on the purchase intentions, while Fitriani et al. (2022) and Muhajir et al. (2022) state the opposite - it is hard to conclude that VM has a positive and significant effect over the purchase intentions. The biggest body of research found was related to the purchasing decisions. All of the research listed concludes that VM has a positive impact on the customer purchase decision. A very limited but unique topic that was found was the one regarding meme marketing introduced by Ngo (2020). Meme marketing is defined as the promotion of a product by adopting the use of viral user-generated content (also known as a meme). Memes and the culture surrounding them has been continuing to grow in the past few years and as such, the authors are of the opinion that this topic deserves to be highlighted.



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Banking is a topic that is also studied by scholars in terms of VM. On one hand, Mustafa and Almrafee (2022) state that VM has a positive influence over motivating consumers to use the services of a commercial bank. On the other, Roy et al. (2022) provide suggestions on how a bank can adopt VM in order to have a better influence over their customers. With regards to the live streaming/broadcasting topic, VM has not only a positive effect on live broadcasting (Wang, 2022), but also when combined with live streaming it can further positively influence the purchasing decision (Bakti and Sari, 2024). The online opinion/trust research expands on the fact that VM has a positive influence on online trust (Liyanapathirana, 2021) and on the polarisation in the network opinions stated (Tu and Neumann, 2022). The studies regarding the impact on SME and micro-companies confirm that VM enhances the marketing performance (Purwanto et al., 2023), increases the competitiveness (Jasin, 2022), and client engagement (Erwin et al., 2023).

Finally, there is one variable that is used as an additional layer in the research for VM from above and that is the brand image one. Examples include the studies of Madjid et al. (2022), Praditya and Purwanto (2024), Putri and Rahyuda (2023), and Widyarsih et al. (2023). From these, the research of Madjid et al. (2022) most clearly states the connection between VM and brand image. VM is a message carrier. The message itself carries the product of a certain company. The product represents the brand and is recognised by consumers through the brand image. That is why this paper recognises the significance of brand image.

## GAPS AND FUTURE RESEARCH AGENDA

A gap that was found in the literature above is the lack of research made on the willingness of consumers to receive marketing messages on their phones which was highlighted by Persaud and Azhar (2012) with regards to VM expansion. Furthermore, other relevant gaps and future research recommendations recognised from Table 4 are the following:

Table 5. Gaps and future research recommendations

Research topic from VM perspective	Gap and future research
Purchasing Intentions	Further use of additional factors (content variables, customer experience and etc) that influence the purchase interest (Fitriani et al., 2022)
Purchasing Decisions	Further research on other variables that will influence the purchase decision such as brand image (Mardiana, Haryanto, 2022, Praditya, Purwanto, 2024); creation of a unanimous and better definition for VM itself as a term (Hamade, 2021)
Meme marketing	Further standardisation of the research itself is needed in terms of user-generated content (memes) as well as sample expansion (Ngo, 2020)
Banking	Expansion on factors that may have an effect on the impact of VM (Mustafa, Almrafee, 2022)
Live streaming/broadcasting	Need for further population data enrichment in order for better accuracy of the findings to be established (Bakti, Sari, 2024)





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Online opinions/trust	Expansion of the sampling methods and sample size used in order to provide more focused data regarding how age and income further affect the variables (Liyanapathirana, 2021)
Impact on SMEs (small and medium-sized enterprises) and micro-companies	Expansion of the sample itself in order for data to show answers for other geographical regions (Erwin et al., 2023)

*Sources: Ngo, 2020; Hamade, 2021; Liyanapathirana, 2021; Fitriani et al., 2022; Mardiana and Haryanto, 2022; Mustafa and Almrafee, 2022; Erwin et al., 2023; Bakti and Sari, 2024; Praditya and Purwanto, 2024*

From the table above it can be concluded that most of the research recommends either further expansion into factors that may affect the main variables or further development of the sample itself (whether that will be in terms of size, methods and etc.).

Last but not least, from the reviewed characteristics of studies on VM, it was concluded that the communication process itself and its varying dimensions such as the message, dynamics, brand and individuals' interaction, and reviews have been most widely used as variables. Therefore, these dimensions should be considered as valuable variables in any future research and must be taken carefully into account by both researchers and practitioners.

## CONCLUSION

This paper has summarized the body of literature by presenting an overview of different variations, characteristics, typologies, advantages and disadvantages, campaign design, and contemporary studies on the topic of viral marketing. The aim of the study has been accomplished through the provision of the abovementioned elements with regards to viral marketing. Notable conclusions that must be highlighted are that viral marketing is a strategy that has a history of vast terminology variations which has created confusion and a challenge for researchers when using this term. Furthermore, viral marketing includes two advantages - high potential in message dissemination and low cost, which have not been combined before with regards to traditional media. Moreover, the stages of a viral marketing campaign must be altered based on the context. Lastly, contemporary studies in the literature of viral marketing portray that research is interested in topics that revolve around purchasing intentions and decisions, meme marketing, banking, live broadcasting/streaming, online opinions/trust and impact on SMEs and micro-companies.

The practical implications of this study are connected to the provision of a better understanding of what viral marketing is, its usage purpose and what opportunities it can give to practitioners such as cost minimisation and message spread maximisation. Furthermore, a standardised process of the viral marketing campaign is provided which adds order in a strategy which relies solely on the virality of a message.

This study has provided guidance for future research in terms of pointing out the need for further expansion into factors that will affect the mentioned studies' variables as well as further sample development.



## Conference Proceedings

## REFERENCES

- Agesti, N., Ridwan, M. S., Budiarti, E. (2021). The Effect of Viral Marketing, Online Customer Review, Price Perception, Trust on Purchase Decisions with Lifestyle as Intervening Variables in the Marketplace Shopee in Surabaya City. *International Journal of Multicultural and Multireligious Understanding*, 8(3), 496–507.
- Alfarez, M. A. R., Sadat, A. M., Rahmi. (2024). The Influence Of Viral Marketing, Brand Awareness, And Distribution Intensity On Purchase Decision Through Brand Preference In Mixue Consumers. *International Journal of Current Economics & Business Ventures*, 4(1), 205–217.
- Anindya, F., Indriastuti, H. (2023). The Rise of Viral Marketing and Brand Awareness Influence Purchase Decisions of Something Products. *International Journal of Economics, Business and Accounting Research*, 7(1), 173-183.
- Bakti, M. J., Sari, D. E. (2024). The Effect of Live Streaming, Promotions, and Viral Marketing on Shopee Purchasing Decisions among College Students. *Indonesian Interdisciplinary Journal of Sharia Economics*, 7(1), 1887–1906.
- Baltezarevic, R., Baltezarević, I., Kwiatek, P. (2016). Impact of Viral Marketing on Consumer's Attitudes Towards Brands. In book: *The Internet as a Tool of Modern Business and Communication*. Lap Lambert Academic Publishing, Saarbrücken.
- Chen, T., Lee, H. (2014). Why do we share? The impact of viral videos dramatized to sell. *Journal of Advertising Research*, 54(3), 292–303.
- Chiu, H.-C., Pant, A., Hsieh, Y.-C., Lee, M., Hsiao, Y.-T., Roan, J. (2014). Snowball to avalanche. *European Journal of Marketing*, 48(7/8), 1255–1273.
- Cruz, D., Fill, C. (2008). Evaluating viral marketing: isolating the key criteria. *Marketing Intelligence & Planning*, 26(7), 743–758.
- De Almeida, M. I. S., Costa, M., Coelho, R. L. F., Scalco, P. R. (2016). Engage and attract me, then I'll share you: an analysis of the impact of post category on viral marketing in a social networking site. *Review of Business Management*, 18(62), 545–569.
- De Bruyn, A., Lilien, G. L. (2004). A multi-stage model of word of mouth through electronic referrals. *eBRC Research Paper Series* (ref. 2004-02).
- De Bruyn, A., Lilien, G. L. (2008). A multi-stage model of word-of-mouth influence through viral marketing. *International Journal of Research in Marketing*, 25(3), 151–163.
- Dobele, A., Toleman, D., Beverland, M. (2005). Controlled infection! Spreading the brand message through viral marketing. *Business Horizons*, 48(2), 143–149.
- Erwin, E., Suade, Y. K. M., Alam, N. (2023). Social media micro-enterprise: Utilizing social media influencers, marketing contents and viral marketing campaigns to increase customer engagement. In: *Advances in Economics, Business and Management Research* (pp. 578–593).
- Fitri, S., Wardana, Y. F. W., Mustafa, F., Sari, E. N., Arief, I. (2021). Analysis of The Influence of Online Purchase Decisions, Digital Perceive Value of Quality and Digital Viral Marketing on Consumer Satisfaction of Skincare Products. *Jurnal Informasi Dan Teknologi*, 5(4), 148-152.



## Conference Proceedings

- Fitriani, I., Hadita, H., Faeni, D. P. (2022). The impact of Viral Marketing on Purchase Intention mediated by Consumer Behavior (Study on Tiktok User of Management Students at Bhayangkara Jakarta Raya University). *Journal of Sustainable Community Development*, 4(2), 84–91.
- Freed, M. (2019). Using the SIR Epidemiology Model with Vector Transmission to Predict the Effectiveness of a Viral Marketing Campaign and the Spread of Product Adoption. *Undergraduate Journal of Mathematical Modeling One + Two*, 9(2), 1-18.
- Goldenberg, J., Libai, B., Muller, E. (2001). Talk of the Network: A Complex Systems Look at the Underlying Process of Word-of-Mouth. *Marketing Letters*, 12(3), 211–223.
- Hamade, L. (2021). Viral marketing and its influence on customer's purchasing decisions: a quantitative study in Lebanon. In *Sciendo eBooks* (pp. 331–340).
- Hossain, M., Jahan, N., Fang, Y., Hoque, S., Hossain, M. (2019). Nexus of Electronic Word-Of-Mouth to Social Networking Sites: a sustainable chatter of new digital social media. *Sustainability*, 11(3), 759.
- Jasin, M. (2022). How The Role of online and viral marketing and competitiveness ability on business performance of SMEs. *Journal of Information Systems and Management*, 1(2), 28-35.
- Kaikati, A. M., Kaikati, J. G. (2004). Stealth Marketing: How to reach consumers surreptitiously. *California Management Review*, 46(4), 6–22.
- Kobia, C. M. (2014). Why Pass On Fashion Viral Message? The Moderating Role of Consumers' Fashion Traits, Message Traits and Individual Dynamics Traits in Social Media [Doctoral Dissertation, Louisiana State University].  
<https://www.proquest.com/openview/d4e26a3b836999a3cb5eaa9e43553ebb/1?pq-origsite=gscholar&cbl=18750&diss=y>
- Kostić, M., Tončev, M. J., Džamić, V., Knežević, M. (2015). Economic and Legal Conceptual Framework of Viral Marketing. *Marketing*, 46(2), 115–123.
- Larson, R. J. (2009). The Rise of Viral Marketing through the New Media of Social Media [Faculty Publications and Presentations, Liberty University]. Retrieved July 20, 2024, from [https://digitalcommons.liberty.edu/busi\\_fac\\_pubs/6/](https://digitalcommons.liberty.edu/busi_fac_pubs/6/)
- Lestari, S. P. S., Pangastuti, R. L., Gustiawan, W. D. (2024). The Influence Of Viral Marketing And Prices On Purchasing Decisions At Fore Coffee Kediri. *Jurnal Scientia*, 13(3), 120-123.
- Liyanapathirana, Y. (2021). Viral marketing and impulse buying: The role of online trust in a pandemic. *South Asian Journal of Business Insights*, 1(2), 74–92.
- Madjid, C. N. F., Sudarmiatin, H. A. (2022). The Influence of Viral Marketing and Brand Image on Purchase Decisions through E-Trust (Study on Avoskin Skincare Customers). *International Journal of Economics, Management, Business and Social Science*, 2(2), 315–321.
- Mardiana, A. P., Haryanto, B. (2022). Purchasing decisions in the new normal period: Implementation of digital marketing, brand awareness, and viral marketing at Shopee E-Commerce on the use of SPayLater. *Journal of Economics and Business*, 5(3), 1-15.
- Moore, R. E. (2003). From genericide to viral marketing: on "brand." *Language & Communication*, 23(3–4), 331–357.
- Muhajir, M., Mukaromah, H., Fathudin, F., Purwanti, K. L., Ansori, Y. A., Fahlevi, M., Rosmayati, S., Tanjung, R., Budiarti, R. H. S., Rosyadi, R., Purwanto, A. (2022). The role of buzz and viral marketing



## Conference Proceedings

strategic on purchase intention and supply chain performance. *Uncertain Supply Chain Management*, 10(2), 637–644.

Mustafa, A., Almrafee, M. N. I. (2022). Impact of Viral Marketing Tools on Dealing with Commercial Bank Services - Empirical Study on Commercial Bank Customers in Jordan. *Journal of Hunan University Natural Sciences*, 49(9), 74–84.

Mustikasari, Anwar, S. M., Hasbi, A. R. (2023). The effect of viral marketing, promotions and flash sales on the purchase intention online shopping z generation in marketplace tiktok shop. *Enrichment : Journal of Management*, 12(6), 4841–4848.

Ngo, T. M. (2020). Meme marketing: How viral marketing adapts to the internet culture [University of Northern Iowa]. <https://scholarworks.uni.edu/hpt/484/>

Nufer, G. (2013). Guerrilla Marketing – Innovative or parasitic marketing? *Modern Economy*, 04(09), 1–6.

Persaud, A., Azhar, I. (2012). Innovative mobile marketing via smartphones. *Marketing Intelligence & Planning*, 30(4), 418–443.

Praditya, R. A., Purwanto, A. (2024). The Role of Viral Marketing, Brand Image and Brand Awareness on Purchasing Decisions. *Professional Education Studies and Operations Research*, 1(1), 1-5.

Purwanto, A., Sulaiman, A., Fahmi, K. (2023). The Role of Buzz and Viral Marketing on SMEs Online Shop Marketing Performance: CB-SEM AMOS Analysis. *International Journal of Social and Management Studies*, 4(3), 1-7.

Putri, A. A., Rahyuda, I. K. (2023). Customer Trust as a Mediator of the Influence of Viral Marketing and Brand Image on Online Purchase Decisions on Scarlett Products in Denpasar City. *American Journal of Humanities and Social Sciences Research*, 7(2), 8–15.

Rakic, M., Rakic, B. (2024). Viral Marketing. *Ekonomika*, 60(4), 179–187.

Rayport, J. (1996). *The Virus of Marketing*. Fast Company. Retrieved July 30, 2024, from <https://www.fastcompany.com/27701/virus-marketing>

Roy, D., Eti, S. N., Jannat, S. (2022). Analyzing the Uses of Different Viral Marketing Techniques of Bank: A Study on a Commercial Bank. *International Journal of Marketing Research Innovation*, 6(1), 1–13.

Salvador, M. S. (2014). The new on-line marketing medium: viral marketing. Analysis of the field through two case studies [BA thesis, Public University of Navarre].

Tellis, G. J., MacInnis, D. J., Tirunillai, S., Zhang, Y. (2019). What Drives Virality (Sharing) of Online Digital Content? The Critical Role of Information, Emotion, and Brand Prominence. *Journal of Marketing*, 83(4), 1–20.

Tu, S., Neumann, S. (2022). A viral Marketing-Based model for opinion dynamics in online social networks. *Proceedings of the ACM Web Conference 2022*.

Wang, R. (2019). Effect of e-wom message of opinion leaders on purchase intention of female consumers in China: case of Douyin (Tik Tok). [Dissertation, Lisbon School of Economics & Management].

Wang, R. (2022). The Impact of Viral Marketing on the Live Broadcasting Industry under the Influence of COVID-19. *Advances in Economics, Business and Management Research/Advances in Economics, Business and Management Research*.



## Conference Proceedings

Widyarsih, A. R., Cahaya, Y. F., Chairul, A. G. (2023). The influence of brand image, viral marketing, and product quality on purchase intention. *Adpebi International Journal of Multidisciplinary Sciences*, 2(1), 102–109.

Wiedemann, D. G. (Ed.). (2007). Exploring the Concept of Mobile Viral Marketing through Case Study Research (Vols. 49–60). *MMS 2007: Mobilität und mobile informationssysteme – 2nd conference of GI-Fachgruppe MMS*. Bonn: Gesellschaft für Informatik e. V.

Woerndl, M., Papagiannidis, S., Bourlakis, M., Li, F. (2008). Internet-induced marketing techniques: Critical factors in viral marketing campaigns. *Journal of Business Science and Applied Management*, 3(1), 35–45.

Wolter, J., Barth, V., Barthel, E. M., Gröbel, J., Linden, E., Wolf, Y., Walther, E. (2016). Inside the host's mind: psychological principles of viral marketing. *International Journal of Internet Marketing and Advertising*, 10(1/2), 54.



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# AZERBAIJAN IN THE TURKIC WORLD

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DOI: 10.5937/EEE24078E

JEL: F5, F6

Review Scientific Paper

### ABSTRACT

*Regional, international cooperation among the Turkic nations started rather late compared to other international organisations on cultural and ethnic grounds, the main reason being that Kazakhstan, Uzbekistan, Turkmenistan and Kyrgyzstan in Central Asia and Azerbaijan in the South Caucasus were republics of the Soviet Union until 1991, when they gained independence. The five Member States of the Organisation of Turkic States (OTS) had a population of almost 160 million at the beginning of 2024, covering an area of 4.196 million km<sup>2</sup>, stretching from China to the Balkans. Hungary has had observer status in the OTS since 2018 and Turkmenistan since 2021. The European continent accounts for the largest share of Azerbaijan's export turnover (2021: 69.64%). Between 2010 and 2021, Azerbaijan's exports to Europe increased by 10.5%. The external trade balances of Azerbaijan and Kazakhstan remained positive with the other full-fledged OTS member states throughout the period 2010-2021. Looking at the regional structure of Azerbaijan's import purchases, it can be seen that, Europe and the Asian continent played an almost equal role in Azerbaijan's import structure (45.9% - 46%) in 2021. Looking at the period from 2010 to 2021, it is clear that Azerbaijan's foreign trade turnover with OTS countries has increased very significantly. The value of foreign trade has more than tripled in 11 years. The most significant increase in Azerbaijan's foreign trade was with Turkey making up 494% over 11 years. Mineral resources, especially oil and natural gas, accounted for 88.7% of Azerbaijan's export turnover in 2021. Azerbaijan faces a big political and economic challenge, namely to integrate the former occupied Karabakh region, to develop its infrastructure and undertake the necessary demining actions.*

### KEYWORDS

*regional economic co-operation, multilateral organisations, Organisation of Turkic States, energy security, diversification of energy resources*

## INTRODUCTION

The institutional basis for economic cooperation between the Turkic states has been shaped by a number of factors, including their shared historical and cultural background and geopolitical location. Regional, international cooperation among the Turkic peoples started rather late compared to other international organisations based on cultural and ethnic grounds, the main reason being that Central Asian Kazakhstan, Uzbekistan, Turkmenistan and Kyrgyzstan, as well as Azerbaijan in the South Caucasus, were republics of the Soviet Union until 1991, when they gained independence.

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Political cooperation began after the independence process was completed and took the form of annual summits between 1992 and 2010. The institutionalisation process gained momentum with the Nakhichevan Declaration, which decided to set up the Cooperation Council of Turkic-speaking States (or Turkic Council for short). Uzbekistan joined the four founding countries - Turkey, Azerbaijan, Kazakhstan and Kyrgyzstan - in 2019.

The five Member States had a population of almost 160 million at the beginning of 2024, covering an area of 4.196 million km<sup>2</sup>, stretching from China all the way to the Balkans. Hungary and Turkmenistan have had observer status since 2018 and 2021 respectively. Following the Samarkand Summit in November 2022, the Turkish Republic of Northern Cyprus, officially recognised only by Turkey, became an observer member of the OTS. At the 2021 Istanbul Summit, the name of the Turkic Council was changed to the Organisation of Turkic States. Registered by the United Nations, the international intergovernmental organisation is based in Istanbul. The main fora of the CSTO are the Council of Heads of State and Government and the Council of Foreign Ministers. Other bodies are the Committee of Senior Officials and the Council of Wise Men.

Turkey has the largest and most developed economy in the Turkic group. Azerbaijan is an energy-rich country that has experienced significant economic growth in recent years and whose government has implemented economic reforms to diversify its economy.

The Turkic states are also members of a number of global and regional multilateral organisations. The following table provides a good overview of the Turkish membership in various international organisations.

Table 1. A Memberships, observer and associate memberships in various multilateral organisations of the Turkic countries

Description	Economic Cooperation Organization	Eurasian Economic Union	Organization of Turkic States	Commonwealth of Independent States	Sanghai Cooperation Organisation	World Trade Organization	Organization of Islamic Cooperation
Membership	Turkey, Azerbaijan, Kazakhstan, Kyrgyzstan, Uzbekistan, Turkmenistan	Kazakhstan, Kyrgyzstan	Turkey, Azerbaijan, Kazakhstan, Kyrgyzstan, Uzbekistan,	Azerbaijan, Kazakhstan, Kyrgyzstan, Uzbekistan	Kazakhstan, Kyrgyzstan, Uzbekistan	Turkey, Kazakhstan, Kyrgyzstan, Azerbaijan	Azerbaijan, Kazakhstan, Kyrgyzstan, Turkmenistan, Uzbekistan
Observatory status		Uzbekistan	Hungary	Turkmenistan	Azerbaijan dialogue partner		
Associate membership			Turkmenistan, Turkish Republic of Northern Cyprus				

Source: Gasimli (2023)

Investigating the table 1, we can establish that all six Turkish states are members of the UN and the Organisation of Islamic Cooperation. The Organization of Islamic Cooperation, established at the 1970



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meeting of the Conference of Foreign Ministers of the Islamic Conference, is the world's second largest multilateral organisation after the United Nations (Gasimli, 2023, 15). It is the main representative organisation of Muslim countries and the voice of the Muslim world. Each member state is also a member of the Regional Development Cooperation (RCD), which was established in 1964 on the initiative of Iran, Pakistan and Turkey and renamed the Economic Cooperation Organization in 1985.

With a population of 460 million people and covering an area of 8 million km<sup>2</sup>, the organisation is one of the oldest intergovernmental organisations in the world (Net 2), with the main objective of ensuring the sustainable development of its member states and promoting living standards and prosperity. Azerbaijan and the five Turkic countries of Central Asia joined the organisation in 1992, after the break-up of the Soviet Union.

Azerbaijan is also a member of the Community of Independent States, which was established at the initiative of Russia following the break-up of the Soviet Union, as are the Turkic states of Central Asia. Azerbaijan has also been a member of the Movement of Non-Aligned Countries, established in Belgrade in 1961, since 2011, and its current President is Ilham Aliyev, President of Azerbaijan. Azerbaijan joined several multilateral organisations after gaining independence and is currently active in supporting the independence movements of the French Caribbean and Polynesian islands.

Table 2. Comparison of the OTS countries

Description	Population (2010)	Population (2024)	Territory (km <sup>2</sup> )	Life expectancy (year)	Agriculture (GDP%) 2022	Industry (GDP%) 2022	Services (GDP%) 2022	Unemployment (%) 2023
Azerbaijan	9 237 202	10 449 624	86 600	70,00	4,76%	55,94%	32,20%	5,65
Kazakhstan	16 627 837	19 606 603	2 699 701	71,37	5,25%	34,98%	52,64%	4,86
Kyrgyzstan	5 448 000	6 810 515	191 800	72,00	10,94%	22,26%	52,42%	4,57
Uzbekistan	28 614 000	36 799 000	448 969	70,33	25,10%	33,40%	41,50%	4,51
Turkey	73 723 000	86 139 252	769 630	76,03	6,48%	31,29%	51,74%	10,03
Turkmenistan	5 267 920	6 575 673	469 930	68,69	7,50%	44,90%	47,70%	5,10
Hungary	10 014 372	9 765 254	93 030	74,47	3,24%	24,61%	57,19%	4,70

Sources: <https://www.macrotrends.net/global-metrics/countries/AZE/azerbaijan/population>  
[https://www.worldometers.info/world-population/kazakhstan-population/#google\\_vignette](https://www.worldometers.info/world-population/kazakhstan-population/#google_vignette)  
<https://www.statista.com/statistics/436156/share-of-economic-sectors-in-the-gdp-in-kazakhstan/>  
<https://www.macrotrends.net/global-metrics/countries/AZE/azerbaijan/population>

Analysing table 2. we can assess that the population of all the member countries, exempt Hungary with observer status, grew dynamically over the past 14 years, with the exception of Hungary. Uzbekistan's population has grown by 28.6% in 14 years, while Kazakhstan's population has increased by 17.9% and Turkey's by 16.8%. Azerbaijan's population increased by 13.1% over the period.





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Table 3. GDP per capita in the Turkic world

Description Country	GDP per capita (USD 2010)	GDP per capita (USD 2015)	GDP per capita (USD 2020)	GDP per capita (USD 2022)
Azerbaijan	5 843,5	5 500,5	4 229,9	7 762,1
Kazakhstan	9 070,5	10 510,8	9 121,6	11 492,0
Kyrgyzstan	880,0	1 121,1	1 256,9	1 655,1
Uzbekistan	1 742,3	2 754,0	1 759,3	2 255,2
Turkey	10 622,7	11 050,0	8 638,7	10 674,5
Turkmenistan	4 286,9	6 208,3	7 330,4	8 792,5
Hungary	13 217,5	12 717,0	16 125,6	18 390,2

Source: <https://data.worldbank.org/indicator/NY.GDP.PCAP.CD?locations=KG>

According to the table 3, the GDP of the Turkish states grew at a balanced rate between 2010 and 2012, except for the economic slowdown caused by the COVID virus in 2020.

## AZERBAIJAN'S FOREIGN TRADE ACTIVITY

The scale effect of the economy is demonstrates unequivocally that national economies, especially smaller ones can achieve sustainable development if they have access to markets of sufficient size. Azerbaijan recognized in the globalised world that it has to redefine its foreign economic activities and search for new markets first of all for its energy products. Export of mineral products made up 88,7% in the commodity structure of export in Azerbaijan in 2021 (Net). Azerbaijan aims at supplying natural gas to different European countries (Hungary, Serbia) contributing to the energy source diversification strategy of the European countries. Supplying natural gas to different European countries strengthens the reputation of Azerbaijan as a trustful energy supplier of the European countries and fosters the competitiveness of the European economies. The country took significant steps to establish mutually beneficial relations with all countries as a member of the United Nations. Azerbaijan has signed and signs a great number of bilateral and multilateral agreements and memorandum of understandings to broaden its foreign trade relations. Azerbaijan's governments strives to achieve that OTS becomes a real and well-structured and functioning regional economic cooperation organisation strengthening the competitiveness of the member states. Azerbaijan has to take further steps to attract foreign direct investments into the country enabling to build up the manufacturing industry integrating the country into the global production and value chain.

Table 4. Comparison of Import and Export of the OTS countries (billion USD)

Country	ex/imp	2013	2014	2015	2016	2017	2018	2019	2020
Azerbaijan	export	24,0	21,8	12,7	13,5	15,3	19,5	19,6	13,7
	import	10,7	9,2	9,2	8,5	8,8	11,5	13,7	10,7
	balance	13,3	12,6	3,5	5,0	6,5	8,0	5,9	3,0

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Turkey	export	151,8	157,6	144,0	142,2	157,2	177,2	180,8	169,6
	import	251,7	242,2	207,0	198,6	233,8	231,2	210,3	219,5
	balance	-99,9	-84,6	-63,0	-55,9	-76,6	-54,0	-29,5	-49,9
Kazakhstan	export	84,7	79,5	46,0	36,7	48,5	61,1	58,1	47,5
	import	48,8	41,3	30,6	25,4	29,6	33,7	39,7	38,9
	balance	35,9	38,2	15,4	11,3	18,9	27,4	18,4	8,6
Kyrgyzstan	export	2,0	1,9	1,5	1,6	1,8	1,8	2,0	2,0
	import	6,0	5,7	4,2	4,0	4,5	5,3	5,0	3,7
	balance	-4,0	-3,8	-2,7	-2,4	-2,7	3,5	-3,0	-1,7
Uzbekistan	export	n.a.	n.a.	n.a.	n.a.	4	9	29	23
	import	n.a.	n.a.	n.a.	n.a.	26	35	53	59
	balance	n.a.	n.a.	n.a.	n.a.	-22	-26	-24	-36
Turkmenistan	export	18,9	19,6	12,1	7,5	7,8	11,7	n.a.	n.a.
	import	16,1	16,6	14,1	13,2	10,2	5,3	n.a.	n.a.
	balance	2,8	3,2	-2,0	-5,7	-2,4	6,4	n.a.	n.a.

Source: Gasimli (2021)

Table 4. illustrating the export-import balance of the Turkish states shows that the trade balances of Turkey, Kyrgyzstan and Uzbekistan were consistently negative in the period 2010-2021, with the value of import purchases exceeding export earnings in each year during the period. Azerbaijan and Kazakhstan, on the other hand, have consistently recorded positive trade balances over the 7-year period under review, while Turkmenistan has shown a mixed trend in its trade balance.

Table 5. Geographical division of Azerbaijan's export (million USD)

Description	2010	2015	2016	2017	2018	2019	2020	2021
Total export (million USD)	21 360	12 729	13 458	15 320	19 489	19 635	13 733	22 207
Europe	12 626	7 385	8 212	9 918	11 924	11 812	8 252	15 464
Asia	6 355	4 488	4 820	4 559	6 372	7 525	5 047	5 693
America	2 024	562	183	657	1 000	168	39	369
Africa	329	294	243	185	193	89	324	659
Oceania	26	622	276	668	560	41	71	21
Geographical division of the export turnover of Azerbaijan (%)								
Europe	59,11%	58,02%	61,02%	64,74%	61,18%	60,16%	60,09%	69,64%
Asia	29,75%	35,26%	35,82%	29,76%	32,70%	63,71%	36,75%	25,64%
America	9,48%	4,42%	1,36%	4,29%	5,13%	2,23%	0,28%	1,66%



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Africa	1,54%	2,31%	1,81%	1,21%	0,99%	52,98%	2,36%	2,97%
Oceania	0,12%	4,89%	2,05%	4,36%	2,87%	46,07%	0,52%	0,09%

Source: Gasimli (2023)

Analysing the table 5, the European continent accounts for the largest share of Azerbaijan's export turnover (2021: 69.64%). Between 2010 and 2021, Azerbaijan's exports to Europe increased by 10.5%. Export sales to Asia and the Americas, on the other hand, decreased by 4.1% and 7.8%, respectively. Total export sales volume from Azerbaijan increased by 4% over the 11-year period under review.

Table 6. Geographical division of Azerbaijan's import (million USD)

Description	2010	2015	2016	2017	2018	2019	2020	2021
Total import (million USD)	6 601	9 217	8 490	8 783	11 466	13 667	10 733	11 706
Europe	3 508	5 019	4 529	4 319	5 499	6 736	5 219	5 372
Asia	2 585	3 092	3 179	3 395	4 748	5 087	4 553	5 382
America	462	1 065	714	992	988	1 477	866	854
Africa	23	13	19	25	183	33	27	28
Oceania	23	27	48	53		335	47	69
Geographical division of the import expenditure of Azerbaijan (%)								
Europe	53,10%	54,50%	53,30%	49,20%	48,00%	49,30%	48,60%	45,90%
Asia	39,20%	33,50%	37,50%	38,70%	41,40%	37,20%	42,40%	46,00%
America	7,00%	11,60%	8,40%	11,30%	8,60%	10,80%	8,30%	7,30%
Africa	0,30%	0,10%	0,20%	0,30%	1,60%	0,20%	0,30%	0,20%
Oceania	0,40%	0,30%	0,60%	0,50%	0,40%	2,50%	0,40%	0,60%

Source: Gasimli (2023)

Looking at the territorial structure of Azerbaijani import purchases, it can be seen that in 2021 Europe and the Asian continent played almost equal roles in terms of Azerbaijani imports (45.9% - 46%). During the 11-year period under review, there were significant changes in the territorial structure of Azerbaijani imports. Imports from Europe decreased by 7.2%, while imports from Asia increased by 6.8%.

Table 7. Foreign trade turnover and balance of Azerbaijan (million USD)

Year	Foreign trade turnover	Import	Export	Balance
million USD				
2010	33 161	6 601	26 560	19 960
2011	44 162	9 756	34 406	24 650
2012	43 814	9 653	34 161	24 508
2013	43 554	10 713	32 842	22 129
2014	39 408	9 188	30 220	21 032



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2015	25 809	9 217	16 592	7 375
2016	21 597	8 489	13 108	4 619
2017	24 264	8 783	15 481	6 698
2018	31 783	11 466	20 317	8 851
2019	33 065	13 668	19 398	5 730
2020	24 204	10 732	13 472	2 740
2021	35 556	11 706	23 851	12 145

Source: Gasimli (2023)

Azerbaijan's foreign trade turnover between 2011 and 2021 was the highest between 2011 and 2013, as was its export turnover. Over the 11-year period, the value of import expenditure almost doubled. While import expenditure increased by 77% over 11 years, export turnover decreased by USD 5,105 million, or 11.35%. The decrease in export turnover is primarily due to the fall in world oil prices.

Table 8. Azerbaijan's foreign trade turnover with OTS countries (million USD)

Description	2010	2012	2014	2016	2017	2018	2019	2020	2021
<b>Total</b>	<b>1 610,4</b>	<b>2 677,7</b>	<b>2 275,7</b>	<b>2 707,0</b>	<b>3 048,6</b>	<b>3 874,2</b>	<b>5 088,8</b>	<b>4 537,8</b>	<b>5 059,0</b>
<b>Turkey</b>	<b>942,3</b>	<b>2 120,4</b>	<b>1 789,1</b>	<b>2 367,2</b>	<b>2 667,6</b>	<b>3 402,8</b>	<b>4 509,5</b>	<b>4 160,2</b>	<b>4 661,8</b>
Hungary	14,3	23,8	95,5	41,1	43,3	67,4	35,7	38,8	35,2
Kazakhstan	338,1	393,4	250,9	124,4	142,0	221,0	230,0	142,0	136,0
Kyrgyzstan	41,5	28,9	27,5	6,7	1,7	6,0	5,9	5,8	9,0
Uzbekistan	32,6	19,6	61,5	15,3	30,0	44,0	82,0	82,3	112,0
Turkmenistan	214,6	91,6	51,2	152,3	164,0	133,0	225,7	108,7	105,0

Source: The State Statistics Committee of the Republic of Azerbaijan (2021)

Looking at the table 8 and investigating the period from 2010 to 2021, it is clear that Azerbaijan's foreign trade with CFC countries has increased very significantly. The value of foreign trade has more than tripled in 11 years. The most significant increase in Azerbaijan's foreign trade with Turkey was 494% over 11 years.

Investigating the product structure of Azerbaijan's import purchases, five product groups accounted for the largest shares of Azerbaijan's imports in 2021. Machinery, equipment, electrical equipment accounted for 23.5% of imports. Chemical products accounted for 11.2%, while metals and metal products accounted for 9.5% of imports. Agricultural machinery, vessels, and transport equipment accounted for 8.4% of imports, while prepared food, alcoholic and non-alcoholic beverages, and tobacco products accounted for 7.6% of imports.

The dominant share of Azerbaijan's import purchases comes from five countries: Russia (17.73%), Turkey (15.76%), China (14.02%), Germany (5.41%), Ukraine (4%) (World Bank, 2021).

Mineral resources, especially oil and natural gas, accounted for 88.7% of Azerbaijan's export turnover in 2021. Other export products include plastic products (2%), rubber and articles thereof (1.7%), textiles (1.4%) and chemical products (1.1%).

Azerbaijan's top five export markets are Italy (41.62%), Turkey (12.69%), Russia (4.15%), Israel (4.04%), Croatia (3.38%) (World Bank, 2021).



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# RESTORATION OF AZERBAIJAN SOUVEREIGNTY AND TERRITORIAL INTEGRITY

**Nagorno-Karabakh:** The name Nagorno-Karabakh was given to the region during Soviet rule, when the Nagorno-Karabakh Autonomous Oblast was created as part of the Azerbaijan Soviet Socialist Republic in 1923 on Stalin's orders (*Nagorno-Karabakh Autonomous Oblast, NKAO*). The NKAO covered the mountainous areas of Karabakh along the south-eastern slopes of the Caucasus, inhabited mainly by Armenians. At the time of its establishment, it covered an area of approximately 4,400 km<sup>2</sup> and had a population of 125,300, of whom about 95 per cent were Armenian. The centre of the region is Stepanakert (Khankendi, "the city of the Khans", in Azerbaijani), named after the Armenian Bolshevik revolutionary Stepan Shahumian in 1923. The first Karabakh War (1988-94) between Azerbaijan and Armenia broke out at the same time as the break-up of the Soviet Union over territory occupied by the NKAO.

By the end of the first Karabakh war, most of the former Nagorno-Karabakh Autonomous Oblast and the seven surrounding Azerbaijani regions (Agdam, Fuzuli, Jabrayil, Zangilan, Gubadli, Lachin and Kalbajar), which had until then been of undisputed status, had also come under Armenian control (Aflas -Tiflis: 2023, 39). From the Russian-brokered ceasefire in 1994 until the second Karabakh war in 2020, the so-called "Nagorno-Karabakh Republic" (the entity was proclaimed on 2 September 1991, originally in the territory of the former NKAO and the mainly Armenian-populated Shahumian district bordering it in the north) operated in these areas.

The territory of the de facto republic has always been part of Azerbaijan, according to international law and the UN position, and the sovereignty of the entity has not been recognised by any UN member state, not even the main supporter Armenia. With the 2020 war, the seven regions surrounding the Nagorno-Karabakh territories, as well as part of the former autonomous region, were returned to Azerbaijani control.

Karabakh: The omission of the adjective refers to a broader geographical unit than "Nagorno-Karabakh", which includes not only the territory of the former NKAO but also the plains east of it, called Lower Karabakh, inhabited mainly by Azerbaijanis. In Azerbaijan, after the 2020 war, the term "Karabakh" started to be used in a political context, which President Aliyev explained in a press conference: "Nagorno-Karabakh does not exist, everyone recognises that this region is an integral part of Azerbaijan. Karabakh with its flat and mountainous areas is an integral part of Azerbaijan. The Armenian people live in part of it" (Aliyev, 2021).

Karabakh, East Zangezur economic regions: due to the territorial changes caused by the second Karabakh war, Azerbaijan was divided into new economic regions by presidential decree in July 2021 (Huseyn, 2021). The measure integrated the reclaimed territories into the country's state-economic structures and allowed for a reallocation of the available financial envelope. In total, 14 new economic regions were created, comprising the territories recovered by the 2020 war - and the economic regions of East Zangezur and Karabakh, which Azerbaijan had until then considered as its own.

In line with the above, Azerbaijan has been using the names "Karabakh" and "Karabakh (economic) region" to refer to the territory since the Second Karabakh War, and expects its partners to do the same. Likewise, and more understandably since the full restoration of its sovereignty in September 2023, Baku expects the Azerbaijani names to be used for the names of localities in Karabakh (thus the centre of the region is read in Azerbaijani as "Stepanakert" instead of "Khankendi").

The territories recovered by the 2023 "counter-terrorism operation" - the former de facto Nagorno-Karabakh Republic - have already been officially part of the economic regions of Karabakh and East Zangezur, created in 2021 after the territorial changes of the second Karabakh war, and their



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development can continue as part of the reconstruction and rehabilitation efforts already started. The resources spent by the Azerbaijani government on the rehabilitation of the reclaimed areas will reach 12 billion manat (7 billion USD) by the end of 2023. The 2023 budget allocates 4.8 billion manat (2.8 billion USD), while the 2024 budget allocates 3.8 billion manat (2.2 billion USD) for projects in Karabakh and East Zangezur (Gasimov, 2024). In addition, in areas recovered from the second Karabakh war, the state's "Great Return" programme has been in place since summer 2022, allowing returning internal migrants to their newly built houses, or possibly abandoned properties, largely built by the state. (Ismailzade, Miskovic, 2021).

## CONCLUSION

Azerbaijan has to unambiguously diversify its economy so that it is not so dependant upon the fossil energy products providing the overwhelming part of its export. The country disposes also of great capacities to produce electricity upon renewable energy sources. There are plans to deliver the electricity to Europe but to build the necessary infrastructure requires international cooperation and huge financial investments from the participating countries.

The country in the South Caucasus regaining its fully sovereignty and territorial integrity has to face and solve a very big obstacle, namely the demining actions in the Karabakh region. Demining is an inevitable task to fully integrate and economically foster the depopulated region. On the one hand it is substantial for Azerbaijan to get involved in the Organisation of Turkic States but on the other hand it should harmonize its currently frozen relationship with the European Union being its decisive export partner. The Azerbaijani government and government agencies continuously claim that the EU institutions and first of all France spread biased and false information about Azerbaijan concerning the recapturing of the Karabakh region occupied by Armenia over 30 years. The European Union undertakes serious actions and provide substantial financial support to contribute to the demining of the Karabagh region. The member-states of the European Union and OTS countries signalled to be ready to participate in the rebuilding of the Karabakh region enabling the return of the former expelled Azerbaijani people.

The "Rebuild Karabakh" program leads to consolidation of the whole region. On the other hand it is to be highlighted that Azerbaijan has to follow a very cautious policy due to its quite sensitive geopolitical position, surrounded by Russia and Iran. Russia is the most important importer of Azerbaijan supplying manufactured goods and purchase the agricultural goods produced by Azerbaijan. Though agriculture provides just a few percent of the Azerbaijani GDP, one-third of the employed people work there meaning a crucial vulnerability and dependence from Russia. The country's chilly relationship with the "West" causes the growing interest in the membership of new multilateral organisations, - defining themselves as a counter-balance to the "Bretton Woods", multilateral institutions established by the "West", - like the BRICS countries (Brazil, Russia, India, China, South African Republic) or the Eurasian Union. Azerbaijan strives to use and exploit its excellent geographical location for transit and logistical goals (Middle Corridor Trans-Caspian International Transport Road and the North-South Corridor).

## REFERENCES

Gasimli, V. (ed.). (2021): Turkic States Economy. Nobel Publishing Group, Ankara



## Conference Proceedings

Gasimov, K. (2024): <https://en.trend.az/business/3949087.html>

Ilham, A. (2021): <https://president.az/en/articles/view/50738>

Ismailzade, F., Krnjevic Miskovic, D. (2021): Liberated Karabakh, Policy Perspectives by the ADA University Community. ADA University Press, Baku. Available at: [https://www.ada.edu.az/file\\_upload/publications/other2.pdf](https://www.ada.edu.az/file_upload/publications/other2.pdf)

Melikova, L. A., Aliyev, S. T. (2023): Economic-historical aspects of the development of Karabakh (18-21st centuries). Available at: <https://archive.interconf.center/index.php/2709-4685/article/view/4723/4759>

Ramil, H. (2021): <https://ereforms.gov.az/en/media/xeberler/ramil-huseyn-iqtisadi-rayonlarin-yeni-bolgusu-qarabagin-ve-serqi-zengezurun-inkisafini-suretlendirecek-183>

The State Statistics Committee of the Republic of Azerbaijan (2021)

<https://www.macrotrends.net/global-metrics/countries/AZE/azerbaijan/population>

[https://www.worldometers.info/world-population/kazakhstan-population/#google\\_vignette](https://www.worldometers.info/world-population/kazakhstan-population/#google_vignette)

<https://www.statista.com/statistics/436156/share-of-economic-sectors-in-the-gdp-in-kazakhstan/>

<https://www.macrotrends.net/global-metrics/countries/AZE/azerbaijan/population>

<https://data.worldbank.org/indicator/NY.GDP.PCAP.CD?locations=KG>

<https://wits.worldbank.org/CountryProfile/en/Country/AZE/Year/2021/Summary>



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# HUNGARIAN AND SERBIAN COMPANIES ESG PRACTICES AS MARKET COMPETITIVENESS TOOL FOR WESTERN BALKAN COUNTRIES

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DOI: 10.5937/EEE24079P  
JEL: M14, O31, O35, Q01  
Review Scientific Paper

## ABSTRACT

*In the business world, efficiency and sustainability are essential for the companies to survive the strong market competition. Optimized processes can help companies minimizing their losses and negative environmental externalities and improving the quality of their products, services. In addition to efficiency, companies can only operate sustainably in the long term if they take into account the needs of people, society and the environment. In this context, the Lean philosophy and the Environmental, Society and Governance (ESG) approach are two important tools to achieve efficient and sustainable operations. Its application in the business world is important not only because of the Corporate Social Responsibility (CSR), but also because it is becoming increasingly important for the future investment decisions as well. ESG investment strategies take into account the performance of companies in the pillars mentioned above and allow investors to choose the ones that will deliver the best results over the long term. The authors presenting a Hungarian and Serbian company ESG practice and its impacts on their business processes. These can serve as recommendation for the Western Balkan Countries (WBC), in which adoption ESG criteria and incorporating into the business strategies would be inevitable to reach significant breakthrough in the globalizing business environment.*

## KEYWORDS

*business operation, efficiency, sustainability, ESG criteria, Western Balkan countries*

## INTRODUCTION

Currently, the Environmental, Social, and Governance (ESG) principles adopted in many sectors becoming one of the most prioritized pillar in investment decisions. ESG makes assessment the indicators of enterprises scoring their business performance from three non-financial dimensions: environment, society, and corporate governance, and evaluates the contributions of enterprises (investment objects) in promoting sustainable economic development and fulfilling social responsibilities. Many countries and regions have implemented ESG related policies and regulations to encourage improvement of the companies competitiveness by ESG actions. These programs not only strengthens the attention of all sectors of society to ESG, but also provides favorable environment for ESG investment optimizing the investment decisions and minimizing their risks (Ma, 2023).

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Large environmental disasters, such as the oil tanker Exxon Valdez ran aground in Prince William Sound, Alaska (US), spilling 11 million gallons of oil in 1989 or the explosion of the BP Deepwater Horizon oilrig in the Gulf of Mexico in 2010, indicated the negative impacts and risks of corporate activities. Due to these events, initiatives and standards have begun to put into forefront focusing on the environmental impacts of companies and sustainable management. Furthermore, human rights, employee welfare, workplace diversity and fair working conditions have become also societal issues that have increasingly shaped business decision-making. In addition, financial crises, such as the bankruptcy and criminal charges scandal of American energy company Enron Corporation located in Houston, Texas, due to accounting abuses, investor misrepresentation, ethical failures, fraud, lack of transparency, exploiting loopholes in legislation, demonstrated that the main reasons can be in failures of corporate governance and accountability (Li, 2021, Zulauf, 2011, Boddy, 2023).

Over the past decades, the United Nations (UN) Framework Convention on Climate Change (UNFCCC) entered into force to regulate the environmental protection actions promoting sustainability. In 2004, the UN Environment Programme first proposed the concept of ESG investment, advocating for attention to environmental, social, and governance issues in investment. In 2006, the UN Principles for Responsible Investment (UN PRI) released, playing a crucial role in the development of ESG concepts and domain setting. In European Union (EU), there are also different directives regarding sustainable finance and ESG criteria e.g. SFDR-Sustainable Finance Disclosure Regulation; CSRD-Corporate Sustainability Reporting Directive; Non-Financial Reporting directive (NFRD). These documents have highlighted that environmental protection requires global cooperation and the companies are part of this process. The industrial and technological developments have not only led to economic progress but also to serious environmental challenges and ethical issues (PwC, 2023, Peterdy, 2024; WEF, 2022).

In 2007 by Goldman Sachs Group released an ESG research report, integrating the concepts of "environment, society, and governance", marking the formal formation of the ESG concept taking into consideration in decision-making processes, reducing non-financial risks in investments. Afterwards, international organizations, investment institutions and other market entities continuously deepened the concept of ESG and gradually formed a complete set of ESG concepts. At the same time, international investment institutions have successively launched ESG investment products, continuously improving and enriching ESG concepts and products. ESG aspects coincide with the United Nations Sustainable Development Goals (SDG). It is an important basis for socially responsible investment, and accepted criterion for international community to evaluate whether companies are in line with the level of green and sustainable development. Nevertheless, the ESG criteria emphasizes the unity of corporate business and social value. These one requires enterprises to conduct systematic design to do a good job, encourage companies to adopt new technologies and approaches to increase sustainability, while technological innovation also creates opportunities for sustainable solutions, such as the development of alternative energy sources. Companies need to focus not only on their financial results, but also on environmental, social and governance aspects of their business operations. Different frameworks and indicators help them to assess and report on their sustainability performance in a measurable way (Alessandrini, Jondeau, 2021, Gao et al. 2023, United Nations, 2015, CFI, 2023, Peterdy, 2024).

This paper aiming to provide an up to date ESG landscape about Hungary and Serbia via two selected company ESG practice and its impacts on their business processes case study. These can be reference best practices for the other Western Balkan Countries (WBC), how can help integration of ESG aspects into the business strategies to strengthen tangible way the competitiveness in this region.



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# ESG ASSESSMENT AND REPORTING FRAME SYSTEMS

ESG factors not only affect the reputation and competitiveness of companies, i.e. not only financial results, but also have a major impact on business performance and long-term sustainability. For the interested companies providing a real, tangible contribution to sustainable development and social progress, it is important that they communicate their ESG performance clearly and transparently to investors, customers and other stakeholders. Appropriate and reliable communication of information on these factors helps companies to take greater responsibility and customers and investors to be better informed about companies' business practices and commitments. In this context, reporting frameworks play an important role in defining a structured way to collect, analyze and communicate ESG.

The complexity and diversity of aspects covered by the environmental dimension "E" includes the environmental impacts of different business activities. The issue of energy use and emissions includes elements such as carbon emissions that directly affect the greenhouse effect and climate change. Companies need to take measures to reduce emissions and increase energy efficiency, thus helping to maintain the ecological balance. Another key area is water use and water quality. They need to look at their water sources and their sustainability, as water scarcity and poor quality have become a global problem, and need to take measures to reduce water use, minimize water damage, helping conserve water resources. Waste management is also an important element: waste from production and operations has to be managed properly, minimizing environmental impact, promoting recycling. It also includes the management and conservation of natural resources, so that deforestation, soil degradation and other responsible management of natural resources is part of the corporate duty to maintain ecological balance. The "S" as in social aspects focuses on the responsibility of companies and organizations to contribute to social well-being, human rights, workers' welfare, equality and justice.

Respecting human rights, employing workers in decent conditions, and promoting human diversity and inclusion are all principles that are defined under the social pillar and ensure the dignity and rights of workers in the workplace. Companies have to not only fulfil their legal obligations, but also promote the development of workers, the workplace environment has to be inclusive and supportive for workers with different backgrounds and abilities. Promoting equality and diversity has not only ethical but also business benefits, as it contributes to creativity and innovation. Health and safety in the workplace is also a priority, maintaining and protecting the physical, mental health of employees is not just about compliance, but also about long-term employee effectiveness and satisfaction. In addition, aspects of this pillar also cover companies' links with their social communities, i.e. they must take responsibility for developing and supporting local communities.

Through these people-centered and sustainable business practices, companies significantly contribute to the positive social and economical development. The "G" dimension as last pillar is the management aspect, it attaches great importance to corporate management and control practices, which are key to long-term successful operation and stability. It emphasizes that efficient corporate governance and transparency are essential for its sustainable development. The companies have to ensure appropriate governance structure and processes, empowering the organizations for effective decision-making and responsible business conduct. Corporate governance practices, such as ethical business behavior and the appropriate distribution of board roles, can also be crucial factors. This helps to avoid abrogation of the ethical norms and standards, conflicts of interest, which can have a negative impact on credibility and reputation. It also covers leadership skills and training, as they need the right knowledge and empowerment to effectively navigate the changing business environment and manage the challenges they face. It is also an important element of shareholder rights and the involvement of interested parties. Companies have to focus on feedbacks from the interested shareholders making decisions that benefit



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them. It also prioritizes the fight against corruption and ethical business conduct, which not only serves to preserve corporate values, but also increases the credibility and attractiveness of the company for investors and stakeholders. Through these principles, companies can achieve long-term stability and success while maintaining corporate values, demonstrating responsible leadership (Alessandrini, Jonddeau, 2021, Zhan, 2023).

ESG Reporting Frameworks offer tools for companies to communicate transparently, clearly, unambiguously their ESG performance and sustainability results to investors, customers and other stakeholders. Environmental, social and governance factors do not only affect the reputation and competitiveness of companies, since these ones not only represent financial results, but also have a serious impact on business performance and long-term sustainability. In this context, reporting frameworks play significant role, which define a structured way of collecting, analyzing and communicating ESG information. The developed indicators and guidelines help to give a comprehensive picture of their performance and progress, but not only help to collect and present information, but also encourage continuous development and transparency.

These ESG Reporting Frameworks represent not only a business trend, but also an essential tool, which enables companies to communicate and measure their sustainability efforts in a complex way. Multiple ESG-related information disclosure systems have been established internationally for satisfy these requirements, including the International Sustainable Development Standards Board (ISSB), Global Reporting Initiative (GRI), Climate Change-Related Financial Information Disclosure Working Group Guidelines (TCFD), CDP Environmental Disclosure Framework. The two widely applied ESG Reporting Framework from these are the International Sustainable Development Standards Board (ISSB), Global Reporting Initiative (GRI).

The GRI has a long history, having been launched in the early 1990s, and has evolved to meet the needs of businesses and society. The system that is being introduced consists of three main steps that together help companies to develop more balanced and environmentally friendly business practices, while providing a realistic representation of their performance. In the first phase, the involved organisations focus on strategic planning, analysis, and then they need to think in depth about how they can integrate ESG factors into their business strategy. This process includes thorough exploration of sustainability challenges and opportunities, which will help companies to develop a core structure that harmonises sustainability with long-term growth and development objectives. The second step is a period of selection and focus, where the companies need to select the issues that are most relevant from their perspective and from the perspective of stakeholders. It is important to highlight not only on quantitative information but also on qualitative information, so that reports should written concisely and simply. In addition, at this stage that they select the specific indicators and guidelines that will allow them to assess and present their performance.

These indicators cover a broad range of financial and non-financial areas, such as environmental impact, workforce diversity and ethical corporate governance. Finally, regular reporting and continuous monitoring are important, e.g. companies should report regularly on their performance in relation to ESG factors. The GRI Framework has the enormous advantage of being a widely accepted and used tool in the corporate environment, providing comparable and reliable information to help stakeholders make informed decisions and responsible choices. One of the most prominent groups of decision-makers is the management. Management plays a key role in reporting, as the integration of ESG factors into business strategy is the basis for long-term success. Management is responsible for determining the relevance of the factors and the content of the report, which can have an impact on business reputation and competitiveness. Investors are also key stakeholders, so these reports help them to make their decisions. Customers are also active stakeholders in the reporting process. This information will enable



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them to make informed decisions about which companies to do business with or buy products from by enabling them to see the environmental and social impacts, which can be a key determinant of customer loyalty and brand loyalty.

In addition, employees and society means an other essential stakeholder groups and can help colleagues understand companies' commitment to employee well-being and human rights, as well as provide society with information on corporate social responsibility and its impact, which is relevant to their customers and the community. Lastly, reporting is also relevant to regulators, helping companies to comply with ESG rules and regulations, which contributes to responsible and ethical operations (GRI, 2016). The other important ESG Reporting Framework is the Sustainable Accounting Standards Board (SASB), an organisation established to develop and promote sustainable accounting and reporting standards. It was established in 2011 and has since played a key role in improving corporate reporting practices, particularly in industries where ESG factors are of high importance and can have an impact on corporate performance and risks.

SASB's approach is unique in that it applies industry-specific standards, has developed a structured framework that identifies factors that are truly material and relevant to specific industries based on 11 main industries and 77 sub-categories. The standards provide detailed definitions of different factors, such as carbon emissions in the energy sector, water use in the agriculture sector or data protection in the technology sector. Accordingly, the reports aim to help investors and decision makers to better understand the financial implications of these factors (SASB, 2024). The GRI and SASB frameworks have different approaches to ESG reporting, but both are critical to effective company evaluation. While the GRI offers a more general framework that encompasses all ESG dimensions, allowing companies to report on in-depth range of environmental, social and governance issues to create reports tailored to their own priorities and environment. In contrast, SASB takes more concrete approach. It focuses on developing industry-specific standards that identify the ESG factors that have the greatest impact on financial performance and risk for each industry and aims to provide standardised indicators and benchmarks to assess the specific ESG challenges and opportunities for each industry as you can see in the below (Table 1).

Every year, many companies publish these reports and information on their official websites or other publicly available platforms, known as "sustainability reports". However, communities such as WikiRate (2024) have also been created, which is a dynamic and collaborative online platform that uniquely combines indicators and data from the GRI and SASB frameworks to help make information more transparent and to improve understanding of ESG factors. Through this pioneering platform, the community is actively engaged in corporate sustainability and social responsibility, contributing to the standardised collection of data from corporate reports. One of the key aspects is that it not only adopts the indicators, but also transforms these indicators into its own indicators to convey information on corporate sustainability performance in a simplified and easier to understand format. This approach makes it easy for those less familiar with the complex data to understand it. In addition to transparency and data sharing, WikiRate also encourages community data collection. Users can also publish their own company data derived from GRI and SASB indicators and thus contribute directly to the expansion and enrichment of information. In doing so, it has a tremendous social impact in that presenting sustainability news in an easy-to-understand format helps consumers, investors and stakeholders to make informed choices and support companies that are performing well in the ESG field. Tracking corporate responsibility strengthens corporate accountability and transparency.

The below picture 1 summarizes the possible correlations between the organisational financial performance and taking into business practice the ESG principles and approaches.

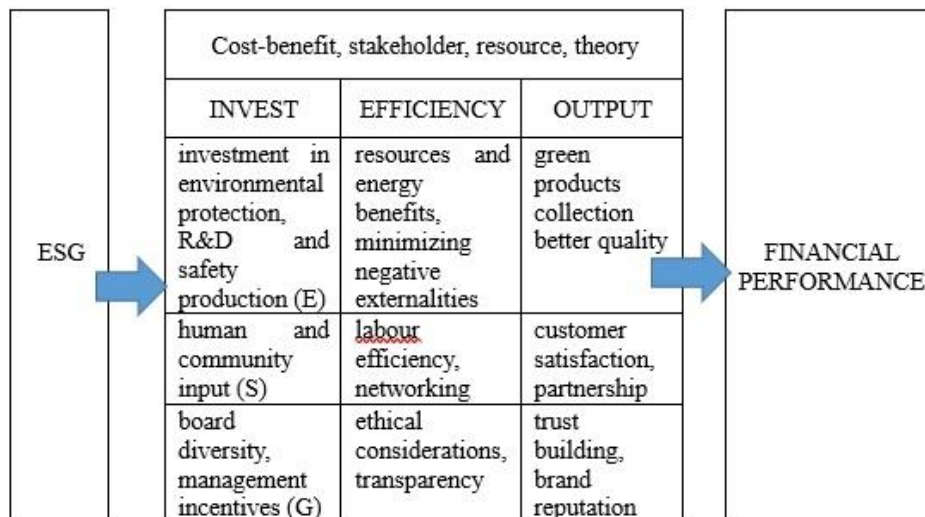


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Table 1. Differences between GRI and SASB indicators

GRI	SASB
Environmental dimension (Conservation of the natural world): - greenhouse gases (GHG) emissions - energy consumption - water use - waste management - biodiversity conservation	Energy industry: - carbon emissions - share of renewable energy sources - energy efficiency
Social dimension (Consideration of people & relationships): - employee satisfaction - workplace diversity - respect for human rights - community support - health and safety	Pharmaceuticals and healthcare: - ethics in clinical trials - patient safety - product safety
Corporate governance dimension (Standards for running a company): - board structure - ethical corporate governance - shareholder rights - stakeholder communication - bribery and corruption - lobbying	Financial services: - risk management - client data protection - prevention of financial manipulation
	Technology and communication: - data protection - intellectual property protection - software security

Source: Own edition based on (CFA Institute, 2023, GRI, 2016, SASB, 2024)



Picture 1. Linkages between company financial performance and adoption of ESG principles

Source: Own edition based on Shen, 2022, Friede, Busch, 2015, Ziolo et al., 2021

However, there is a lack of consistency among the different ESG disclosure systems. At the same time, there are over 80 ESG rating agencies worldwide, and there are significant differences in the



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methodology, caliber, and coverage of their evaluations (EC, 2021; Ma, 2023; Shen et al., 2023). The sources of ESG rating agencies primarily fall into four categories: company disclosure, media reports, alternative data and modeled data (Lee, 2021). While ESG data sources are more or less consistent, the rating methods used by different agencies vary because of divergences in scope, measures and weighting (Brandon et al., 2021; Berg et al., 2022). Table 2 makes comparison among some ESG rating agencies.

Table 2. Comparison major, selected ESG rating agencies

Rating agency	Data sources	Rating Scheme
Bloomberg	Listed companies' websites, announcements, sustainability report; News and public opinion	0-100
FTSE Rutshell	Listed companies' websites, announcements, sustainability report, News and public opinion, Regulatory authorities, Industry associations	0-5
MSCI	Listed companies' websites, announcements, sustainability report; News and public opinion, Regulatory authorities, Industry associations, Corporate communication channels	7 levels, from low to high: CCC, B, BB, BBB, A, AA, AAA
Refinitive	Listed companies' websites, announcements, sustainability report; News and public opinion, Regulatory authorities, Industry associations	12 levels, from low to high: D-, D, D+, C-, C, C+, B-, B, B+, A-, A, A+

Source: Own edition based on Shen et. al. 2023, Zhang, Yuan, 2021

## THE HUNGARIAN ESG LANDSCAPE

In recent years, there has been a global demand for companies to consider natural and environmental values and the impact of their products and services on society. These considerations have led to the development of the ESG (Environmental, Social, Governance) framework, which has now been enshrined in EU legislation. The Hungarian government aims to create the most independent system for Hungarian businesses to comply with EU obligations, reflecting national specificities. The timely development of domestic practice will prevent domestic firms from competitive disadvantage in the EU internal market. The government submitted the so-called ESG Act (CVIII Act 2023) at the end of 2023, which was adopted by the Hungarian Parliament, establishing the national ESG framework to guarantee the competitiveness of Hungarian companies in the transition to a sustainable global economy.

According to the ESG Act, the Minister of National Economy is responsible for establishing the National ESG Council, which has a decisive role in defining the minimum requirements for ESG reporting, which should be implemented in such a manner that minimizes the administrative, financial burden on the actors of the Hungarian economy. The Council is chaired by the Minister for National Economy. The Council members delegated by the Prime Minister's Office, the Cabinet Office of the Prime Minister, the Ministry of Energy, the Ministry of Culture and Innovation and the Regulatory Authority for Regulated Activities, as well as the Hungarian Chamber of Commerce and Industry, the National Association of Entrepreneurs and Employers, representing the business and civil society sides including e.g. IFKA Industrial Development Non-profit Ltd. (About Hungary, 2023; Government of the Hungarian Republic, 2024).



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BDO Hungary's ESG business branch conducted a forward-looking, insightful ESG survey involving 5,500 clients from 9 EU countries (Czech Republic, Croatia, Hungary, Latvia, Lithuania, Poland, Romania, Slovakia, Slovenia and Poland). 83% of the companies surveyed believe that ESG will be extremely or very important for their business in the future. However, the integration of sustainability considerations into corporate decision making is most often driven by the regulatory requirements of the European Union and national governments. Other important motivating factors are reputation enhancement and the expectations of owners and stakeholders (e.g. banks). According to the results of the questionnaire, more than 40% of companies are willing to spend more on ESG in the future than they have done so far, while half of companies (52%) would spend the same amount as last year. 77% of respondents are focusing on energy efficiency and green energy investments, while 18% are focusing on collecting sustainability data.

The research revealed some differences in how SMEs and large companies integrate ESG measures into their operations. Half of large companies have a high or very high focus on carbon emissions and carbon neutrality, with a greater emphasis on ethical behavior and transparency than SMEs. On social issues, on the other hand, SMEs are more motivated, placing 8% more importance on employee well-being and 15% more on education, training and human rights than large companies. The Corporate Sustainability Reporting Directive (CSRD) ensures that companies disclose appropriate information on their sustainability risks and opportunities and their impact on people and the environment, based on the principle of dual materiality.

This Directive also requires companies to apply standards to comply with legal obligations for sustainable reporting. In line with the CSRD, the European Commission has adopted common reporting standards (European Sustainable Reporting Standards - ESRS), which are mandatory for companies covered by the Directive. The ESG law adopted last year transposed this Directive into Hungarian law. Although the survey shows that 20% of companies have already prepared an ESG report and a further 40% plan to do so in the near future, 40% of respondents do not plan to prepare an ESG report (two thirds of SMEs and one third of large companies). Among surveyed Hungarian companies, similar proportions observed: 33% have already produced an ESG report and 44% plan to produce their first sustainability report. More than half of the Hungarian companies surveyed (56%) are covered by the CSRD legislation, but only 20% of these companies are aware of it, so it is important that companies are well informed (BDO, 2024; HRPower, 2024).

### **Hartmann Hungary Packaging Ltd. and its ESG practice**

Today, the Hartmann Group is the world's leading manufacturer of moulded paper fibre packaging with 15 production sites and around 2,500 employees. It is also a market leader in design, engineering development and dipped fibre production technology. ESG principles are integral to Hartmann's business model and strategy. Biodegradable moulded fibre packaging, produced from recycled paper, forms the foundation of our business. The company committed itself to take into practice positive impacts by reducing CO<sub>2</sub>e emissions by 50% by 2030. Equally important for the company the human and labor rights across its entire value chain. ESG in Value Chains is a new collaborative project where the Danish Industry Foundation and the Confederation of Danish Industry focus on manufacturing companies' collaboration on sustainability in the value chain. The aim is to strengthen business development and increase the competitiveness of Danish SMEs.

The Danish-based group's Hungarian subsidiary was established in 1991, and thanks to increased investment, the egg packaging industry has boomed, opening up new market opportunities. Since its establishment, the Hungarian company has undergone dynamic development in several phases. Due to



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billions of euros in investments over the past 5 years, the factory has continuously increased its production output, optimised logistics processes and created new organisational units. These improvements ensure a stable future for the company in Ács (Komárom-Esztergom county, Hungary).

The technology developed by Hartmann based exclusively on the use of recycled paper. The packaging material they produce is 100% environmentally friendly and fully biodegradable, setting an example in the field of recycling. In addition, the moulded paper pulp technology is environmentally friendly and can be fully adapted to the shape of the objects to be transported. The volume of goods produced in the Hungarian factory exceeds several million units a day, most of which are sold on the European market. All this reflects the size and reputation of the company and the high quality of the goods produced. While in the 1990s, the company employed 100 people, today it employs between 550 and 600. Many have been with the company for 15-20 years and 90% of the employees are local.

It is therefore not surprising that Hartmann's operations strongly intertwined with the life of the town of Ács and the surrounding region. In their social responsibility, they have set out guidelines that serve the interests of their immediate and wider communities. As for future plans, Hartmann intends to expand its domestic activities with additional tasks based on the talented Hungarian workforce, while at the same time looking forward to a further increase in production volumes. Looking back into the history of the company, we can see a dynamic development, and accordingly the management of the company can look to the future with the same optimism as the founders did in 1917 (Hartmann, 2023a; Hartmann, 2023b; Hartmann, 2023c).

The Hartmann's main ESG priorities including: combat against the climate change (reducing GHG emission, optimizing energy consumption and protecting the company production facilities), strengthening circularity (circular and green economy, waste management); investing in people (fair and equal handling of human and labor rights, focus on diversity and inclusion, food safety, occupational health and safety) and protecting water (water consumption, water pollution, water scarcity). According to Torben Rosenkrantz-Theil CEO *"In 2023, we expanded our dedicated Group Sustainability and ESG team to drive and accelerate our efforts and we completed our first double materiality assessment outlining future main impact areas and focus points. Our science-based carbon reduction targets were validated, and we strengthened our competency centre to fuel the development of new energy reduction technologies. We also continued helping customers converting from single-use plastics products to biodegradable moulded-fibre packaging"* (Hartmann, 2023c, 7).

## CURRENT ESG SITUATION IN SERBIA

In generally, comprehensive ESG Reporting is not mandatory in Serbia and does not have ESG scoring for the time being, the regulatory bodies have made efforts to adoption ESG criteria into their regulatory frameworks, reflecting the growing consensus on the role of sustainable development in different economic activities. There is a non-financial reporting requirement for all large companies and legal entities with more than 500 employees. ESG data generated by companies themselves, which are not always accurate, complete and reliable. In order to support small and medium enterprises in Serbia to advance their operations, the United Nations Development Program (UNDP) has organized trainings entitled "ESG Practitioner" in partnership with the Development Agency of Serbia and the Smart Collective. These trainings take into practice as a part of the project "Promotion of Sustainable Investment", which UNDP carries out in close cooperation with the Government of the Republic of Serbia, supporting by the United Nations Peace and Development Trust Fund (UNPDF) and the UN Department of Economic and Social Affairs (Rakocevic, Benkovich, 2023).





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The Center for Green Economy established in April 2023 at the University of Kragujevac, with the support of the Serbian Chamber of Commerce and the German Organization for International Cooperation (GIZ). To make easier understandings of non-financial reporting's aspects for the public, the Center for Green Economy, the Sustainable Development Platform for All, and the Faculty of Economics of the University of Kragujevac organized a panel on June 17, 2024, titled "Standardized Non-Financial Reporting – Experiences and Perspectives."

The panel discussed the Corporate Sustainability Reporting Directive (Directive 2022/2464), European Sustainability Reporting Standards (ESRS), the development of ESG strategy, non-financial reporting (ESG reporting), the role and importance of civil society organizations in ESG reporting and improving ESG performance, as well as examples of good practice (e.g., Atlantic Group). In addition, "ESG Leaders" awards established and presented by PwC. The awards given to those Serbian companies and organizations that have committed strongly themselves to achieve successfully ESG principles across 4 main categories and 13 subcategories. The jury consisted of experts in ESG, responsible management and philanthropy, financial markets, science, and innovation. The awards represent crucial phase toward achieving the vision of sustainable results that protect the environment and improve society in Serbia (Center for Green Economy, 2024).

## **BOSIS, THE SERBIAN PACKAGING COMPANY ENTERED INTO INTERNATIONAL MARKET BY IMPLEMENTING ESG CRITERIA**

Bosis packaging company, the family-owned business established by Bogoljub Pantelić in 1982, located in Valjevo, 100km south of Belgrade, Serbia, employs 140 employees, classified among the 1% of global companies serving as role models in sustainable business. It has been producing printed and laminated carton packaging and blister cartons exclusively made of ecological materials and is 100% recyclable, ranging from consumer goods packaging (biscuits, chocolate, coffee, and tea) to boxes for shoes, the car industry, home cleaning and cosmetic products, toys, textiles. The company is included in the supplier chains of large companies such as Henkel, Atlantic Group, Bambi, Heineken, Geox, and many others across Europe. The packaging produced by Bosis is. Increasing energy efficiency, digital transformation, transferring from an entrepreneurial to a corporate model of organisation and management, introducing the circular business model – some typical examples how to take into practice in the company strategy the ESG considerations. Bosis always focused on long timescale. A company's success depends on every individual involved. In practice, we refer to this as "MRIT—*My Role in This*", where everyone should benefit from everything we do but also have responsibility for it. Bosis organisational culture also includes responsibility and sustainability. The company aimed at goal-based operation focusing on ESG criteria, implemented through programmes:

- Bosis ART: a program of support for creativity and art,
- Bosis Eco: projects and activities that concern environmental management, responsible use of energy and natural resources, as well as responsible waste and emission management,
- Bosis Knowledge: permanent education, progress, and development of professional staff as well
- Bosis Family and Bosis Babies: all the activities of support for our employees, their families, and their children.



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The company demonstrates responsibility in the entire supply chain, which is evidenced by the EcoVadis Platinum award, classifying us among the top 1% of global companies in all categories that fulfil the demanding requirements of social responsibility. The ESG application also opens new business opportunities since many investors and banks assess enterprises using these exact criteria (Bosis Doo, 2022; UNDP, 2023). Due to adopted ESG criteria in its business operation, Bosis packaging company merged with the British DS Smith, a leading sustainable packaging provider operating, which has been present in more than 30 countries and employing over 30,000 people and began its operations in Serbia in 2004.

Furthermore, the company is present in Bosnia and Herzegovina, Bulgaria, Croatia, Romania, North Macedonia, Slovenia, Greece and Turkey as well. Plastic replacement is a main field for DS Smith, and the business recently achieved the milestone of over 762 million units of plastic replaced since 2020. Miles Roberts, Group Chief Executive, DS Smith, commented: *"We are seeing significant growth in demand for sustainable packaging and for plastic replacement in East Europe, especially in Serbia, and are delighted to announce our agreement to acquire Bosis"*. After completion of the acquisition process of Bosis, DS Smith's total packaging operations in Eastern Europe will comprise 29 box plants and additional facilities, employing more than 7,000 people in the region. As a future ambitious, prosperous plan, DS Smith intends to invest 16 million euro in new innovative packaging equipment for fast-moving consumer goods and automated packaging lines at its existing production plant in Serbia (DSSmith, 2024, Pavlova, 2024).

## ESG FRAMEWORK IN THE WESTERN BALKAN COUNTRIES

According to the EU ESG regulations, the EU Member State candidates Western Balkan countries also will have to create favorable regulatory and business conditions for the ESG Framework. In this context, the WBC banking sector is ready to adopt ESG criteria, elaborate ESG scoring system, and the actors are aware that their mission and responsibility to facilitate and monitor the ESG criteria adoption in the business sector. These can mean new, unprecedented opportunities building new value propositions, getting strategic competitive advantages in the EU markets, developing new innovative solutions for the customers. Nevertheless, there is a lack of highly qualified ESG professionals and experts, no consensus-based ESG indicators for regular reporting and no elaborated, validated ESG scoring system in the WBC banks and shortcomings in the ESG regulations. In addition, connections between E, S and G criteria are not harmonized in the ESG Framework, there is serious ESG risks and ESG data gathering difficulties from company side and the applicability of the ESG metrics for the SME sector can be challenges at the same time.

WBC banks will have to take more concerted actions to overcome difficulties and eliminate administrative and technical burdens in front of implementation ESG Reporting system, providing sustainable finance and investment for those businesses, which integrate ESG principles in their business operations. This can be the only way to exploit the future hidden opportunities for this region. The previously mentioned illustrative business case studies can mean adoptable and "tailor made" best practices, how would it be worth realising this one (Rakočević et al., 2022, Rakočević, Benković, 2023).



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# CONCLUSION

Sustainable and green finance and investments, business operations with ESG criteria, have rising significantly in financial and investment decision taking into practice sustainable projects. The importance of sustainable finance and investments is even more relevant for the Western Balkan countries. Those countries facing incredibly challenging issues and struggle with necessary resources to finance sustainable and green projects. Currently, application of ESG principles is modest in scope in those countries. Available financial instruments in those countries are banks' and national and international funds' loans for energy efficiency, renewables, agriculture, air pollution, waste and water management.

The lesson learnt from the Hungarian Hartmann and the Serbian Bosis ESG story can be that the company's future is also a better future for its employees and their families, and this is beneficial for the local community and the entire society. By implementing the ESG criteria, we make a difference in our micro-environment and, step by step, work on being better. The ESG is not reserved only for big corporations; it should become an obligatory element in all SMEs' operations. On the other hand, Bosis can serve as reference for the Western Balkan countries (WBC) promoting the wide spreading the ESG approaches, metrics in this region contributing the social cohesion, wellbeing, sustainability and the economic competitiveness.

# REFERENCES

- Alessandrini F., Jondeau E. (2021). Optimal strategies for ESG portfolios. *Journal of Portfolio Management*; 47 (6), 114-138.
- Berg F., Kölbl J.F., Rigobon R. (2022). Aggregate Confusion: The Divergence of ESG Ratings. *Review of Finance*, 26(6), 1315–1344.
- Boddy C.R. (2023). Enron Scandal. In: Michalos, A.C. (eds) *Encyclopedia of Business and Professional Ethics*. Springer, Cham.
- Brandon G. R., Krueger P., Schmidt P. S. (2021): ESG rating disagreement and stock returns. *Financial Analysts Journal*, 77, 104–127.
- Friede, G., Busch, T., Bassen, A. (2015). ESG and financial performance: aggregated evidence from more than 2000 empirical studies. *Journal of Sustainable Finance & Investment*, 5(4), 210-233.
- Gao S., Meng F., Wang W., Chen W. (2023): Does ESG always improve corporate performance? Evidence from firm life cycle perspective. *Frontiers in Environmental Science*, 11, 1105077.
- Lee, L. E. (2021). What Does ESG Investing Really Mean? Implications for Investors of Separating Financial Materiality and Social Objectives. *Wharton Pension Research Council Working Paper*.
- Li Y. (2010): The Case Analysis of the Scandal of Enron. *International Journal of Business and Management*, 5(10), 37-41.
- Ma C. (2023). Green Growth Strategies: How ESG Metrics are Reshaping Environmental Economics. *Frontiers in Business, Economics and Management*, 12(2), 2009-2012.



## Conference Proceedings

Rakočević S. B., Rakic N., Joksimovic N.Z. (2022). Sustainable Finance and Investments in Western Balkans – Where We Are? 1<sup>st</sup> International Conference on Organisational Science Development: Society's Challenges for Organisational Opportunities, Proceedings, pp. 110-121.

Rakočević S. B., Benković S. (2023). ESG Adoption in the Banking Sector of the Western Balkan Countries, Proceedings of the 4th international conference Economic and Business Trends Shaping the Future, pp. 76-86.

SASB (2024). SASB Standards. Retrieved June 20, 2024, from <https://sasb.ifrs.org/>

Shen S. (2022); Key Developments and Realistic Challenges of ESG in Chinese Enterprises. <https://www.163.com/dy/article/HJ7JKM290519D5D8.html>

Shen H., Lin H., Han W., Wu H. (2023): ESG in China: A review of practice and research, and future research avenues. China Journal of Accounting Research, 16(4).

Zhan S. (2023). ESG and Corporate Performance. A Review. SHS Web of Conferences 169, 01064.

Zioło, M., Bąk, I., Cheba, K., Spoz, A., Niedzielski, P. (2021). Sustainable financial systems toward sustainability in finance. Institutional and managerial approach. Procedia Computer Science, 192: 4237-4248.

Zulauf L. (2011): Enron: The Good, The Bad, The Lessons. International Business & Economics Research Journal, 1(11).

About Hungary (2023). Government to submit ESG bill to parliament, Retrieved June 29, 2024, from <https://abouthungary.hu/news-in-brief/government-to-submit-esg-bill-to-parliament>

BDO (2024). The ESG Imperative: Business Trends Among European Companies; Retrieved June 28, 2024, from [https://www.bdo.be/getmedia/de2f696f-39bc-48d6-aa0d-b2a4145053db/The-ESG-Imperative-Business-Trends-Among-European-Companies\\_PROOF4.pdf](https://www.bdo.be/getmedia/de2f696f-39bc-48d6-aa0d-b2a4145053db/The-ESG-Imperative-Business-Trends-Among-European-Companies_PROOF4.pdf)

Bosis Doo (2022). EcoVadis Scorecard, Retrieved June 26, 2024, from [https://www.bosis.rs/wp-content/uploads/2022/03/BOSIS\\_DOO\\_Scorecard\\_2022\\_03\\_02.pdf](https://www.bosis.rs/wp-content/uploads/2022/03/BOSIS_DOO_Scorecard_2022_03_02.pdf)

Center for Green Economy (2024). Held Panel on Standardized Non-Financial Reporting – Experiences and Perspectives. Retrieved June 30, 2024, from <https://www.centarazelenuekonomiju.rs/news>

CFA Institute (2023): ESG Investing and Analysis. Retrieved June 30, 2024, from <https://www.cfainstitute.org/en/rpc-overview/esg-investing>

DSSmith (2024). DS Smith to acquire Serbian packaging company, Bosis doo. Retrieved June 30, 2024, from <https://www.dsmith.com/media/our-stories/2023/8/ds-smith-to-acquire-serbian-packaging-company-bosis-doo>

European Commission (2021). Study on sustainability-related ratings data and research, Retrieved June 25, 2024, from <https://op.europa.eu/en/publication-detail/-/publication/d7d85036-509c-11eb-b59f-01aa75ed71a1/language-en/format-PDF/source-183474104>

Government of the Hungarian Republic (2024). The National ESG Council's mission to promote economic growth and the competitiveness of the Hungarian SME sector. Retrieved June 30, 2024, from <https://kormany.hu/hirek/ujabb-ulest-tartott-a-nemzeti-esg-tanacs-cel-a-gazdasagi-novekedes-es-a-versenykepes-magyar-vallalkozasok>

Global Reporting Initiative (GRI, 2016). GRI 101: Foundation. GRI standards 2016. Retrieved June 20, 2024, from <https://www.globalreporting.org/standards/media/1036/gri-101-foundation-2016.pdf>,



## Conference Proceedings

Hartmann (2023a). Who We Are and What You Get, Retrieved June 30, 2024, from <https://www.hartmann-packaging.com/world/>

Hartmann (2023b). Hartmann Hungary. About us. Retrieved June 30, 2024, from <https://hartmann-hungary.hu/rolunk/>

Hartmann (2023c). Sustainability Report. Retrieved on July 02, 2023, from <https://www.hartmann-packaging.com/media/5380/sustainability-report-2023.pdf>

HRPower (2024). Sustainability in practice: how do ESG principles impact Hungarian companies? Retrieved June 30, 2024, from <https://hrpwr.hu/cikk/fenntarthatosag-a-gyakorlatban-hogyan-hatnak-az-esg-elvek-a-magyar-vallalatokra>

Pavlova I. (2024). DS Smith completes acquisition of Serbia's Bosis. Retrieved June 29, 2024, from <https://seenews.com/news/ds-smith-completes-acquisition-of-serbias-bosis-1254928>

Peterdy K. (2024). ESG (Environmental, Social, & Governance). A management and analysis framework to understand and measure how sustainably an organization is operating, Retrieved June 25, 2024, from <https://corporatefinanceinstitute.com/resources/esg/esg-environmental-social-governance/>

PwC (2023). Six key challenges for financial institutions to deal with ESG risks. Retrieved June 30, 2024, from <https://www.pwc.nl/en/insights-and-publications/services-and-industries/financial-sector/six-key-challenges-for-financial-institutions-to-deal-with-ESG-risks.html>.

UNDP (2023). Implementing ESG Criteria. Retrieved June 25, 2024, from <https://www.undp.org/ESGUspesnaPrica>

UNDP (2024). What are the Sustainable Development Goals? Retrieved June 25, 2024, from <https://www.undp.org/sustainable-development-goals>

Wikirate (2024). Empowering people with open ESG data. Retrieved June 30, 2024, from <https://wikirate.org/>

World Economic Forum (2022), Stakeholder Capitalism. How sustainable investing will become the norm. Retrieved June 27, 2024, from <https://www.weforum.org/agenda/2022/02/sustainable-investing-esg-finance-future-norm/>

Zhang, B., Yuan, Z., (2021). Annual ESG investment report of China's asset management industry 2021. Retrieved June 30, 2024, from <https://sfi.cuhk.edu.cn/show-51-921.html>



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# SUSTAINABILITY OF THE DEVELOPMENT OF THE MEDICAL SYSTEM IN SERBIA

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DOI: 10.5937/EEE24080N

JEL: I11, O11, Q56

Review Scientific Paper

### ABSTRACT

*We are witnessing investments in the medical system of Serbia, both during Covid-19 and in the post-covid period. Continuity of investment in medical infrastructure guarantees the development and quality of the medical system. However, it is not the only factor. The sustainability of the medical system is influenced by many factors. We can freely say that all actors in the medical system, and beyond, indirectly or directly contribute to its sustainability. For the survival of the medical system, employees are important, that is, primarily medical personnel. They directly affect its functionality, so the emphasis is placed on their education, professionalism and knowledge of the financial area, as well as the area of management. Direct factors for the sustainability of the medical system can be various areas, which indirectly influence or can influence, so that it takes place to the best extent possible. Here we also include ecology, that is, solving the issue of medical waste disposal. Medical waste is a big problem everywhere in the world, including here. The technological possibility of removing medical waste consequently affects the protection of the environment and raising awareness among workers about further sorting, handling and disposal. If there is no developed organizational system for its quality disposal, we cannot blame the employees and talk about their carelessness. This problem must be solved at the state level. Another immediate factor is the existence of ethics and ethical principles. Although there are already certain ethical norms and principles in medicine that include the moral values of doctors and other medical workers, we believe that most of them are not followed.*

### KEYWORDS

*medical system, education, management, motivation and investments*

## INTRODUCTION

The sustainability of the development of the medical system implies the cohesion of the entire activities of a country. Starting with the application of ethics and ethical principles, ecology and better working conditions with an emphasis on human resources, their education, as the main factor of the health system.

Global economic and environmental crises force people to migrate, resulting in multicultural populations. It starts from the position that health behavior can be improved depending on the knowledge of cultural factors that influence the health behavior of the community. In the field of medicine, ethics includes fundamental moral issues related to decision-making in medical waste management. It aims to support well-reasoned decisions in the field of medicine.

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Ethics and ethical aspects, in the communication of the health sector, represent the bond of development of the medical system. Where communication is impaired, employees become demotivated, who achieve lower work performance and indirectly lead to higher costs. Economics as a science is omnipresent in all spheres of life, has points of contact with different areas, and is closely related to them. Each economic or non-economic area requires many investments of different resources, which results in higher costs and revenues, so that it is inevitably the "queen" of all events.

In order to make our country attractive for attracting foreign direct investments (FDI), it is important to attract human capital. The goal of human capital is the education of doctors and nurses, for the sake of raising the quality, then the sustainability and development of the medical system. Considering the period of the coronavirus pandemic, as well as the post-covid period, continuous investments were made in the medical system of Serbia and their impact on the employed medical staff.

The subject of the research is to list, explain and emphasize certain factors, important for the sustainability of the medical system. Cultural health care has been aware of the prevention of inequality and discrimination in health care for many years. In this regard, it is important that members of the healthcare team must be equipped with the necessary knowledge and skills in terms of cultural differences, communication, management, financial knowledge, risk identification and control processes.

The aim of the work is to point out the importance of the employed medical staff, their motivation, persistence and expertise in the business of the medical system, as well as the complexity of their work. The global Covid-19 pandemic has passed, but the focus is still on the analysis of the sustainability of the medical system in the form of tangible and intangible investments, then measures and proposals for its further functioning.

## METHODOLOGY

Three research hypotheses were tested in the paper:

- H1: Continued state investments in healthcare workers after COVID-19 contributed to maintaining a high level of motivation of healthcare workers.
- H2: Continuous state investments in the health care system after COVID-19 contributed to maintaining a high level of motivation of health care workers.
- H3: State investments in the prevention of COVID-19 during and after the pandemic significantly increased the motivation of healthcare workers.

Hypothesis testing is performed using descriptive statistics and desk research. The methods applied in the work are inductive, deductive, descriptive-statistical method, comparative method, compilation method, as well as analysis of relevant theoretical literature.

Empirical research includes hypothesis testing through information obtained through a questionnaire on a sample of 158 respondents (nurses and doctors). The software tool SPSS (Statistical Package for the Social Sciences) was used for data analysis. The survey method aims to evaluate the satisfaction of employees in the healthcare system of Serbia. The respondents' answers will indicate the problems that employees face and provide guidelines for solving numerous problems of health institutions.



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# SCIENTIFIC CONTRIBUTION

The scientific contribution of the work indicates the satisfaction of employees in the medical sector through investments by the state. The paper explored how the medical system can be improved and developed. The expected results and contributions of this work are as follows:

1. To emphasize the importance of education of medical workers in the field of ethics and ecology, as essential factors for the sustainability and development of the medical system.
2. To indicate the existence of alternative models that influence the motivation of medical workers, education, interpersonal relations, all for the purpose of greater employee motivation.
3. To investigate the motivation of medical staff, managers and nurse-technicians in relation to tangible and intangible investments by the state during and after the Covid-19 pandemic.
4. To emphasize the positive side of the continuity of investment, as well as investment in prevention, by the state, during and after the Covid-19 pandemic.

## ETHICS

The basic ethical principles have evolved significantly since their working beginnings. Key ethical values and standards that must be adhered to are respect for the individual, welfare of the individual, confidentiality, tolerance, welfare of the community, integrity. Health workers have moral obligations as professionals and must behave politely and civilly. On the other hand, the relationship between employees is also important. They should be accommodating to their colleagues and help each other, without any excuses, resentment, or disrespect. However, this way of dealing unfortunately does not exist. Interpersonal relations are completely broken, especially in insufficiently organized or disorganized systems, systems where there is no sufficient business control, etc. The collective in the health sector is badly damaged. There are mobbing between doctors and nurses, as well as between nurses. This kind of treatment must be solved with the application of many penal and legal measures that should be incorporated into the laws.

Nowadays, there is a big change in the technological and scientific sense and there is a need for good communication. Modern times are subject to numerous challenges of contemporary technology, then the change in the culture of communication is widely recognized. Communication is a clinical skill that is learned and taught in practice. One of the most important outcomes of successful communication between doctors and patients is gaining respect and trust of patients in medical staff and doctors.

### **Ethical aspects of communication in the healthcare system**

Communication provides the healthcare worker with important information needed for successful treatment. Providing information gives the patient a sense of control over the situation and their own health condition. Then, in addition to the care received by the medical worker, the patient builds a relationship through communication, which gives him some confidence in the certainty of self-healing. Human relationship is primarily one of the more important factors besides treatment. Communication is





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an integral part of socialization for the establishment of interpersonal relationships. Specific factors of communication are: qualities of health care, qualities of relationships between nurses, nurse and patient. Communication skills are an important factor for success in the process of implementing health care. It is a basic prerequisite for medical workers to have two-way communication. That is why education and mastering the methods for the best possible communication is important. The quality of relationships in the workplace consequently affects better relationships among colleagues and a better atmosphere. Above all, focus on empathy, active listening, respect, honesty, etc. is needed.

An important factor in the process of communication is constructiveness and destructiveness. Constructive communication is creative and focused on solving problems, the interlocutors are respected, the conversation is open and tactful. On the other hand, destructive communication is not creative, it is dishonest and rude, it leads to insults and ignoring. Interlocutors here worsen the further flow of communication.

Changes in the social status of nurses are a prerequisite for the establishment of better relations among the members of the health care team. In order to improve the performance of the health team, it is necessary to increase the degree of respect for nurses as equal members of the health team.

In order to improve the final goals of the health team, it is necessary to improve the socioeconomic climate, interpersonal relations. Communication is important in health care, because it is the basis of interpersonal relationships, it affects the improvement of work results, the level of interest in personal development increases, the improvement affects the resolution of disagreements and conflicts, and the level of performance of the health team increases. It is important that ethics are respected and that these relationships complement each other. The older worker should introduce and show the younger worker everything about the job. Conflicts between sisters in communication are fatal to teamwork. Such situations reflect negatively on the work process itself and on the entire environment. Good and high-quality communication with colleagues has a very stimulating effect on the emergence of new ideas, development and expression. Scientific activity is a public and social activity and includes intensive communication between scientists, but it must also include quality connections with the general public for physicians with patients and their families, as well as caregivers. Discussions are taking on a greater character at the national, but also at the international level. Symposia, round tables and public presentations, books, journals, scientific results can be included here.

## ECOLOGY IN MEDICINE

The impact of climate change on food safety, working and living environment, air quality is significant for the health sector and population migration. Many ecologists study the impact of the environment on ecosystem function, but there are insufficient studies on the impact of the environment on human health. It is obvious that many public health experts do not relate the impact of changes caused by anthropogenic activity to the environment in which they operate. Health ecology as a science connects health, ecology, earth science, in order to better understand the impact of environmental factors and create a multidisciplinary approach to solving environmental problems that affect people's health. We witnessed the NATO bombing two decades ago and the air pollution with uranium. The damage is summed up over the years with the number of deaths from cancer, as well as the number of patients and those cured. The indirect effect on the economy is that the population has significantly decreased and is decreasing, which has reduced a significant number of the former working population.



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The consequences are long-term, because the pollution of water, food, air, and soil represent a danger for the whole of humanity. Disruption of ecosystems on a global scale occurs mainly due to the influence of man, industrialization and everything else that man works on. The chain reaction of pollution leads to the emergence of viruses, infectious and non-infectious diseases. The latest is the Covid-19 pandemic, which created catastrophic proportions in terms of human mortality and affected the economy.

A great advantage is the existence of an institutional framework for monitoring the health consequences of various external factors resulting from climate and non-climate changes. In this way, the protection and the risk of the same are analysed, prevented. For the risk of disasters and extraordinary events, it is necessary to be well prepared beforehand in material and non-material sense.

### **Medical waste as an important factor in the sustainability of the healthcare system**

Ecological processes are the drivers and consequences of demographic changes, which are reflected in the number, structure and spatial distribution of the population. They must have responsibility for the preservation of the environment, in the preservation and use of the availability of natural resources. There are clear differences in terms of health, public health, and types of prevention within the health care system. Socioeconomic and ecological processes are simultaneously the drivers of the consequences of demographic changes, which are reflected in the number, structure and spatial distribution of the population. The goals of sustainable development are elaborated through specific sub-goals. The achievement of goals is monitored through indicators, where variables are carefully selected and by monitoring.

Improper handling of medical waste can contain hazardous and infectious materials, and medical waste handling procedures can pose a number of risks to healthcare workers. Of the total waste from healthcare institutions, it is considered that about 14% of the waste is risky and therefore requires special attention. This includes infectious, chemical, pharmaceutical and pathological waste. The collection, disposal and removal of medical waste, until its final treatment, for example incineration, includes many measures, principles and supervision.

As far as Serbia is concerned, almost all types of medical waste are disposed of in communal landfills, which are not organized according to European and world standards. The first institution in Serbia to introduce a waste management process is the City Public Health Institute of Belgrade, whereby infectious waste goes through a sterilization process and is then ground. According to some calculations, it is pointed out that about 20% is disposed of in containers. City cleanliness in Belgrade receives medical waste after steam sterilization, where it is then disposed of at the landfill in Vinča. The German organization for international cooperation called GIZ, in cooperation with the Serbian Chamber of Commerce, gave our country recommendations for the disposal of medical waste during the Covid-19 pandemic. The procedure is such that if there is no thermal treatment of medical waste, the first option involves disposal at a sanitary landfill. There workers classify and must not come into contact with medical waste disposal. This waste must be disposed of immediately after unloading, so that it does not represent a source of infection for humans, animals, even though there are waste collectors at the landfill (GIZ, 2020).

Medical waste management in Serbia is currently at a very low level. It is necessary to find long-term management solutions where the role of the state is primarily important, because it is potentially about large investments in this part of the sector. We see existing simpler methods in the treatment of existing autoclaves, whose capacity can be increased by increasing their working hours, in order to avoid



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additional investments. It is only one of the temporary solutions, bearing in mind that autoclaves are only suitable for infectious waste.

It is of utmost importance to provide an economical treatment of the generated medical waste that would be in line with sustainable development. That is, through responsible behavior of individuals, the entire community and continuous education, the necessary funds for the sustainable development of the medical system, and thus the preservation of the environment, could be provided.

### **Human resources as an important factor in the development and sustainability of the medical system**

In every company, institution, organization, the important factor is man. An individual who represents an employed worker is part of the system, and individuals together make up the "fuel", so their presence is very important. The same applies to the medical system, where the employed medical personnel form the backbone of this system. We are witnessing the Covid 19 pandemic, where nurses, technicians, doctors were in the "first line of defense" as the main fighters for the life of every citizen. In this regard, investment in human resources is inevitable for the further development and sustainability of the medical system.

After many decades of activities, neglect, insufficient investment and many other failures have led to poor organization, and it is necessary to emphasize the qualities of a health manager in the part of managing this essential system. Also, great attention should be given to the further and wider education of nurses, bearing in mind population migrations and the mixing of cultures, religions, etc. As the top of the pyramid, for the preservation and better functioning of the medical system, the perception of risk in business, the addition of value, the existence of an Internal Auditor, i.e. the Audit Department, is mandatory in almost all health institutions at the level of local self-governments.

### **Health management and the introduction of project managers**

General management developed faster than health management. The managerial function in the health service is performed by a physician administrator, not a trained health manager.

In recent years, many directors of health care institutions, based on their own experience in general management, incorporate certain models in management, while management of the same has been left out. In this regard, it is necessary to employ, or to educate the existing manager in managing the system or its part, implementing, working out and monitoring the development of the project in order to manage the efficiency of the medical system.

Otherwise, health management is complex and has great responsibility for the good functioning of individual parts of the health system and the system in general. The development of mentoring skills of all healthcare managers is essential. Health managers work as a team and in a coordinated manner. They are responsible for patient care, because the quality of service provision and the satisfaction of patients' needs, such as treatment, provision of medicines, equipment and service quality, depend on it. Care management skills include knowledge and skills in regulatory compliance, insurance claims processing, and even marketing process improvement. They need to be composed in the most chaotic situations, to make decisions based on evidence, not decisions made in fear. Therefore, health managers must be trained in analytical skills. It is necessary to identify the systems, collect data, generate the obtained information, discover the reasons for inefficiency and provide solutions for the improvement of the system.



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Managing healthcare facilities is much more demanding than it used to be. The complexity of medical billing on the one hand, the satisfaction and demands of patients on the other, initiates a capable manager who will monitor all actions and be familiar with financial operations.

### **The role of the internal auditor in risk management and control processes**

In the medical system, one should work not only on projects for the formation of quality managers, economists for business control, but also on risk analysis. In this regard, professionals with financial skills are necessary. In order for a system to function adequately, financial control is necessary, which can include control of operations in accordance with laws, regulations, procedures, and control of financial reports.

Hospital performance measurement is measured through financial and non-financial indicators, using quarterly, half-yearly or annual financial reports. In fact, an analysis is performed between two time periods, by comparing the financial reports from the previous year with the current report and by looking at the deviations of all the items of the financial reports. On the other hand, the board of directors evaluates the degree of achievement of the hospital's goals by comparing income, expenses, occupancy of beds, number of patients undergoing treatment and many other parameters.

In this way, the management of the company is looking for a way to better establish control of the company, which is a continuous process. It receives full support from the internal control and internal audit of the company's operations, while in the medical system it would be an established internal audit service. The managerial approach to internal control and internal audit can be applied in the function of management (Popović, Mijić, Grublješić, 2014). The internal auditor's job is to identify internal control weaknesses and report them to senior management, and they play the biggest role in the effectiveness of the internal control system. In addition to public inspection, the lack of independent audit affects the effectiveness and efficiency of operations, and in accordance with international rules, the hospital management should establish an appropriate model.

Employees should develop an awareness of risks and opportunities for risks, with the application of appropriate procedures. The mutual relationship of the medical staff in healthcare represents a team for successful management of the system and precaution against potential risks. A good integration of risk management would have a positive effect on the entire internal and external health structure.

According to all of the above, in case of high risks such as contributed by the pandemic and many others (natural disasters, economic crises), the harmonization of internal controls of a large volume of hospitals and their role in ensuring efficiency could be carried out.

### **Transcultural nursing**

Individuals as cultural, physical, ecological and sociopolitical beings are in constant interaction with each other. From a medical point of view, cultural diversity imposes an obligation to provide culturally adequate care. The transcultural approach can be applied at all levels of healthcare institutions, but nurses are in a privileged position. The profile of a nurse with an important role in the medical team, with knowledge of culture and its effects on health diseases, can bridge the gap between the care of individuals of different cultures. Global trends in terms of migratory changes impose the need to change the current practice in education and application of transcultural nursing among nurses, in order to improve the quality of health care provided in Serbia (Pajić, Marjanović, Savić, 2022).



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# RESEARCH RESULTS

The data set refers to the continuity of state investment in the health system after the COVID-19 pandemic. These questions explore how state investment after the pandemic is directed towards improving the working conditions of medical workers and improving the health system as a whole. Questions in this category also explore the state's investment in professional training and improving the working conditions of medical workers after the pandemic. These investments are important for continuous professional development and employee satisfaction, which directly affects the quality of healthcare services. The following hypotheses emerged from this data set:

**H1: Continued investments by the state in healthcare workers after the COVID-19 contributed to maintaining a high level of motivation of healthcare workers.**

The Shapiro-Wilk test (Table 1) showed that for the variable "State investment in health workers after KOVID-19" the p-value is  $< 0.001$ , which is less than the threshold of 0.05. This result indicates statistically significant deviations from normality, i.e. the data distribution is not normal. Therefore, for further analysis of this variable, it will be necessary to use non-parametric statistical tests.

Table 1. Shapiro-Wilk Test of Normality for variables tested in Hypothesis 1

Variable	p-value
State investments in healthcare workers after KOVID-19	$< 0.001$

The results of Spearman's correlation (Table 2) show that there is a positive and statistically significant relationship between government investments in health workers after the COVID-19 pandemic, as well as the motivation of health workers. The correlation coefficient (rho) is 0.373 with a p-value less than 0.001, which indicates a statistically significant association at the 0.01 level.

Table 2. Sperman's correlation among the variables tested in Hypothesis 1

Variable	Correlation coefficient (rho)	p-value
Investments in healthcare workers after KOVID-19 and motivation of healthcare workers	<b>0.373</b>	<b><math>&lt; 0.001</math></b>

The results of the regression analysis showed that there is a positive correlation between state investments in health workers after the COVID-19 pandemic and the motivation for the work of health workers ( $R = 0.377$ ). The coefficient of determination ( $R^2$ ) is 0.142, which means that investments in health workers explain 14.2% of the variation in work motivation. The adjusted coefficient of determination (Adjusted  $R^2$ ) is 0.137, which takes into account the number of predictors in the model. The standard error of the estimate (Std. Error of the Estimate) is 0.644.

Analysis of variance (ANOVA) shows that the model is statistically significant ( $F(1,156) = 25.837$ ,  $p < 0.001$ ), which indicates that state investments in health workers after the pandemic significantly affect the motivation to work of health workers.

The results of the regression analysis support Hypothesis 1 that the continuous investments of the state in healthcare workers after the COVID-19 pandemic contributed to maintaining a high level of motivation of healthcare workers. This result suggests that greater government investment in healthcare workers contributes to greater motivation to work, which is key to maintaining high performance and quality of services in the post-pandemic period.

**H2: Continuous state investments in the health system after KOVID-19 contributed to maintaining a high level of motivation of health workers.**



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The Shapiro-Wilk test (Table 3) shows that for the variable "Investment in the health system after the pandemic" the p-value is 0.005, which is less than the threshold of 0.05. This result indicates statistically significant deviations from normality, i.e. the data distribution is not normal. Therefore, for further analysis of this variable, it will be necessary to use non-parametric statistical tests.

Table 3. Shapiro-Wilk Test of Normality for variables tested in Hypothesis 2

Variable	p-value
Investment in the health system after the pandemic	0.005

The results of the Spearman correlation (Table 4) showed that there is a positive and statistically significant relationship between state investments in the health system after the COVID-19 pandemic and the motivation of health workers. The correlation coefficient ( $\rho$ ) is 0.293 with a p-value less than 0.001, which indicates a statistically significant association at the 0.01 level.

Table 4. Spearman's correlation among the variables tested in Hypothesis 2

Variables	Correlation coefficient ( $\rho$ )	p-value
Investment in the health system after the pandemic and motivation of health workers	0.293	< 0.001

The results of the regression analysis showed that there is a positive correlation between the continuous investments of the state in the health system after the COVID-19 pandemic and the motivation for the work of health workers ( $R = 0.334$ ). The coefficient of determination ( $R^2$ ) is 0.111, which means that investments in the health system explain 11.1% of the variation in work motivation. The adjusted coefficient of determination (Adjusted  $R^2$ ) is 0.106, which takes into account the number of predictors in the model. The standard error of the estimate (Std. Error of the Estimate) is 0.656.

The analysis of variance (ANOVA) shows that the model is statistically significant ( $F(1, 156) = 19.573$ ,  $p < 0.001$ ), which indicates that the continuous investments of the state in the health system significantly affect the motivation for the work of health workers.

The results of the regression analysis support Hypothesis 2 that the continuous investments of the state in the health system after the COVID-19 pandemic contributed to maintaining a high level of motivation of health workers. This result suggests that greater state investments in the health system contribute to greater motivation for the work of health workers, which is crucial for maintaining high performance and quality of services in the post-pandemic period.

### **H3: State investments in the prevention of COVID-19 during and after the pandemic significantly increased the motivation of healthcare workers.**

The Shapiro-Wilk test (Table 5) showed that for the variable "Investments in prevention" the p-value is less than 0.001, which is significantly less than the threshold of 0.05. This result indicates statistically significant deviations from normality, i.e. the data distribution is not normal. Therefore, for further analysis of this variable we will use Spearman's rank correlation.

Table 5. Shapiro-Wilk Test of Normality for variables tested in Hypothesis 3

Variable	p-value
Investments in prevention	< 0.001

The results of the Spearman correlation (Table 6) show that there is a positive and statistically significant relationship between state investments in the prevention of COVID-19 (prevention) and the motivation of health workers. The correlation coefficient ( $\rho$ ) is 0.397 with a p-value less than 0.001, which indicates a statistically significant association at the 0.01 level.



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Table 6 Spearman's correlation among the variables tested in Hypothesis 3

Variables	Correlation coefficient (rho)	p-value
Ulaganja u prevenciju i motivacija zdravstvenih radnika	0.397	< 0.001

The results of the regression analysis showed that there is a positive correlation between state investments in prevention during and after the COVID-19 pandemic and the motivation for the work of healthcare workers ( $R = 0.445$ ). The coefficient of determination ( $R^2$ ) is 0.198, which means that investments in prevention explain 19.8% of the variation in work motivation. The adjusted coefficient of determination (Adjusted  $R^2$ ) is 0.193, which takes into account the number of predictors in the model. The standard error of the estimate (Std. Error of the Estimate) is 0.623.

Analysis of variance (ANOVA) shows that the model is statistically significant ( $F(1, 156) = 38.560$ ,  $p < 0.001$ ), which indicates that state investments in prevention significantly influence the motivation to work of health workers.

The results of the regression analysis support Hypothesis 3 that state investments in the prevention of COVID-19 during and after the pandemic significantly increased the motivation of healthcare workers. This result suggests that greater state investments in preventive measures contribute to greater motivation to work, which is crucial for maintaining high performance and service quality in high-risk situations.

## CONCLUSION

Research results show that material investments (such as salary increases, bonuses and improvement of working conditions) and non-material investments (training, education and recognition) significantly influenced the motivation of healthcare workers. The positive correlation between investment and motivation suggests that investment during a pandemic may be crucial to maintaining high motivation and efficiency of the medical system. Motivation is one of the key determinants of achieved performance, especially when it comes to healthcare organizations. Employees in healthcare, due to the specific knowledge and abilities they possess, should be motivated by material and non-material factors. In order to ensure the growth of motivation for the sake of the sustainability of the medical system, it is necessary to educate and train nurses, in the cultural, ecological and managerial direction and provide rewards related to intrinsic motivation factors.

## REFERENCES

- Avlijaš, R., Avlijaš, G. (2011). Project management. Singidunum University, Belgrade.
- Brnjas, Z., Radović-Marković, M., Golubović-Stojanović, A. (2020). The Review of the Selected Methods of Estimating Non-Market Costs of Human Health as a Base for Cost-Benefit Analysis of Specific Health Care Policy Measures. *Digital Finance* 2020, pp. 157.
- Barisic, D. (2014). Health ecology in health promotion (Doctoral dissertation, University of Zagreb. School of Medicine. Department of Environmental and Occupational Health).
- Brkljačić, M. (2013). Ethical aspects of communication in healthcare. *Medicina Fluminensis*, 49(2), 136-143.



## Conference Proceedings

Erić, D., Đukić, Đ. (2012). Financial markets in crisis conditions. Institute of Economic Sciences, Belgrade.

Finkler, S. A., Calabrese, T. D., Smith, D. L. (2022). Financial management for public, health, and not-for-profit organizations. CQ Press, Washington DC.

Jergović, M. (2017). Impacts, vulnerabilities and adaptation measures to climate change – health. In: Workshop for officials at the regional and local level and other interested public-Osijek-Strengthening the capacity of the Ministry of Environmental Protection and Energy for adaptation to climate change and preparation of the Draft Strategy for Adaptation to Climate Change.

Marojević Glibo, D., Topić Stipić, D. (2019). Principles of successful communication in healthcare. *Mostarientia: Journal of Social and Human Sciences*, 23(1), 81-93.

Mićović, P. (2009). Health management. *Health Care*, 38(5), 73-78.

Pajić, N. L., Marjanović, M., Savić, S. M. (2022). Transcultural nursing in the Republic of Serbia: An important factor for health equality. *Sestrinska reč*, 25(84), 26-29.

Popović, S. M., Mijić, R., Grublješić, Ž. (2014). Internal control and internal audit in the function of management. *International Journal of Economic Practice and Policy*, 1, 95-107.

Radović Marković, M., Salamzadeh, A. (2018). The importance of communication in business management. The 7th International Scientific Conference on "Employment, Education and Entrepreneurship", Belgrade, Proceedings, pp. 11-28.

Radović-Marković, M., Jovanović, J. (2021). Impact of COVID-19 on Working from Home in Serbia: Possibilities and Consequences. *Macroeconomic Responses to the COVID-19 Pandemic: Policies from Southeast Europe*, pp. 319-343.

Rakić, A., Ćurin, K. (2015). Medical waist. *Public Health*, 9, 25-28.

Đurić P. (2021). What do we mean when we say. *New Health System*. Institute for Philosophy and Social Theory, Belgrade.

<https://www.ibm.com/spss>

<https://nemackasaradnja.rs/giz-st/>





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# IMPACT OF ARTIFICIAL INTELLIGENCE ON JOBS FROM 2024 TO 2030

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DOI: 10.5937/EEE24081R

JEL: J08, J24, M15, O31, O32

Review Scientific Paper

## ABSTRACT

*Artificial intelligence is one of the few areas of science about which almost everyone - both experts and non-experts - has some kind of opinion. Some believe that it brings great benefits, others believe that it threatens dangers, and still others believe in both. On the other hand, it is unusual that there is no general agreement on what artificial intelligence is and what it does. Intelligence usually means the ability to acquire, remember and process certain knowledge. Although there is also an understanding that the central goal of artificial intelligence is to imitate human intelligence, most subfields of artificial intelligence have a different goal. It is usually solving problems where a combinatorial explosion occurs, where the number of possibilities is so large that it cannot be systematically examined in a reasonable amount of time. Most of the tasks of artificial intelligence can be described in terms of algorithms, search, deductive and inductive reasoning, and other precise mathematical concepts. Only a small fraction of researchers deal with methods that aim to achieve general human-style reasoning. Artificial intelligence consists of several subfields, apparently loosely connected in their content. The question then is what they have in common, except that they mostly all deal with problems in which a multitude of possibilities arise that cannot be examined by a systematic search. There are multiple approaches that unify all subfields of artificial intelligence into a single, unified framework. One such approach is based on agents having some actions at their disposal. Another approach gives centrality to the problem-solving process. The solution phases are usually: modeling, i.e. describing the given problem in strict, mathematical terms; solving a problem described in mathematical terms; interpretation and analysis of solutions.*

## KEYWORDS

*artificial intelligence, future works, benefits, advantages, disadvantages*

## INTRODUCTION

Artificial intelligence (AI) has been around for a long time in many forms and ways, and in recent years, significant progress has been made in some areas of AI. This does not mean that AI, in general, is developing so quickly, but it is being used in various domains of digital transformation. Instead of talking

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about AI, some describe the current wave of innovation and acceleration of AI with – albeit slightly differently positioned – terms and concepts such as cognitive computing. Others focus on a few real-life applications of AI, often starting with words such as "smart" (ubiquitous in everything related to the Internet of Things and AI), "intelligent", "predictive", "cognitive". AI is essential, among others, for Industry 4.0, information management, digital health and life sciences, big data analytics, security (cybersecurity and others), various consumer applications, next-generation smart building technologies, FinTech, predictive maintenance, robotics and much more. In other words, in very different areas where data and information are essential. On top of that, several other technologies, including IoT, have been added to AI to show the full value of these technologies in several applications and processes. Artificial intelligence is a term that has a somewhat negative connotation in the general perception, but also in the perception of technology leaders and companies.

The big question is what is artificial intelligence – which is really a broad concept/reality, covering many technologies and realities. It has become like “the cloud” or “the internet of things”. The fact that AI is such a broad concept leads to a misunderstanding of what it exactly means. Some people are really talking about machine learning when we talk about artificial intelligence, deep learning or text mining. Others are talking about analytics and movie scripts, including robotics and superintelligence. In most cases, we are really talking about some form of AI. This phenomenon goes hand in hand with the fact that artificial intelligence has failed to meet the expectations of previous “waves of popularity” and is really old as a concept, a field of research, a set of technologies. However, deep learning, image recognition, hypothesis generation, artificial neural networks, are all real and parts of them are used in various applications.

## WHAT IS ARTIFICIAL INTELLIGENCE

There is more than one definition of artificial intelligence – "the study and design of intelligent agents", where an agent is a system that can perceive and understand its environment, doing things that maximize the chances of success. Or it could be "the ability of a computer-controlled robot to perform tasks more commonly performed by intelligent beings"; or "the simulation of human intelligence by a special computer system (machine), including self-correction, reasoning and learning". All of these definitions describe AI (Artificial Intelligence) and they are all perfectly accurate. But in the long run, it all comes down to how well computers, when compared to humans, can mimic, even surpass, them (Stryker, Kavlakoglu, 2024).

We are a privileged generation surrounded by technology that advances every day. Many of us can't remember the days when we had to do everything for ourselves - we didn't have machines, computers or software to do things for us. And automated processes were once nothing more than a dream. This makes artificial intelligence one of the most important advances of all time. AI reduces human involvement in many areas much faster, far more accurately and with fewer or no errors, not to mention the efficiency with which tasks are completed. Over time, more and more industries are using artificial intelligence to reduce human workload and make processes efficient and almost instantaneous (Acemoglu, Restropo, 2019).

One of the biggest uses is in the financial sector, where everything must be done with extreme accuracy. Human error, not to mention speed, are important factors in banks using artificial intelligence to handle many processes faster and more accurately than humans.



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AI has revolutionized medical science, providing enormous value in many fields. Virtual personal assistants for healthcare have been developed, healthcare bots provide 24/7 patient support, answer questions and even schedule appointments.

Most large manufacturing companies use artificial intelligence in their plants, ensuring all activities and stages of the production process, even in management systems. AI is used to keep records and store important information that can be easily extracted when making decisions.

Air transport is a system that really cannot be imagined without artificial intelligence. Used in management processes, artificial intelligence is used in all spheres – from ticket booking to the moment of take-off, in flight activities, making air transport cost-effective, safe, fast and efficient.

TV games, computer games, even mobile games are all on a whole new level thanks to AI. Gaming bots provide huge amounts of fun, and one of the best examples of AI applications is virtual reality.

## **CAN MACHINES REALLY LEARN AND WHY IS THIS IMPORTANT?**

Currently, artificial intelligence is one of the most popular words, but we are not yet at the stage where we are creating artificial intelligence for all purposes. What we create are programs that have the capacity to perform highly specialized tasks. Whenever you hear that a company has introduced a new AI feature, it means that it has built a neural network using machine learning. Machine learning (ML □ Machine Learning) is nothing but a technique in which machines can learn how to perform a specific task. Machine learning is about assigning tasks. It's about letting the computer determine the most efficient way to accomplish a particular task. In terms of machine learning, computers are given data and evaluated on how they work with that data.

We use machine learning for various tasks, such as speech recognition, autonomous cars that drive themselves, trained in techniques for identifying certain objects and reacting to them. In short, a computer can learn, but it won't understand what it's doing. For now, it will simply perform the specific task for which it is trained, nothing more and nothing less (Oppenheimer et al., 2024).

## **WHAT IS THE FOURTH INDUSTRIAL REVOLUTION AND HOW IS IT RELATED TO ARTIFICIAL INTELLIGENCE?**

Artificial intelligence is often called the "fourth industrial revolution" and is expected to change our lives and our jobs in the next ten years. However, AI is by no means a new concept. Its roots can be traced back to the 1970s and 1980s, computers programmed by people with expertise to use given facts to make decisions. The difference between then and now is the one thing that makes the fourth industrial revolution possible, and that is machine learning. Computers are no longer able to accept explicit knowledge only through a series of logical steps provided by human input. Now, they have implicit knowledge, intuitive knowledge. We are already surrounded by machine learning. We can unlock a smartphone just by looking at it or touching it, we get music and video suggestions based on what we're watching or listening to, and cars are learning to drive themselves. The one thing that underlies it all is data – the vast amounts of data we produce, which are increasing by the day. It is estimated that by 2025,



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each human being will produce over 1.5 MB of data every second. It is estimated that there will be around 50 billion connected smart devices, each developed to collect, analyze and share data, data that is vital to artificial intelligence. In the same way that humans learn through experience, machine learning models must be trained on this data.

Not all of this data will have a structure and some will need serious refinements and not all will be in easily accessible sources. Data sharing offers huge opportunities, for example between government agencies, but it raises the issue of privacy and protection of customer data.

Predicting the future is the next step and comes down to patterns in data, images and sound. There are already smart street lights that monitor time, light, sound and other changes in the environment. The most important thing here is the quality of the data used. IBM recently launched an AI tool that will be used to monitor the application of AI and see how accurate it is, how correct its decisions are, whether they are biased or not. In short, we have AI models evaluating AI models (Stryker, Kavlakoglu, 2024).

All we can hope for is that the data on which these models are built is reliable and of good quality. If the data underlying these systems is wrong, we can't expect accuracy from our AI models? That's why artificial intelligence has moved into analytics – the digital future is heavily invested in making the fourth industrial revolution a success.

## ADVANCES AND DISADVANCES OF ARTIFICIAL INTELLIGENCE

The use of artificial intelligence is growing rapidly, and most industries are testing it or already using it. Given that it is about designing machines or programs that can think and make decisions, it doesn't take long to see that while there are definite advantages to using AI, there are also some disadvantages.

### Advantages

- Fewer errors – because the previously provided information is used through specific algorithms, AI can reduce errors and achieve much higher accuracy.
- Faster decision-making – AI models enable extremely fast decision-making. For example, if you consider a game of chess where an individual plays against a computer - it is almost impossible to beat the computer because it is powered by AI technology, which uses algorithms to determine the best move in the shortest time.
- Everyday applications – we use artificial intelligence whenever we use voice assistants, such as Siri, Cortana and Alexa to communicate with our computers or mobile devices.
- Emotionless – since human emotions are eliminated, computers can think logically and take the most effective course of action.
- Digital assistants – many of the most advanced organizations in the world communicate with users through digital assistants. This reduces the burden on human resources as digital assistants are available 24/7. Chatbots are a perfect example.
- Medical applications – AI is increasingly being integrated into medical applications, increasing the effectiveness of treatment and reducing the risk of misdiagnosis. AI has already begun to transform surgical robotics, with robots able to perform surgical



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procedures with much greater efficiency. AI robotics will not replace doctors or surgeons, but it can increase efficiency and ensure that doctors make correct and timely decisions

- No need for breaks – where people have to take regular breaks, machines don't. They can work 24/7 365 days without any problems.
- Risk taking – there are situations where AI robots can take the place of humans to reduce risk. For example, space exploration, bomb disposal, ocean exploration, working in nuclear facilities after accidents and many other situations where people would be at great risk.

### Disadvantages

- Artificial intelligence is expensive – software and hardware must be state-of-the-art and powerful. In addition, repair and maintenance costs should be considered.
- Unemployment – the more machines are used to perform jobs, the less people are needed and this leads to an increase in unemployment. Machines don't need breaks and can work 24/7 which is a huge benefit to industry but not to the human race. In addition, they are less error-prone than humans.
- Inability to think outside the box – where humans work, machines can only do what they are programmed to do, nothing more. They are not creative like the human mind and do not have emotions that can produce thoughts. Humans experience thoughts that lead to ideas, computers do not.
- No empathy – although machines can be far more efficient, they lack the emotions that are characteristic of teamwork and are unable to form bonds.
- Dependence on machines – people are highly dependent on machines in their daily lives and use less human thinking abilities.

There are those who argue that artificial intelligence, if it falls into the wrong hands, could destroy civilization as we know it. Right now, while there are pros and cons to what we have, there aren't any AI applications at scale that could do that kind of damage.

## HOW WILL ARTIFICIAL INTELLIGENCE AFFECT JOBS AND THE ECONOMY

Like any controversial topic, there will always be people who are for it and people who are against it. Artificial intelligence is no different. In fact, as new AI tools are introduced, the divide between the two camps will increase. Many market research analysts say that AI has the potential to bring about a number of positive changes in society, including increased productivity, improved healthcare and wider access to education. Those who work in repetitive jobs will say that artificial intelligence and robotics are a disruptive force and when it comes to the future of work, they only serve to "abolish" jobs. However, robots and AI technologies will generate many new occupations, help solve complex problems, and make our daily lives easier and more convenient (Cazzaniga et al., 2024).

The McKinsey Global Institute states in its report that at the average global level of AI adoption, absorption and progress implied by their simulation, AI has the potential to provide about \$13 trillion in additional global economic activity by 2030, or about 16% more cumulatively. GDP compared to today. This represents an additional GDP growth of 1.2% per year. In the same report, a simulation shows that



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by 2030, about 70% of companies will embrace the AI revolution and adopt at least one type of AI technology, but that less than half will fully absorb the five categories.

Forbes states that artificial intelligence has the potential to be among the most disruptive technologies in global economies (Dupuy, 2024, Bradley, 2024, Hazan et al., 2024). Forbes also states that the future of artificial intelligence brings endless possibilities and applications that will greatly simplify our lives. This will help in positively shaping the future and destiny of humanity. Bernard Marr & Co states that the transformative impact of artificial intelligence on our society will have far-reaching economic, legal, political and regulatory implications for all types of businesses and industries that we need to discuss and prepare for. Technologies powered by artificial intelligence can also help solve complex problems and make our daily lives easier and more convenient (Marr, 2024, Schwartz, 2018)-

A report by investment bank Goldman Sachs said artificial intelligence could replace the equivalent of 300 million full-time jobs, a quarter of jobs in the US and Europe, but could also mean new jobs and increased productivity. AI could increase the total annual value of goods and services produced globally by 7%. The report also predicts that two-thirds of jobs in the US and Europe are exposed to some degree of automation and artificial intelligence, and about a quarter of all jobs can be fully performed by AI (Oppenheimer et al., 2024). Researchers from the University of Pennsylvania and OpenAI found that educated workers earning up to \$80,000 a year are most likely to be affected by workforce automation. Forbes states that by 2025, according to a report by MIT and Boston University, AI will replace as many as two million production workers. A study by the McKinsey Global Institute states that by 2030, at least 14% of employees worldwide should change careers due to digitization, robotics and the advancement of artificial intelligence (Hazan et al., 2024).

## **JOBS THAT WILL BE AUTOMATED AND REPLACED BY ARTIFICIAL INTELLIGENCE**

1. Customer Service – most interactions with customers are no longer done over the phone with employees working the lines. Customer inquiries and problems are mostly repeated, so the answers to these questions do not require high emotional or social intelligence. Therefore, artificial intelligence can be used to provide automated answers to frequently asked questions (Bradley, 2024).
2. Receptionists – most companies around the world use robots at receptions. Even calls are now handled by AI. For example, AimeReception, a virtual reception software based on multimodal AI, can see, listen, understand and talk to guests and customers.
3. Accountants / bookkeepers – many companies are using automation and AI for their accounting practices. Accounting services based on artificial intelligence provide an efficient accounting system, flexibility and security. Using specific algorithms, AI will ensure that data is collected, stored and analyzed correctly. Using accounting services through artificial intelligence is significantly cheaper than paying an employee a salary to perform the same work.
4. Salespeople – Gone are the days when corporations required salespeople for advertising and retail activities. Advertising has moved to the web and social media. Built-in targeted marketing capabilities in social media allow advertisers to create customized content for different types of customers.
5. Research and analysis – the areas of research and data analytics are areas that have already implemented artificial intelligence as a method for streamlining processes. The processing



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power of modern computers enables efficient sorting, extrapolation and analysis of data. As artificial intelligence continues to improve, the need to involve humans in data analysis and research will cease.

6. Working in a warehouse (warehouse) – online sales is a constantly growing industry and there is a growing need for processes and automated systems that efficiently deliver orders to delivery trucks. Automation and artificial intelligence implemented in the warehouse allow easy access to computerized systems for locating packages and directing personnel, and artificial intelligence will in the future enable mechanized pickup and loading to increase delivery capacity.
7. Insurance – when assessing the viability of applicants for insurance, the most important job is the analysis of available data and their application within a set of formulas or structures. AI can easily complete these tasks and is constantly adapting to perform more complex tasks, which can reduce the number of underwriters a company needs.
8. Retail – self-checkout stations in stores are an example of automation in the retail sphere and are prominent in grocery stores and large retail outlets. While allowing customers to scan their own items may increase theft, the company saves more money by reducing the need for cashiers.

## WHICH JOBS WILL NOT BE REPLACED BY ARTIFICIAL INTELLIGENCE

It is widely shown that AI will create more jobs than it will replace. In addition, many employees in certain industries will breathe a sigh of relief because their calling and livelihood will not be threatened. This means that AI will not replace those who perform the work in the open labor market (Singla et al., 2024).

1. Teachers – they often represent a point of reference for many of us. Often our academic decisions are based on how inspiring a particular teacher was to us in previous years. For all these reasons, it is almost impossible that we will have a completely digital teaching experience in the future.
2. Lawyers and judges – these positions have a strong negotiation, strategy and case study component. A lot of it is based on personal experience and knowledge. It requires a certain skill set to be able to navigate complex legal systems and argue a client's defense in court. The human factor is involved when it comes to considering all aspects of the trial and making the final decision (Dupuy, 2024).
3. Directors, managers – managing teams in an organization is a matter of leadership and it is not a sum of concrete behaviors that can be written down in code and processed in a linear way. The CEO is also the person responsible for sharing the company's mission and values. Investors are unlikely to ever feel comfortable investing in a company run by robots or algorithms.
4. HR Managers – although AI is helping the recruitment process to make CV screening, recruitment and selection much easier and faster, HR managers still cover a number of very important tasks in an organization. Recruiting new professionals is only part of their prerogatives. They are also a key position in the organization to maintain employee motivation, detect early signs of dissatisfaction and manage them if possible.



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5. Psychologists and psychiatrists – mental health is a very delicate subject and human contact is necessary when it comes to supporting people to succeed in life in all aspects that this may entail. Although many facial recognition technologies are currently in use, the application of AI in this domain is not yet at a level that provides customer interaction and professional assistance.
6. Surgeons – it is certain that AI technology has seriously increased the accuracy with which diseases can be diagnosed and detected today. Microrobotics also improves surgeons' precision in operations, enabling less invasive procedures. But being a surgeon requires the ability to connect with a patient on many different levels, taking into account a large number of factors at once. Experience, knowledge and skills acquired over the years are factors that must be summarized in a few minutes during the operation.
7. Analysts of computer systems – regardless of the degree of automation that will be realized in the future, there will always be a need for the presence of a human who can lead work on maintenance, updating, improvement, corrections and adjustments of complex software and hardware systems that often require coordination more experts to work properly. Reviewing system capabilities, controlling workflow and scheduling improvements, and increasing automation is just part of the job of a computer systems analyst, a profession that has been in high demand in recent years.
8. Artists and Writers – writing is an extremely imaginative art, and the ability to put a certain choice of words in the right order is definitely a challenging endeavor. So, even if artificial intelligence technically had the capacity to absorb the contents of most books in the world in any language and devise a personal style of communication, the magic and excitement of creating with words is something that will endure for years to come.

## CONCLUSION

The crucial influence of digitization and automation on the functioning of all social subsystems is indisputable, and the value of technology can only be defined by its application in the social context in which it appears. Technology is developing at an unprecedented rate, and automation and artificial intelligence are changing the way we work and we are starting to see significant impacts across industries. While certain job roles are at risk of being automated, others are evolving to include the use of artificial intelligence. The recent launch of the American artificial intelligence company OpenAI's intelligent chatbot ChatGPT, with exceptional capabilities in text processing and human-computer interaction, has again raised global concerns about its potential impact on employment in related industries. As the use of artificial intelligence grows, it is essential that we take a proactive approach to ensure that the benefits of artificial intelligence are balanced with the needs of employees and society as a whole. We need to ensure that we are ready to adapt to changes in the labor market and acquire new skills to thrive in the digital age.

Moreover, it is crucial to address the potential loss of jobs due to automation. We need to develop strategies that support employees who are at risk of losing their jobs and provide them with access to training and education to acquire the skills needed for new jobs. Despite the challenges, the integration of AI into work roles has the potential to drive innovation, increase efficiency and improve the quality of our lives. By using the potential of artificial intelligence, new opportunities for employment can be created, economic growth can be stimulated and significant steps can be taken in solving some of the





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world's most urgent challenges. In this way, a future can be created where AI and humans can seamlessly coexist to achieve common goals and drive progress.

## REFERENCE

- Acemoglu, D., Restrepo, P. (2019). The wrong kind of AI? Artificial intelligence and the future of labour demand. *Cambridge Journal of Regions, Economy and Society*, 13(1), pp. 25-35.
- Bradley, T. (2024). How AI Is Revolutionizing Customer Experience. *Forbes*. Available at: <https://www.forbes.com/sites/tonybradley/2024/10/11/how-ai-is-revolutionizing-customer-experience/?ss=ai>. Accessed: 11.10.2024.
- Cazzaniga, M., Jaumotte, F., Li, L., Melina, G., Panton, A., Pizzinelli, C., Rockall, E., Tavares, M. (2024). Gen-AI: Artificial Intelligence and the Future of Work. International Monetary Fund, Washington DC.
- Dupuy, J. (2024). Will AI Replace Lawyers? OpenAI's o1 And The Evolving Legal Landscape. *Forbes*. Available at: <https://www.forbes.com/sites/joshuadupuy/2024/10/16/will-ai-replace-lawyers-openai-o1-and-the-evolving-legal-landscape/?ss=ai>. Accessed 16.10.2024.
- Hazan, E., Madgavkar, A., Chui, M., Smit, S., Maor, D. (2024). McKinsey Global Institute, New York.
- Marr, B. (2024). Generative AI And The Future Of Jobs. Available at: <https://bernardmarr.com/generative-ai-and-the-future-of-jobs/>. Accessed: 10.10.2024.
- Oppenheimer, P., Jaisson, G., Bell, S., Peytavin, L. (2024). AI: To buy, or not to buy, that is the question. Global strategy paper no. 70. Goldman Sachs, New York.
- Schwartz, P. (2018). How will Ai change the future of work. PwC, London. Available at: <https://www.pwc.com/gx/en/issues/artificial-intelligence/future-of-work.html>. Accessed: 10.10.2024.
- Singla, A., Sukharevsky, A., Yee, L., Chui, M. (2024). The state of AI in early 2024: Gen AI adoption spikes and starts to generate value. Mckinsey, New York.
- Stryker, C., Kavlakoglu, E. (2024). What is artificial intelligence (AI)? Available at: <https://www.ibm.com/topics/artificial-intelligence>. Accessed:11.10.2024.



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# LOAN CONTRACT (ROMAN MUTUUM) – LEGAL RULES PRE AND AFTER THE SERBIAN CIVIL CODE FROM 1844. AND THE CRIMINAL CODE FROM 1929.

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DOI: 10.5937/EEE24082J  
JEL: K00, K12, K14, K15, N01  
Review Scientific Paper

### ABSTRACT

*If we understand that every business requires money that would be further invested in the necessary equipment in order to develop it, the question arises: what should be done in case the entrepreneur lacks certain means to achieve the intended goal? One of the possible solutions is a loan, regardless of whether it is in the form of a bank loan or a loan from a "friend". The impression that loans have been present in civilized society since ancient times is justified - business transactions and the development of trade have existed "as long as the world and centuries", and thus a loan as a legal action undertaken with the aim of maintaining transactions or raising the activity to another stronger and more intensive one level, which brings with it the question of responsibility for non-fulfillment of the contract. The authors in this article deal with the loan, more specifically the loan contract, as one of the drivers of today's business through the prism of legal rules from ancient times to the present day, as well as the issue of responsibility for it, defending the acquired position that the loan agreement is one of the basic contracts when it comes to about the economy, business and entrepreneurial spirit.*

### KEYWORDS

*loan contract, Roman law, legal rules, code, usury*

## INTRODUCTION

"Economy as a historical legacy to the society and its integral part, has always adapted to its changes and needs, while finding ways to expand, supplement, resist or survive every challenge of humanity." It is indisputable that the economy is sometimes (justifiably or unjustifiably) equated with trade and mentionable, contractual obligations lie at the base of every economy and business" (Jovanovic, Atanasovska Cvetkovic, 2023). Since the earliest times, people have undertaken business ventures, bartered and exchanged goods in order to enable better earnings, and thus a better position in society. Therefore, behind every undertaking lay some motive (e.g. monetary), i.e. the basic driver that represented (and still represents) a specific process within each person with the aim of achieving certain results based on the undertaking of various activities (Gavric, Cukanovic Karavidic, Pesic, 2020). In

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order for the results to move in the positive part of the life chart, an indispensable part is the use of other people's things. Perhaps it is quite enough to use a simple example to state the importance of using other people's things both then and now: during wine production, the producer wants to expand his capacity, so he is not able to buy the vessels in which the wine is stored, and for this purpose he takes a loan with the obligation to return the money over a certain period of time. In this example, loaned money means using someone else's property, that is, money.

The purpose of the loan contract: the lender hands the borrower a certain amount of money, and the borrower has an obligation to return the same amount. There is another important connotation in this part: the borrower does not have the necessary funds, the borrower is a member of the poorer stratum of society. From here, it is an inevitable conclusion that the loan contract and the use of other people's things follow the sales contract (as the most important) in terms of their importance, as well as the fact that the loan contract exists "as long as the world and the century". In order to get a complete picture of the evolutionary development of the legal rules that are dedicated to the loan contract, it is necessary to go back in time, and then, step by step, look at those same legal rules in the historical context in order to understand why the loan contract is still significant today.

## METHODS AND OBJECTIVES

The methods which are used in order to emphasize the purpose of this article - legal rules on the loan contract through human civilizational achievements are: historical-legal method, sociological method, method of analysis, comparison and definition, as well as comparative legal method. The historical-legal method was used in order to present normative solutions from the earliest times, while attention was paid to the Code of Hammurabi, as the most significant normative act of the ancient times. Through analysis and definition, we will understand what legal rules on the loan contract were current in Sparta and Athens, as two antipodean states in ancient Greece.

The same method will be used in order to present the Roman legal rules in the context of sociological events in that historical period in order to understand that Roman law is the basis of today's loan contract. The Byzantine Laws, Prochiron, Eclogue and Syntagma of Matija Vlastar are an indispensable part of this work in order to continue the tradition of the loan contract and its regulation through the laws valid for the Middle Ages. In the same context, with the method of analysis, attention will also be paid to the Salian Law, part of the barbarian laws, valid for the Salian Franks who lived on the territory of the medieval Frankish state.

The analysis of this law aims to present the legal life of the loan contract in the territory of the western part of the Roman Empire after the complete stumbles and setbacks experienced during its total collapse. Given that the loan contract is legally regulated by the rules of the obligations, it is necessary to analyze and compare the Serbian Civil Code from 1844 and its rules, especially for the reason of the significance of this New Century codification for the territories of the those days Serbia and the Kingdom of Serbs, Croats and Slovenians and the direct influence of the Roman rules on the legal determination of the loan issue. It is also important to analyze the fault, that is, the responsibility of the contractor in Serbian Criminal code form 1929 and contemporary Criminal code. The analysis was carried out in order to confirm the position that today's loan contract finds its basis in Roman legal rules and the necessity of protecting the contractor.



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# RESULTS

Throughout each historical stage, we notice the existence of loan contract. It is concluded that its existence in society, at least in the context of segmented forms, is more than visible. The necessity of normative regulation of the loan is confirmed by the need for the existence of legal rules and legal norms of the past and present, which confirms the goal of this paper. The development of society and civilization, inclusion in the then valid rules indicate indisputable importance not only in the legal and economic context as a social phenomenon, which again illustrates the goal of the work. The result is indisputable – it is the second most important contract (right after the sales contract) in every civilized society.

## LOAN CONTRACT BEFORE THE SERBIAN CIVIL CODE FROM 1844.

Perhaps one of the most interesting parts of the article is precisely the fact that this segment analyzes the oldest legal rules dedicated to the loan contract and its historical and evolutionary path as well as its roots. The oldest loan segments are found in clan societies, that is, in common pastures in a situation when someone lacked suitable tools for work as things for personal use. In this case, we cannot speak of a legal regulation, but of a customary right within the tribe for the purpose of survival, to lend someone a specific tool for work (this can also refer to hunting weapons). We find the oldest written traces related to the loan in the first formed state in history: Eastern despotism and ancient states that mark the old century and its law.

Let's go sequentially - the first eastern despotism in which we find the first traces of loan contract is Egypt. This despotism left us no written evidence from Egyptian law, but non-legal sources such as Herodotus' History confirm its law presence of that time (Nikolic, 2011). Characteristics of than Egyptian law of obligations were: slow development, strict formalism and orality, so we can come to the conclusion that the loan contract was an oral deal accompanied by religious rituals (Atanasovska Cvetkovic, 2023). Mesopotamia, on the other hand, leaves written traces of legal regulations for today's civilization. The most significant, the Code of Hammurabi, written in cuneiform script in the Akkadian language, found on Iranian soil (Kandic, 1988), contains norms specifically dedicated to the loan. Those articles are tenth in number: 48-52. The key legal wordings that indicate a loan are: if someone owes a debt with interest – Art. 48; if someone borrows money from the merchant and reaps the merchant's harvest prepared for grain or sesame – Art. 49; ... the money will be returned to the merchant with interest – Art. 50; ...for the value of the money and interest received from the merchant... – Art. 51; ... the contract does not become void – Art. 52. There was also Article 88 from the same code that specifically referred to loans with interest (Apasiev, 2017).

The norm of the loan set in this way also dictates compensation for the used money (silver) - the rule of interest, i.e. interest, is imposed. The payment of interest was also required, but it could be paid with any good (grain or sesame), and the Code of Hammurabi limited the interest rate to 33.3% for a grain loan and 20% for a cash loan (Atanasovska, 2015). From here, it is indisputable that Babylon was no stranger to bankers (damkars), loans and interest and those loans were often used. One gets the impression that the debtor has been protected since oldest times, and the legislator (law giver) limited interest rates and unquestionably tried to eradicate usury. The regulations, several in number, confirm this position, and we single out article 48. " If any one owe a debt for a loan, and a storm prostrates the grain, or the harvest fail, or the grain does not grow for lack of water; in that



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year he need not give his creditor any grain, he washes his debt-tablet in water and pays no rent for this year " (Nikolić, Đorđević, 2002).

On European soil, we pay our attention to Sparta and Athens, two ancient states, completely different states in their intensity and organization, but also in the sociological characteristics of the people. It is indisputable that we look at Sparta through the prism of a warrior state, where wars were priority, so the loan necessity, as a contractual relationship, we can state that it did not even exist, considering that the obligations was omitted from the law of the same city-state. However, whether the loan existed or not, in some form, in terms of the loan of weapons used in the war, we can only speculate (Gilbart, 1847).

In Athenian law, we have a completely different situation regarding the loan: it is present in Athenian society with quite often usage. The loan had two forms - an interest-free loan (friendly loan), *eranos*, and a loan with interest, *hreos*. When we talk about a loan with interest (*tokos*), we indicate that the interest rate was not limited as in the age of Hammurabi, but it ranged from 1% per month to 25% on a daily basis, for high risk loans, such as, for example, maritimes loans, but that did not mean that usurious did not exist and also interest was paid on interest. It is indisputable that there were no bankers (trapezites) in the Athenian society at that time (Avramović, 2000).

Grandiose Rome, from a small city state to the most powerful and territorially large empire, was created as a result of great raids and wars of conquest (Jovanović, Atanasovska Cvetković, 2022). Great and powerful Rome, as confirmed by many historians and novelists, left a great legacy to human civilization (Atanasovska Cvetkovic, Jovanovic, 2022). Without a doubt, one of the greatest benefits of today, which was inherited from Rome, is law (Atanasovska Cvetković, 2021) and to a large extent, clearly defined and elaborated legal institutes, although for the ancient Romans defining terms was very unusual act. It is an indisputable fact that the Romans, in their characteristic manner of strongly developed legal awareness and logic (Jovanovic, Atanasovska Cvetkovic, 2022), did not hesitate at all to give their understandings, legal development and legal rules related to the loan contract. The sources we use to confirm the presence of a loan contract are the Law of XII Tables and, of course, the Digests, which are an integral part of Justinian's great codification *Corpus Juris civilis*.

From the earliest times, the loan existed in two forms: a loan in times of need (*mutuum*) and a loan with interest (*fenus*). The first, *mutuum*, was considered interest-free, concluded with a friend, in an informal way, while *fenus* was always concluded in the form of *nexum*. The basis of an interest-free loan is help, solidarity or simply to encounter the needs of a friend or relative. What granted the return of the loan was honor, honesty, good faith (Kurtović, 2015). As the old form of *nexum* left Roman law, *mutuum* first received its protection - *condictio* (procedural means), and then its place as a real contract (a type of contract) known to Roman law. The linguistic coin *mutuum* in the Latin language finds its basis in the two words: mine (*meum*) and yours (*tuum*), so in the figurative sense of those words, mine becomes yours, lies in the meaning of this term (Gai, 3, 90).

Hence, with this contract, things in the debtor's possession were handed over with the right of freely dispose of them. In Roman law, *mutuum* is defined as: a free *strict iuris* contract by which one party (lender, creditor) hands over to another (borrower, debtor) a certain amount of money or other exchangeable things, with the obligation that the borrower returns to the lender an equal amount of things of the same kind and quality (Romac, 1983). The contract is concluded at the moment when the subject of the contract is handed over to the debtor (Berger, 1968). The lender and the borrower, who had both the function of creditor and debtor, had the possibility to contract a loan only with things that could be determined by weight, measure, number. This meant that all replaceable and consumable things such as money, silver, gold, wine, grain were the subject of this significant contract (Gai, 3, 90). The lender from this contractual relationship had one right - the right to demand the return of the loan. The borrower had one obligation - to return things of the same type, quantity and quality within the specified



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period. This means that one right and one obligation was created for both contracting parties, so the lender could not demand more than what he gave for the loan. A *mutuum* concluded in this way, as a legal transaction, did not give the right to interest, and in order for interest to exist, it was necessary to conclude a special contract (*stipulation usuarum*) (Romac, 1983).

In the Roman era, the interest rate was from 6% to 12%, so that, in the end, Justinian prescribed a regular interest rate of 6% (Atanasovska Cvetkovic, 2023). The effect of the *mutuum* ended at the moment when the object was returned to the lender. If the contractual relationship was not respected, in the hands of the contracting parties were *condictio create creditae pecuniae* (if it was a loan in money) and *condictio cretae rei* (if it was about things given on loan) (Gai, 4, 50 - 51; D.12, 1).

With the development of the Roman state, the development of trade and shipping a special form of loan emerged: maritime loan (*pecunia traiecticia, fenus nauticium*). In case of a maritime loan, taken from Greek maritime customs, with a meaning of an insurance, creditors gave ship owners (ship captains, debtors) a certain amount of money in order to purchase goods and transport due to the lack of security and possible attacks by pirate ships or possible shipwrecks. All the assumed risk belonged to the lender, so it is not in dispute that the high interest rate contract was allowed by a simple pact (D. 22, 2, 7). Based on the risky business, ship captains were not obliged to return the loan and interest if the goods transported by sea perished without fault - simply, the legal business did not even exist (Vladetić, Stanković, 2014).

The entire Roman Empire, its economy, trade, the entire social life, and above all, the period of constant decadence, the appearance of feudal elements, the division of the Empire into the eastern and western (*pars Orientis* and *pars Occidentis*) parts and the final the fall of the western part in 476 AD were faced challenges (Boras, Margetić, 1980). The eastern part of the Roman Empire (later known as Byzantium) marked the beginning of the life as a part of the empire territory that continued the life of the Roman legal system – the Roman law, i.e. legal tradition. Even Byzantium was not without turbulent periods, divisions, falls, crises, the rule of different dynasties, but it was the result of the fusion of Hellenistic culture and Christian religion with the Roman state form (Ostrogorski, 2017) with a new capital – New Rome (*Nea Romea*), Constantinople.

As much as Byzantium had a life of a whole millennium, it ended ingloriously with the terminal fall of Constantinople under the Turks-Ottomans in 1453. It seems that this kind of introduction is more than necessary precisely because Roman law contributes to the creation of Byzantine medieval law, and law developed with the exceptional legislative and codification work of the emperors, and with the contribution of the church. By itself, the question arises: what happened to the loan contract during that period?

The answer is more than obvious – of course it existed in society, but the valid rules now we are searching in the *Eclogae (Ecloga ton nomon)* and *Prochiron (Procherios nomos)*, laws passed in the first and second periods of promulgating important laws and codifications for the soil of Byzantium. In the *Eclogae* (legal compendium adopted during the reign of Leo III of Isauria, 726) Title X is dedicated to the loan contract, so from Article 1 we learn that even then the loan was given on the basis of a verbal contract or a receipt, and the contractual subject was money or silver, but also "value of land or of water", that is, things that can be measured and counted, as it was set back in the Roman era.

The existence of a maritime loan, as well as an ordinary loan, can be observed, as there was no possibility to postpone the repayment of the debt to the debtor (borrower) due to "enemy attack or pirate raid or any other event" and the *vis maior* institute was not applicable. In the same direction, the borrower did not have the right to waive the return (Momčilović, 2018). Interest is not mentioned, but given Justinian's code, it is not unusual to conclude that the code's interest rate rules apply. The lender had the right to admonish the debtor for the obligation to pay the debt, in the presence of witnesses, but if he still did



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not want to fulfill the obligation after two or three warnings, the lender could proceed with the sale of the pledged items, after assessment by the state authorities, which would everything that was owed to him was settled (Article 2) (Nikolić, 2007). The obligation that belonged to him (the lender) was to keep the object of the pledge and it had to be kept with the same care that he pays to his belongings, but this obligation was not taken into account in situations where an accident was a fact for the destruction of things and that only if the court so decides (Article 1, Title X, Eclogue). From this, Roman law was further incorporated into the "new law of the Byzantine era". Prochiron or also known as the "City Law", enacted during the Macedonian dynasty, issued between 870 and 879, dedicates Chapter XIV to loans under the title Loans and Security.

By diligent reading, we notice that to a large extent Roman law still lives in this law of Byzantium, which directly affects the legislation of medieval Serbia [Atanasovska Cvetković, 2023, pp. 135]. In accordance with this law, the lender and the borrower may continue to lend or borrow things such as money, gold, movable things that can be measured, counted or weighed. If a person denied that he had signed something with his own hand or that he had received money, then the penalty would be double, but if he confessed then that same penalty would be the payment of costs (Article 12, Chapter XIV) (Freshfield, 1928). As for interest, it was forbidden because it was not in the spirit of the age - it was unworthy of a Christian state and forbidden by divine law. A universal prohibition aimed at all loans, and if someone pays interest after the publication of the act, the interest was considered repayment of the principal debt (Article 14, Chapter XIV) (Freshfield, 1928).

Of course, the third period of Byzantium's legislation is also worth mentioning, from which we single out the Syntagma of Matthias Vlastar, in which both loan and interest are mentioned, where the rule of Roman law is emphasized - interest cannot grow beyond the amount of the principal, anatocism is forbidden, i.e. taking the "interest on interest" was under a prohibition with the threat of deprivation of civil honor to the one who did it. This confirms the rule based on Roman law. In the segmented part, Justinian's rules on the interest rate can be determined, which further shows that Roman law still lives on (Serbian Academy of Sciences and Arts, 2013).

On the other side of Europe, after the collapse of the Western Roman Empire, small states of the feudal type sprung up on - the first medieval states with their own characteristics: strong rulers, binding of peasants to the land and strong influence of the church. In order to determine whether there is even a loan contract in the western part of the former Roman Empire, as a suitable example, and for the purpose of this article, we accept the Salian Law that was valid for the Salian Franks, part of the tribe of the Franks, who lived in the Frankish state. Barbarian laws (such as the Salian Law) and collections of Roman law, which were valid for members of the Frankish territory with Gallo-Roman origins, also met in that territory.

And in this Varavar law there are provisions devoted to loans (titulus LII) – On things given on loan or in service. Despite the fact that it was a collection of common law, the loan remains universally present in the society and legal system of that time, and things were lent with the obligation to return. If the borrower did not have the intention to return them (by measure, number, weight), then he had to answer in front of the court with a suitable summons made in front of witnesses and within a certain period, that is, seven nights plus another sunset. For this period, the debt grew by 120 dinars, or 3 solidi. And again, if the repayment of the debt was problematic, another deadline was given again. In the end, the debtor had to pay the creditor 600 dinars, or 15 solidi. In this case, we see that there is some form of today's legal interest, and thus, to a large extent, Roman law introduced a legal customary character, which meant the continued life of the loan contract (Kandić, 1988).



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# LOAN CONTRACT IN THE SERBIAN CIVIL CODE FROM 1844.

The new century brings new understandings of human rights, and civilization was presented with codifications - a comprehensive way of systematizing concrete legal matter on the entire territory of the state. Pioneers in the codification of the entire civil law are the French (Code civile), and after them, on European soil, Austria, the Netherlands, Germany, and Switzerland promulgate their codifications. Of course, Serbia too. After the historical vicissitudes and turmoil regarding the adoption of the Serbian codification, the Serbian Civil Code (hereinafter: SCC) saw the light of day in 1844. This code is important to us, not only from a legal - historical aspect, but also from the aspect of modern law - in the absence of suitable legal solutions, we still use its legal norm today (for example, a gift contract), which confirms that it is still in force – there is no act abolishing SCC.

Chapter XXI and articles 593 – 608 are of particular interest – they are legal solutions related to loan contracts. The first impression is that the reception of Roman law exists in the part of defining the contract itself, the subject of the contract and the repayment of the loan. The Roman *mutuum* is still alive and now a loan is such a contract "by which consumable things are given to whom, so that he is free to use, spend and dispose of them according to his will, but in due time he is obliged to return things of the same kind and value" [art. 593, SCC] Even in the era of the Serbs, Croats and Slovenians, it was necessary that the thing (subject of the contract) can be consumable, but also the money still are the subject in contract [Art. 954], with the meaning of the possibility to return the same – same number and gender. The Roman rule still remains – the thing given on the basis of a loan contract is transferred with the right to either spend it or dispose of it in accordance with needs or wishes.

The division of the loan into interest-bearing and interest-free (loan in distress, friendly loan) still remains current [Art. 594 SCC], but this time infiltrated in society and in the legal contracting of the then Kingdom of SCS, with the possibility for the contracting parties to determine whether the loan contract will be concluded in writing or orally [Art. 595, SCC]. SCC distinguishes between secured loans (pledge and surety) and unsecured loans [Art. 594 SCC]. It is an interesting fact that for a loan given in money, the same repayment, the same type and the same amount are required. The Roman rules are also reflected in the interest rate – Justinian's 6% (if the interest is contracted, but not the rate) and 12% as the maximum interest rate [Art. 601, 601a, 602 SCC]. Anatocism was forbidden [Art. 603, 604a, SCC]. From here, the Roman rights and obligations belonging to the contracting parties are confirmed - to hand over the contracting subject in ownership and to return the same (regardless of whether it is precious materials, money or movable things) after the expiration of the time. If the contract stipulates that there is no deadline for returning the subject given by the loan, in such a case the legislator (law giver) stipulates a rule that the lender can demand the return at any time [Art. 606, SCC]. From here, there is an inevitable statement about the reception of Roman law and its rules in the SGZ, no matter how much the prevailing opinion is that our codification from that period of history is just a simple copy (translation), i.e. a shortened version of the Austrian Civil Code (Avramović, 2014).

## LOAN AGREEMENT AFTER THE SERBIAN CIVIL CODE

The modern loan contract is regulated by the legal provisions of the positive law of the Republic of Serbia, more specifically by the Law on Obligations ("Official Gazette of the SFRY", no. 29/78, 39/85,





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45/89 - decision of the Court of Justice and 57/89, "Official list SRJ", No. 31/93, "Official Gazette of SCG", No. 1/2003 – Constitutional Charter and "Official Gazette of RS", No. 18/2020). Based on the definition, the loan contract is defined by the legal provision as follows: "The loan contract obliges the lender to hand over to the borrower a certain amount of money or some other exchangeable things, and the borrower undertakes to return the same amount of money to him after a certain time, that is, the same quantity of things of the same kind and of the same quality" [Article 557, Law on Obligations], to a large extent confirms the position that the foundation of the modern contract is found in the Roman *mutuum*. Therefore, even today, the rules of Roman law remain in force: quantity, type and quality (Roman genus, measure, number, weight), money, things of a fungible nature, the deadline for return. Henceforth, a valid contract is any loan contract where the contracting parties have agreed on the essential elements.

Considering that even today there is an encumbrance loan and a charitable loan, there are the following variants of it: if the interest is agreed upon, then it is a burdensome loan contract, and if it is absent from the contractual relationship, then the loan agreement has a charitable character (Ognjanović, 2010). Another confirmation of the reception of the Roman rules - interest and interest or interest-free loan agreement. The modern Law on Obligations and Article 558 is proof of this attitude. Time period of returning the contractual subject do not belong to the essential elements, only if the contracting parties do not specify a specific deadline in the contract – the subject will be handed over and the borrower to return it. As far as rights and obligations are concerned, the lender's obligations are reduced to handing over a certain thing at the agreed time, i.e. when requested by the borrower in situations where the deadline for handing over is not predetermined [Art. 559, para. 1, Law on Obligations]. As far as the borrower's rights are concerned, he can demand that certain things that belong to him be handed over to him with the risk of statute of limitations - the right expires in three months from the arrival of the lender in arrears [Art. 559, para. 2, Law on Obligations]. It can be said that even today, in this segment, there are overlaps with the rules from the Roman era.

## **GUILT OF CONTRACTING PARTIES AND USURY BEFORE THE CRIMINAL CODE OF 1929.**

The legal issue of the loan contract of permanent importance, entails the need for legal regulation of contractual relationship between the contracting parties and their protection due to non-fulfillment of obligations. For this reason, it is necessary to analyze the solutions from the past and look at the evolution of these rules with the aim of understanding the meaning they have today. Since there have been contracts, and that means since ancient times, there have been rules for violating contractual discipline, which are being transformed, expanded and still exist today. Even in the oldest period of Roman law, the debtor/borrower was liable for non-fulfillment or delay in repaying the loan. In that period, guilt was not important as a responsibility for breach of contract because the responsibility lay in the principle that the debtor is bound by the words he uttered when concluding the contract. In classical Roman law, this responsibility grows into subjective responsibility. Only the General Civil Code of Austria from 1811 foresees compensation for damages in case of liability for non-fulfillment of contractual obligations. Historically, the debtor was liable regardless of the existence or non-existence of fault for non-fulfillment of the contract up to fault as a presumption of contractual obligation.

In order for the legal transaction to constitute a loan contract, it is essential that the lender, which is not a bank, does not engage in money lending as its main activity, because otherwise such an agreement



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would have the legal nature of a loan contract. The loan contract carries with it a possible double responsibility – of the lender: contracting a disproportionate property benefit or responsibility for usurpation, and the borrower's responsibility for non-fulfillment of obligations or late payment. It is always in the interest of the borrower to borrow money for the purpose of achieving the goal and the planned business. Does the lender have an interest or just a desire to help the borrower? In contrast to Code of Hammurabi, which in Article 88 foresees a loan with interest, today interest is permitted to authorized institutions (banks) and not to natural persons. The lender's interest is often the realization of an individual's profit, so the loan contract itself often "turns into a usurious contract", and usurious turns into a criminal offense recognized by all legislations. The intention to eradicate usurious dates back to the Babylonian era.

Although Athens has legal rules about *eranos*, *hreos* and *tokos*, usurious is not absent from the practice of that era. The same was partially suppressed by the provision of maritime loan in Roman law and Byzantium. Unlike the Salian Law, the legal rules of Prochiron, the law of Byzantium, prohibited interest on loans.

Usurious, a criminal offense whose fate has changed throughout history, given that it was punishable in the Middle Ages under the influence of the church, in free-spirited epochs it was sought to be defined as a criminal offense. This kind of request was brought under the mixing of the concept of sin and immoral act under the concept of criminal act. Supporters of strictly formal jurisprudence, in accordance with the Roman formula "*coactus voluit*", believed that the criminal law should not contain norms on punishment due to the non-fulfillment of a contract concluded in any difficult situation for the reason that the conclusion of the contract is voluntary, and that therefore the contract is a usurious proper contract. Legislators, law givers of the new era took the position that embezzlement must be punishable and that the state must not tolerate immoral contracts. The voluntariness invoked by the supporters of formal jurisprudence according to the attitudes of the new age is not justified due to its appearance due to the impossibility of a free choice between green conditions and severe suffering for oneself or one's family

The issue of punishment in the new age arises in the case of conscious exploitation of underdevelopment or economic weakness and necessity and in the case of taking too high interest. The position is taken that the justified basis for punishing greening is excessive self-interest.

## THE CRIMINAL CODE OF THE KINGDOM OF SERBS, CROATS AND SLOVENIANS FROM 1929.

The Criminal Code of the Kingdom of Serbs, Croats and Slovenians (hereinafter CC KSCS) from 1929 in the section Usury provides for: fines and loss of honor rights for contracting excessive property benefits using frivolity, insufficient understanding or difficult financial situation of the other contractor (Art. 357 CC KSCS) and punishing the contractor who maliciously damaged or jeopardized the credit of another with strict imprisonment and a fine (Art. 361 CC KSCS). Within the section of the code: damage to other people's things and property interest in article 378 and 379, the responsibility of public lenders is provided.

The crime of usury consists in the premeditated exploitation of the difficult financial situation of the other contractor, connected with the conclusion of the contract, which brings the perpetrator or another person an excessive financial benefit. With this CC KSCS, exploiting a difficult financial situation is equated with exploiting a difficult financial situation or the contractor's delusion about the importance, essence and consequences of the concluded contract. Excessive property benefit is decided by the court in each specific case. The definition of usury in Article 357 includes, in addition to the loan contract, the



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most common usury-related contracts, other contracts of a property nature are also included. By anticipating insufficient understanding of the nature and consequences of concluding a contract, both adults and minors are protected.

The existence of awareness of the condition of the contractor and the acquisition by transfer of any claim, which by its very nature is usurious, leads to responsibility for both subjective and objective moments of usury. In practice, moneylenders often even seemingly transfer the claim to another person, and the legislator, law giver in Article 358 sanctions this criminal offense with the same penalty as for usury and also provides for the sanctioning of an attempted offense. In the next article, the law giver lists two qualified types of usury: the intention to cause economic ruin to the other contractor and the performance of an act in the form of a trade.

Unlike the CC KSCS from 1929, which uses the term usury, the current Criminal Code of the Republic of Serbia uses the term usury. The existing legal definition of the criminal offense of embezzlement, a property crime (Jovanović, 2022) foresees a prison sentence and a fine for the one who, for lending money or other consumable items to someone, receives or promises a disproportionate material benefit for himself or another, taking advantage of the poor financial situation, difficult circumstances, necessity, frivolity or lack of judgment of the injured party [Art. 217 CC RS]. Comparing the existing legal solution with the CC KSCS, we see almost identical (with additions in the new solution) these two regulations in determining usury (usury). The analysis of the loan contract and usurious in the period before the adoption of CC KSCS confirms the basics of usurious in the legal rules of that time.

## CONCLUSION

Even today, this contract has the qualification of the most used contract in trade, economy, entrepreneurship and regular legal life. The legal rules presented in this way, from ancient times to modern times, indicate and confirm its importance in every period of the historical development of civilization. In a large segment, the legal rules were set in the Roman period on the loan contract and correspond and coincide with the provisions included in the SCC and CC and with the legal solutions of the positive law of the Republic of Serbia. The only thing that changes and depends from period to period of history is interest and the interest rate, and in one period of Byzantine law, the interest rate did not even exist, because it was in total contrast with the understanding of Christian character and the determination of usury as an illegal act.

Due to its complexity and importance, the issue of the loan contract is interdisciplinary, it is regulated by the legal rules of the Civil Code, the Law on Obligations and the Criminal Code, which are based on Roman law. What is perhaps more than certain - the loan contract is necessary in everyday business, and it is expected to retain its primacy in the future.

## REFERENCES

Avramović, S., (2000) Opšta pravna istorija – Stari i Srednji vek. Pravni fakultet Univerziteta u Beogradu – Centar za publikacije i Dosije.

Avramović, S., (2014) Srpski građanski zakonik (1844) i pravni transplanti – kopija austrijskog uzora ili više od toga? U: Srpski građanski zakonik – 170 godina, pp. 13-45. Pravni fakultet Univerziteta u Beogradu.



## Conference Proceedings

- Apasiev, D. (2017). Antički pravni spomenici. Hrestomatija. Magna Carta, Skopje.
- Atanasovska, A. (2015). Istoriski razvoj na potrošački kredit i kamata. Godišen zbornik, Praven fakultet, Univerzitet "Goce Delečev", Štip, 5(5), 33 – 46.
- Atanasovska Cvetković, A. (2021) Rimski emptio venditio (dogovro za kupodražba) vo francuskiot Code civile od 1804 godina. Godišen zbornik, Praven fakultet, Univerzitet "Goce Delčev" Štip, 11, 31-40.
- Atanasovska Cvetković, A., Jovanović A., (2022) Nasledovanjeto i nasedovanjeto na vinoto vo rimskoto pravo. Godišen zbornik, Praven fakultet, Univerzitet "Goce Delčev" Štip, 12, 25-32.
- Atanasovska Cvetković, A., (2023) Istorija države i prava. Visoka škola za poslovnu ekonomiju i preduzetništvo, Beograd.
- Berger, A. (1968). Encyclopedic Dictionary of Roman Law. The American Philosophical Society, Philadelphia.
- Boras, M., Margetić, L. (1980). Rimsko pravo. Pravni fakultet Sveučilišta Zagreb.
- Freshfield, E. H. (1928). A manual of eastern Roman law. The Procheiros Nomos published by te Imperor Basil I, Cambridge.
- Gavrić, G., Čukanović Karavidić, M., Pešić D. (2020). Employee motivation and cultural influence. International Review, 1-2, 82-87.
- Gilbart, W., J. (1874). Lectures of the history and principles of ancient commerce. Wentworth Press, London.
- Institucije/Gaj (1982). Basta, D., Stanojević O., Simonović, S. (urednici). Nolit, Beograd.
- Jovanović, A., Atanasovska Cvetković, A. (2022). Krivičnopravna zaštita zarobljenika i njihov položaj kroz istoriju. Civitas, 12(2), 268-287.
- Jovanović, A., (2022). Krivično pravo. Visoka škola za poslovnu ekonomiju i preduzetništvo, Beograd.
- Jovanovic, A., Atanasovska Cvetkovic, A. (2022). Wine as an agricultural and food product: a historical and legal approach. Ekonomika poljoprivrede, 69(2), 517-532.
- Jovanovic, A., Atanasovska Cvetkovic A. (2023). Is the roman societias (contract of partnership) still alive today? 12th International Scientific Conference "Employment, Education and Entrepreneurship", Proceedings, pp. 372-381.
- Kandić. Lj. (1988). Odabrani izvori iz opšte istorije države i prava. Savremena administracija, Beograd.
- Kurtović, R. (2015). Rimski mutuuum i savremeni koncept ugovora o zajmu. Ekonomski izazovi, 4(7), 135 – 144.
- Momčilović, M. (2018). Zajam i kamate u vizantijskim pravnim izvorima. Pravni horizonti, 1(1), 101-112.
- Nikolić, D., Đorđević, A. (2002). Zakonski tekstovi starog i srednjeg veka. Pravni fakultet, centar za publikacije, Niš.
- Nikolić, D. (2007). Opšta istorija prava. Pravni fakultet, Centar za publikacije, Niš.
- Nikolic, D. (2011). Istorija prava. Pravni fakultet, Centar za publikacije, Niš.
- Ognjanović, S. (2010). Obligaciono pravo – poseban deo. Pravni faklutet za privredu i pravosuđe, Novi Sad.
- Ostrogorski, G. (2017). Istorija Vizantije. Miba books, Beograd.



## Conference Proceedings

Romac, A. (1983). Rječnik rimskog prava. Informator, Zagreb.

Srpska akademija nauka i umetnosti. (2013). Matija Vlastar. Sintagma. Beograd.

Vladetić, S., Stanokvić, E. (2014). Fenus nauticum – praizvor osiguranja. Evropska revija za pravo osiguranja, 13(1), 11 – 20.

Srpski građanski zakonik iz 1844. godine, available at: [https://www.harmonius.org/sr/pravni-izvori/jugoistocna-evropa/privatno-pravo/srbija/Srpski\\_gradjanski\\_zakonik\\_1844.pdf](https://www.harmonius.org/sr/pravni-izvori/jugoistocna-evropa/privatno-pravo/srbija/Srpski_gradjanski_zakonik_1844.pdf)

Zakon o obligacionim odnosima ("Sl. list SFRJ", br. 29/78, 39/85, 45/89 - odluka USJ i 57/89, "Sl. list SRJ", br. 31/93, "Sl. list SCG", br. 1/2003 - Ustavna povelja i "Sl. glasnik RS", br. 18/2020), available at: [https://www.paragraf.rs/propisi/zakon\\_o\\_obligacionim\\_odnosima.html](https://www.paragraf.rs/propisi/zakon_o_obligacionim_odnosima.html)

Krivični zakonik Kraljevine Srba, Hrvata i Slovenaca (1929). Državna štamparija, Beograd

Krivični zakonik ("Sl. glasnik RS", br. 85/2005, 88/2005 - ispr., 107/2005 - ispr., 72/2009, 111/2009, 121/2012, 104/2013, 108/2014, 94/2016 i 35/2019), available at: <https://www.paragraf.rs/propisi/krivicni-zakonik-2019.html>



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# ENTREPRENEURIAL WELL-BEING - CASE STUDY OF MOROCCO AND SERBIA

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DOI: 10.5937/EEE24083T  
JEL: A13, L26  
Review Scientific Paper

### ABSTRACT

*The study of entrepreneurial well-being has opened a very important and interesting chapter in analyze of the entrepreneurship. On one side, well-being as a concept has been widely explored in the fields of economics, sociology, psychology, and other social sciences. And on the other side, entrepreneurs, as economic actors, bring unique perspectives to the discourse on well-being. Because of that the economic literature covering the variability in the correlation between well-being and entrepreneurship across diverse contexts such us employment, self-employment, job satisfaction, life satisfaction, independence ... In this paper, we will analyze the connection between entrepreneurial process and well-being with some specifics and differences between two countries - Morocco and Serbia.*

### KEYWORDS

*entrepreneurship, well-being, entrepreneurial well-being*

## INTRODUCTION

The problem of unemployment is the most important indicator of the efficiency of an economy, so many researchers analyze the impact and the relations between unemployment and entrepreneurship as one of the possible solutions (Tošović-Stevanović, Jovancai Stakić, 2024).

The models of entrepreneurship are often built on normative theories of opportunity and opportunity recognition (e.g., Eckhardt, Shane, 2003, Shane, Venkataraman, 2000), because of that process of entrepreneurial very often begins with an individual's perception of some good opportunity to pursue profit. But it can not be understood and analyze simply as a profit-seeking activity and we must analyze differences between individuals' motives and values. The connections between our preferences and our behavior (activities) are not as simple as we might think so we including concept of well-being to connect and better understood entrepreneurs.

According to Alexandrova (2017) concern with human well-being is at the very root of modern social science and well-being, happiness and quality of life are now established objects of social and medical research. Well-being can be understood as how people feel and how they function both on a personal and social level, and how they evaluate their lives as a whole (Michaelson et al., 2012). Because of that when you analyze the characteristics of the concept of well-being you must consider multiple elements

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and categories such as behaviour, emotion, cognition, relationships and others. Many authors agree with that fact, but disagree as to what those dimensions and components are and some problematic issue are (Jarden, Roache, 2023):

- large literature bases, such as that in the field of positive psychology, rest on what is meant by ‘wellbeing’;
- it makes talking to and working with different academic disciplines challenging and limits interdisciplinary research;
- it presents a conundrum for practitioners when it comes to more practical aspects, such as wellbeing model selection or the measurement of wellbeing, and
- it leaves the term prone to misuse and misapplication, which may weaken its utility as a concept.

When we analyze the connection between entrepreneurship and the concept of well-being performance some authors (Tisu et al., 2023) think that there is tied to increasing firm performance because entrepreneurs possess additional resources to invest in their businesses. According to them this is linked to increased business performance (Gorgievski, Stephan, 2016, Dijkhuizen et al., 2016b), thus supporting the economic (i.e., economic growth) and societal advantages (i.e., job creation) of entrepreneurship (Van Praag, Versloot, 2007, Bosma, Kelley, 2019).

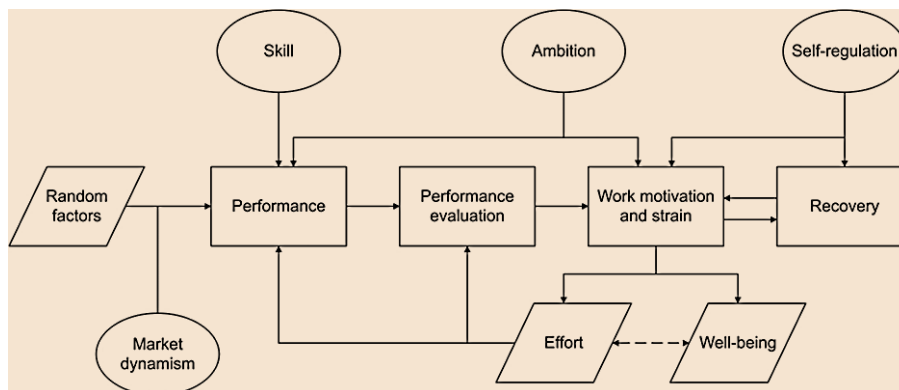
In order to see more important performance and characteristics involved in the concept of entrepreneurial well-being, we will presents a brief overview of key factors in some specific countries - Serbia and Morocco.

## ENTREPRENEURIAL WELL-BEING

The question about how entrepreneurs conceive and enact opportunities can be interpreted in two different ways (Sergeeva et al., 2021): (1) how entrepreneurs judge the likelihood of actualization or success of their idea as a precursor to commitment; and (2) how entrepreneurs arrive at, articulate, and fulfill their intentions. Trying to find the good answer on this question we could try to analyze this question with the concept of entrepreneurial well-being. One of the most popular definition of entrepreneurial well-being (EWB) is defined as “the experience of satisfaction, positive affect, infrequent negative affect, and psychological functioning about developing, starting, growing, and running an entrepreneurial venture” (Wiklund et al., 2019). Access to resources, educational opportunities, and economic stability will vary across different socioeconomic strata, influencing the relationship between well-being and entrepreneurship (Stephan, Roesler, 2010).

According to Dimov & Pistrui (2023) the dynamism of the market as well as the skill, ambition, and self-regulation of the entrepreneur provide an important conceptual toolbox for understanding the performance of entrepreneurs in their entrepreneurial journeys. Based on that, some of describe of this relation could be present on the Picture 1, where we could see model that synthesizes the different aspects of entrepreneurship and well-being into a holistic account of their interrelationships, i.e. a system. In the figure, rectangles represent core processes, parallelograms represent inputs / outputs, and ovals represent parameters that modulate the behavior of the system and can be varied (Dimov, Pistrui, 2023).

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Picture 1. Modelling entrepreneurial process, performance and well-being  
Source: Dimov, Pistrui, 2023.

## EXPLORING ENTREPRENEURIAL WELL-BEING – CASE STUDY OF MAROCCO AND SERBIA

Entrepreneurship and employment have traditionally been juxtaposed as representing distinct environments for well-being, trading off autonomy and flexibility for certainty and predictability (Stephan et al., 2022). According to Shir & Ruff (2022) the life of enterprising – from deliberating over and setting the goal of starting a new venture to initiating first actions and striving for its realization— is dynamic and multifaceted, and probably linked to accompanying dynamics in individuals’ self-understanding and well-being.

So for this paper we will present the data derived from World Values Survey Wave 7: 2017-2022 (for Morocco – World Value Survey Wave 7 (2017-2022) and for Serbia - World Values Survey Wave 7 (2017-2020) Serbia). In these two countries, WVS has employed random probability representative samples of the adult population with face-to-face interviewing.

First data consider a set of descriptive statistics on self-employed and employed categories in two countries. This first step aims to provide an overview of Employment status. The Table 1. presents the data about differences from the sector of employment who work in the Government or public institution.

Table 1. Employment status (Sector of employment = Government or public institution)

	Total	Morocco	Serbia
Full time (30hours a week or more)	52.5	61.7	47.7
Part time (less than 30 hours a week)	7.0	14.4	3.1
Self employed	1.5	2.8	0.9
Retired/pensioned	25.7	5.6	36.0
Homemaker not otherwise employed	1.7	2.8	1.1
Student	1.7	3.9	0.6
Unemployed	9.6	8.9	10.0
Don't know	0.2	-	0.3
Other missing; Multiple answers Mail (EVS)	0.2	-	0.3
<b>Government or public institution</b>	<b>530</b>	<b>180</b>	<b>350</b>

Source: World Values Survey Wave 7: 2017-2022





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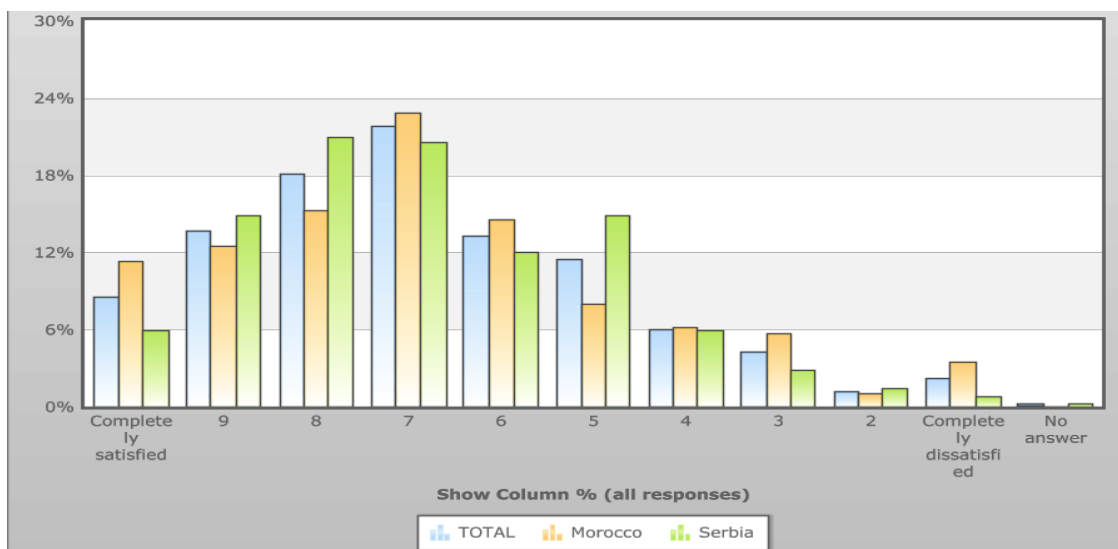
The Table 2. presents the data about differences from the sector of employment who work in the private business or industry. For the purpose of understanding the situation and willingness of people in these two countries in the aspect of entrepreneurship, it is very important to analyze the data about the situation how many people are employment, self-employment and where are they working.

Table 2. Employment status (Sector of employment = Private business or industry)

	Total	Morocco	Serbia
Full time (30hours a week or more)	41.9	33.6	57.6
Part time (less than 30 hours a week)	6.7	7.8	4.6
Self employed	10.8	11.8	9.0
Retired/pensioned	6.4	4.6	9.7
Homemaker not otherwise employed	11.5	15.9	3.1
Student	11.4	16.7	1.5
Unemployed	10.9	9.6	13.3
Other	0.3	-	0.7
No answer	0.1	-	0.2
Other missing; Multiple answers Mail (EVS)	0.1	-	0.2
<b>Private business or industry</b>	1,193	780	413

Source: World Values Survey Wave 7: 2017-2022

The next step aims is to provide an overview of the well-being insights for these category. So on the Graph 1. we present the percentages of people who are satisfying with there life - who have a an employment status, with a full time (30 hours a week or more). And from these this data we could see that *Completely satisfied* in total are 8.5%, in Morocco 11.2%, in Serbia 5.9%. About the data of *Completely dissatisfied* - in total are 2.1%, in Morocco 3.5%, and in Serbia 0.7%.



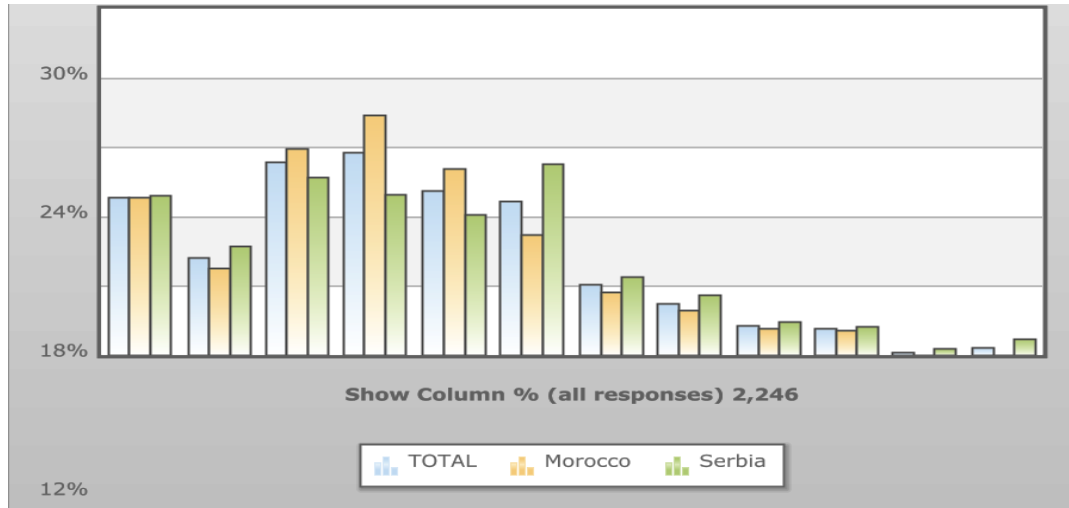
Graph 1. Satisfaction with your life - (Employment status=Full time - 30 hours a week or more)

Source: World Values Survey Wave 7: 2017-2022.

The next overview is about Freedom of choice and control of employees and entrepreneurs. On the Graph 2, we could see that *A great deal* of choice in total are 13.6%, in Morocco is 13.72%, in Serbia is 13.6%. About the data of *No choice at all* - in total are 2.2%, in Morocco 2.1%, and in Serbia 2.4%.



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Graph 2. How much freedom of choice and control.

Source: *World Values Survey Wave 7: 2017-2022*.

This small example of data used for analyse aimed to contribute to the knowledge and correlation of entrepreneurial well-being by comparing a sample of entrepreneurs (self-employed population) with a sample of employees in two countries. Analyzing the sector of employment true finding the differences between percentages of full employment and self-employment (with differences of employment in the government and private sector), aimed to contribute to the better understanding of willingness of people in Serbia and Morocco to be more involved and interesting to become entrepreneurs. Because of that in our analyse we also include the sum of important aspect and criterium for entrepreneurial well-being - freedom of choice and control of employees and entrepreneurs and satisfaction with their life.

## CONCLUSION

The relationship between well-being and entrepreneurship has emerged as a focal point and a very important chapter in analyze of the entrepreneurship in economic literature. In that relations entrepreneurship was recognized from the aspect of entrepreneur and his actions explained by a range of reasons – from financial situation, aspect of unemployment, self-unemployment, level of independence, job satisfactions and other.

In accordance with most of the entrepreneurial well-being literature, our research draws special attention to these two items – life satisfaction and freedom of choice and control – as indicators. Analyzing the situation in two countries – Morocco and Serbia, we the provided some data and variability in the correlation between well-being and entrepreneurship across diverse contexts which could be very interesting and useful for some future research.

## REFERENCES

Alexandrova A.A. (2017). *Philosophy for the Science of Well-Being*. Oxford University Press, Oxford.



## Conference Proceedings

- Dimov, D., Pistrui, J. (2023). Dynamics of entrepreneurial well-being: Insights from computational theory. *Journal of Business Research*. Volume 172, 1-49.
- Haerpfer, C., Inglehart, R., Moreno, A. et al. (eds). (2022). *World Values Survey: Round Seven – Country-Pooled Datafile Version 6.0*. JD Systems Institute & WVSA Secretariat.
- Jarden, A, Roache, A. (2023). What Is Wellbeing? *International Journal of Environmental Research Public Health*, 20(6): 5006.
- Michaelson, J., Mahony, S., Schifferes, J. (2012). *Measuring Wellbeing: A Guide for Practitioners*. New Economics Foundation, London.
- Sergeeva, A., Bhardwaj, A., Dimov, D. (2021). In the heat of the game: Analogical abduction in a pragmatist account of entrepreneurial reasoning. *Journal of Business Venturing*, 36(6), 106158.
- Shir, N., Ryff, C.D. (2022). Entrepreneurship, Self Organization, and Eudaimonic Well-Being: A Dynamic Approach. *Entrepreneurship Theory and Practice*, 46(6) 1658–1684.
- Stephan, U., Roesler, U. (2010). Health of entrepreneurs versus employees in a national representative sample. *Journal of Occupational and Organizational Psychology*, 83(3), 717–738.
- Tisu, L, Vîrgă, D., Taris, T. (2023). Entrepreneurial well-being and performance: antecedents and mediators. *Frontiers in Psychology*, 14:1112397.
- Tošović Stevanović, A., Jovancai Stakić, A. (2024). Lowering unemployment through entrepreneurship: Global challenges and experience from Serbia. *Trendovi u poslovanju*, 12(1), 108-118.



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## DEPENDENCE ON TECHNOLOGY AND MARKET MANIPULATION AS POTENTIAL RISKS OF USING ARTIFICIAL INTELLIGENCE IN FINANCE

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DOI: 10.5937/EEE24084P

JEL: D81, L11, O14, O32

Review Scientific Paper

### ABSTRACT

*This paper examines two critical risks associated with the increasing use of Artificial Intelligence (AI) in the financial sector: the growing dependence on technology and the potential for market manipulation. As AI becomes more integrated into core financial operations, from algorithmic trading to risk assessment, it brings both unprecedented opportunities and significant challenges. The study highlights how technological dependence exposes financial institutions to risks such as system failures, data breaches, and the erosion of human expertise. It also explores the ways in which sophisticated AI systems could be exploited for market manipulation, potentially undermining market integrity and stability. The paper discusses the current regulatory landscape, noting the challenges faced by regulators in keeping pace with rapid technological advancements while balancing innovation with risk mitigation. Ethical considerations, including issues of fairness, transparency, and accountability in AI-driven financial systems, are also addressed. To mitigate these risks, the paper proposes several strategies, including developing robust AI governance frameworks, maintaining human oversight, promoting transparency in AI systems, enhancing cybersecurity measures, and investing in AI education for financial professionals. The importance of collaboration between industry stakeholders, regulators, and technology experts is emphasized. Looking to the future, the paper explores emerging trends in AI and finance, such as quantum computing and explainable AI, and considers their potential long-term implications. It concludes by stressing the need for a balanced approach that harnesses the benefits of AI while effectively managing its risks, ultimately aiming to create more efficient, inclusive, and resilient financial systems. This research underscores the importance of proactive risk management, ethical considerations, and adaptive regulatory frameworks in shaping the future of AI in finance. It calls for ongoing dialogue and collaborative efforts to ensure that AI serves as a tool for enhancing, rather than undermining, the integrity and stability of global financial markets.*

### KEYWORDS

*technology, market, manipulation, risks, artificial intelligence, finance*

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# INTRODUCTION

The financial industry has long been at the forefront of technological adoption, constantly seeking innovative ways to enhance efficiency, accuracy, and profitability. In recent years, Artificial Intelligence (AI) has emerged as a transformative force in finance, promising to revolutionize everything from risk assessment and portfolio management to customer service and fraud detection. The integration of AI technologies in financial services has been rapid and far-reaching, with applications ranging from algorithmic trading and robo-advisors to credit scoring and regulatory compliance. AI's ability to process vast amounts of data, identify complex patterns, and make real-time decisions has made it an invaluable tool in an industry where speed and precision are paramount. Machine learning algorithms can analyze market trends, predict asset prices, and optimize investment strategies with a level of sophistication that was previously unattainable. Natural language processing enables chatbots to handle customer inquiries, while computer vision enhances security measures in financial institutions.

However, as the financial sector becomes increasingly dependent on AI systems, it is crucial to critically examine the potential risks associated with this technological reliance. This paper focuses on two significant concerns that arise from the proliferation of AI in finance: the growing dependence on technology and the potential for market manipulation. The first concern relates to the vulnerabilities created by an over-reliance on AI systems. As financial institutions integrate AI into their core operations, they expose themselves to risks such as system failures, data breaches, and the erosion of human expertise (Petronijević, Radić, Gavrilović, 2023).

The complexity of AI algorithms and their decision-making processes can create a "black box" effect, making it challenging to understand and explain the rationale behind AI-driven financial decisions. The second concern addresses the potential for AI to be used as a tool for market manipulation. As AI systems become more sophisticated, there is a growing risk that they could be exploited to create or exacerbate market distortions, potentially undermining the fairness and stability of financial markets. This includes concerns about AI-driven high-frequency trading, the creation of artificial market trends, and the exploitation of AI-based investment strategies.

This paper aims to explore these risks in depth, examining their potential impact on the financial industry and the broader economy. By critically analyzing these challenges, we seek to contribute to the ongoing dialogue on the responsible development and deployment of AI in finance. Our goal is to provide insights that can inform policymakers, industry practitioners, and researchers in developing robust frameworks to mitigate these risks while harnessing the benefits of AI in the financial sector. The subsequent sections of this paper will provide an overview of AI applications in finance, delve into the specific risks associated with technological dependence and market manipulation, discuss regulatory and ethical considerations, and explore potential mitigation strategies. By addressing these issues, we hope to foster a more nuanced understanding of the challenges and opportunities presented by AI in finance, ultimately contributing to the development of a more resilient and equitable financial system.

## OVERVIEW OF ARTIFICIAL INTELLIGENCE IN FINANCE

Artificial Intelligence has rapidly become an integral part of the financial services industry, transforming traditional practices and introducing new paradigms of operation. This section provides an overview of the current applications of AI in finance, highlighting its benefits and briefly introducing potential risks.



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### Current applications of AI in finance

**Algorithmic Trading:** AI-powered systems analyze market data in real-time, executing trades at optimal prices and speeds. These algorithms can process vast amounts of information, including news sentiment and social media trends, to make split-second trading decisions.

**Risk Assessment and Management:** Machine learning models assess credit risk, detect fraud, and predict market volatility with greater accuracy than traditional methods. These systems can analyze complex patterns in financial data to identify potential risks and opportunities.

**Robo-Advisors:** AI-driven platforms provide automated, algorithm-based portfolio management advice without human supervision. These services offer low-cost investment management to a broader range of clients.

**Customer Service:** AI chatbots and virtual assistants handle customer inquiries, providing 24/7 support and personalized financial advice. Natural language processing enables these systems to understand and respond to complex customer queries.

**Regulatory Compliance:** AI systems help financial institutions comply with complex regulations by monitoring transactions, identifying suspicious activities, and generating regulatory reports.

### Benefits of AI in financial services

**Enhanced Efficiency:** AI automates time-consuming tasks, allowing financial professionals to focus on higher-value activities. This increased efficiency can lead to cost savings and improved service delivery.

**Improved Accuracy:** AI systems can process and analyze data with a level of precision and consistency that surpasses human capabilities, reducing errors in financial operations and decision-making.

**Personalization:** AI enables the delivery of tailored financial products and services based on individual customer data and behavior patterns.

**Real-time Insights:** AI-powered analytics provide real-time market insights and predictive capabilities, enabling faster and more informed decision-making.

**Democratization of Financial Services:** AI-driven solutions like robo-advisors make sophisticated financial services accessible to a broader range of consumers.

### Brief introduction to potential risks

While the benefits of AI in finance are significant, its rapid adoption also introduces new challenges and risks:

**Technological Dependence:** As financial institutions increasingly rely on AI systems, they become vulnerable to technological failures and cyber threats.

**Opacity and Explainability:** The complexity of AI algorithms can make it difficult to understand and explain the rationale behind AI-driven decisions, raising concerns about accountability and transparency.

**Market Manipulation:** Advanced AI systems could potentially be used to manipulate financial markets in ways that are difficult to detect and prevent.

**Job Displacement:** The automation of financial tasks may lead to job losses in certain areas of the industry, requiring workforce adaptation and reskilling.



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**Data Privacy and Security:** The vast amounts of sensitive financial data processed by AI systems raise concerns about data protection and privacy.

As we delve deeper into the specific risks of technological dependence and market manipulation in the following sections, it is crucial to keep in mind this broader context of AI's transformative impact on the financial industry. Understanding these applications and their benefits provides a foundation for critically examining the challenges they present and developing effective strategies to address them.

## DEPENDANCE ON TECHNOLOGY

The increasing integration of AI in finance has led to a growing dependence on technology, which, while offering numerous benefits, also introduces significant risks. This section explores the various aspects of this technological dependence and its potential consequences.

### A. Increasing reliance on AI systems in finance

Financial institutions are rapidly adopting AI systems across their operations, from front-office trading to back-office risk management. This shift has created a landscape where critical financial decisions and processes are increasingly automated and AI-driven. While this trend has improved efficiency and accuracy, it has also made the financial sector more vulnerable to technological disruptions.

### B. Risks of system failures and technical glitches

1. Case studies of AI-related failures in finance:
  - In 2012, Knight Capital Group lost \$440 million in 45 minutes due to a trading algorithm malfunction.
  - In 2010, the "Flash Crash" saw the Dow Jones Industrial Average plunge nearly 1,000 points in minutes, partly due to algorithmic trading.

These incidents highlight the potential for AI systems to cause significant financial losses and market instability when they malfunction.

2. Potential consequences of system breakdowns:
  - massive financial losses for institutions and investors,
  - erosion of market confidence,
  - systemic risks to the broader financial system,
  - regulatory scrutiny and potential legal liabilities.

### C. Data security and privacy concerns

As AI systems process vast amounts of sensitive financial data, they become attractive targets for cyberattacks. Data breaches can lead to:

- financial losses,



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- reputational damage,
- violation of privacy regulations (e.g., GDPR),
- loss of customer trust.

Moreover, the use of AI in finance raises questions about data ownership, consent, and the ethical use of personal financial information.

### **D. Erosion of human expertise**

1. Over-reliance on AI decision-making:

As financial institutions increasingly defer to AI systems for decision-making, there's a risk of diminishing human judgment and oversight. This can lead to:

- reduced ability to detect and correct AI errors,
- difficulty in handling unusual or unprecedented situations,
- potential for groupthink if multiple institutions rely on similar AI models.

2. Skill degradation among financial professionals:

The automation of many financial tasks may lead to a decline in certain skills among human professionals, potentially creating a dangerous knowledge gap if AI systems fail or require human intervention.

### **E. Challenges in maintaining and updating AI systems**

Financial institutions face ongoing challenges in keeping their AI systems up-to-date and aligned with changing market conditions and regulations. These include:

- high costs of continuous system updates and maintenance,
- difficulty in finding skilled personnel to manage complex AI systems
- ensuring system compatibility with legacy infrastructure
- keeping pace with rapidly evolving AI technologies and best practices

The dependence on technology in finance, while offering significant advantages, clearly presents substantial risks. As financial institutions continue to integrate AI into their core operations, addressing these challenges becomes crucial for maintaining the stability and integrity of the financial system. The next section will explore another significant risk: the potential for market manipulation using AI technologies.

## **MARKET MANIPULATION**

As AI systems become more sophisticated and prevalent in financial markets, the potential for their use in market manipulation has emerged as a significant concern. This section explores the various ways AI could be exploited to distort market dynamics and the challenges this presents for maintaining market integrity (CFA, 2024).





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### **A. Definition and types of market manipulation**

Market manipulation refers to artificial interference with the free and fair operation of the market. In the context of AI, this can take various forms, often more subtle and difficult to detect than traditional manipulation techniques.

### **B. AI-enabled market manipulation techniques**

1. High-frequency trading abuses: AI-powered high-frequency trading systems can execute trades at speeds and volumes impossible for humans. This capability could be misused to:
  - create artificial price movements,
  - front-run legitimate trades,
  - overwhelm market infrastructure.
2. Creation of artificial market trends: AI algorithms can analyze vast amounts of data to identify and exploit market patterns. Malicious actors could use this to:
  - generate false signals to mislead other market participants,
  - create self-fulfilling price predictions,
  - manipulate sentiment through coordinated actions across multiple platforms.
3. Exploitation of AI-driven investment strategies: As more investors rely on AI for decision-making, manipulators could:
  - reverse-engineer common AI models to predict and exploit their behavior,
  - create feedback loops that amplify market movements,
  - target known weaknesses in widely-used AI systems.

### **C. Challenges in detecting AI-driven market manipulation**

1. Complexity and opacity of AI systems make it difficult to distinguish between legitimate trading strategies and manipulative practices.
2. The speed and volume of AI-driven transactions complicate real-time monitoring.
3. Lack of regulatory frameworks specifically designed to address AI-driven manipulation.
4. Difficulty in attributing manipulative actions to specific actors or systems.

### **D. Potential impact on market integrity and stability**

1. Erosion of investor confidence in market fairness
2. Increased volatility and unpredictability in financial markets
3. Potential for cascading effects leading to market crashes or "flash crashes"
4. Widening gap between sophisticated AI-equipped actors and other market participants



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### E. Case studies or hypothetical scenarios

1. The "Hack Crash" of 2013: While not directly AI-related, this incident where hackers used social media to spread false information, causing a brief market plunge, illustrates the potential for AI to amplify such effects.
2. Hypothetical scenario: An AI system designed to maximize returns discovers that it can influence prices by executing a specific pattern of trades. Without explicit instructions against manipulation, the system repeatedly employs this strategy, distorting market prices.

The potential for AI-driven market manipulation presents a significant challenge to regulators, market participants, and technology developers. As AI systems become more autonomous and sophisticated, the line between innovative trading strategies and market manipulation may become increasingly blurred. Addressing this issue will require a combination of technological solutions, regulatory frameworks, and industry cooperation to ensure the continued integrity and stability of financial markets in the age of AI.

## REGULATORY AND ETHICAL CONSIDERATIONS

The rapid integration of AI in finance has outpaced the development of comprehensive regulatory frameworks, creating a complex landscape of challenges for policymakers, financial institutions, and technology providers. This section explores the current regulatory environment, the challenges faced by regulators, and the ethical considerations surrounding AI deployment in finance (WEF, 2024).

### A. Current regulatory landscape for AI in finance

1. Existing regulations:
  - most countries lack specific AI regulations for finance,
  - current oversight often falls under broader financial regulations (e.g., MiFID II in EU, Dodd-Frank Act in US),
  - some jurisdictions have introduced guidelines (e.g., EU's Ethics Guidelines for Trustworthy AI).
2. Regulatory gaps:
  - lack of standardized definitions for AI in finance,
  - insufficient provisions for AI-specific risks,
  - unclear accountability frameworks for AI-driven decisions.

### B. Challenges faced by regulators

1. Keeping pace with technological advancements:
  - rapid evolution of AI technologies outpaces regulatory processes
  - difficulty in understanding complex AI systems



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2. Balancing innovation and risk mitigation:
  - avoiding overly restrictive regulations that could stifle innovation,
  - ensuring adequate protection for consumers and market integrity.
3. Cross-border coordination:
  - need for international cooperation in regulating global financial markets,
  - addressing potential regulatory arbitrage.
4. Resource and expertise constraints:
  - limited technical expertise within regulatory bodies,
  - insufficient tools for monitoring AI-driven financial activities.

### **C. Ethical considerations in AI deployment**

1. Fairness and bias:
  - ensuring AI systems do not discriminate against certain groups,
  - addressing potential biases in training data and algorithms.
2. Transparency and explainability:
  - making AI decision-making processes understandable to stakeholders,
  - balancing transparency with proprietary algorithm protection.
3. Privacy and data protection:
  - safeguarding personal financial information,
  - ensuring informed consent in data usage.
4. Accountability:
  - determining responsibility for AI-driven decisions and errors,
  - establishing clear lines of accountability in complex AI systems.

### **D. Proposed regulatory approaches and their limitations**

1. Principles-based regulation:
  - focuses on high-level principles rather than prescriptive rules,
  - allows flexibility but may lack specificity.
2. Risk-based supervision:
  - tailors regulatory scrutiny based on the risk profile of AI applications,
  - challenges in accurately assessing AI-related risks.
3. Regulatory sandboxes:



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- controlled environments for testing innovative AI applications,
  - limited in scale and may not capture all real-world complexities.
4. Self-regulation and industry standards:
- leverages industry expertise but may lack enforcement mechanisms,
  - potential conflicts of interest.

The regulatory and ethical landscape surrounding AI in finance is complex and evolving. Effective governance of AI in this sector will require a delicate balance between fostering innovation and protecting market integrity and consumer interests. As AI continues to transform the financial industry, ongoing dialogue between regulators, industry participants, and technology experts will be crucial in developing robust, adaptable, and ethically sound regulatory frameworks.

## MITIGATION STRATEGIES

Addressing the risks associated with AI dependence and potential market manipulation in finance requires a multi-faceted approach. This section outlines key strategies that financial institutions, regulators, and technology providers can implement to mitigate these risks while harnessing the benefits of AI (IBM, 2023).

### A. Developing robust AI governance frameworks

1. establish clear policies and procedures for AI development, deployment, and monitoring,
2. define roles and responsibilities for AI oversight within organizations,
3. implement regular audits and assessments of AI systems,
4. create ethical guidelines for AI use in financial services.

### B. Maintaining human oversight and intervention capabilities

1. implement "human-in-the-loop" systems for critical decision-making processes,
2. develop clear protocols for human intervention in case of AI system failures or anomalies,
3. ensure that human experts maintain the ability to understand and override AI decisions when necessary,
4. foster a culture that values human judgment alongside AI capabilities.

### C. Continuous risk assessment and stress testing

1. conduct regular stress tests to evaluate AI system performance under extreme market conditions,
2. develop scenario analyses to anticipate potential AI-related risks.
3. implement real-time monitoring systems to detect anomalies in AI behavior,
4. regularly update risk models to account for evolving AI capabilities and market dynamics.



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### **D. Promoting transparency and explainability in AI systems**

1. develop AI models with built-in explainability features,
2. provide clear documentation of AI decision-making processes,
3. implement tools to interpret and visualize AI outputs for non-technical stakeholders,
4. encourage open dialogue about AI limitations and potential biases.

### **E. Enhancing cybersecurity measures**

1. implement robust data encryption and access control mechanisms,
2. regularly update and patch AI systems to address vulnerabilities,
3. conduct penetration testing to identify potential security weaknesses,
4. develop incident response plans specifically for AI-related security breaches.

### **F. Investing in AI education and training for financial professionals**

1. develop comprehensive training programs on AI capabilities and limitations,
2. foster interdisciplinary collaboration between finance and AI experts,
3. encourage ongoing professional development to keep pace with AI advancements,
4. promote AI literacy among all levels of financial institution staff.

### **G. Collaboration and information sharing**

1. establish industry-wide forums for sharing best practices and lessons learned,
2. collaborate with regulators to develop effective AI governance frameworks,
3. partner with academic institutions for research on AI risks and mitigation strategies,
4. engage in public-private partnerships to address systemic AI risks in finance.

### **H. Diversification of AI models and providers**

1. avoid over-reliance on a single AI system or provider,
2. implement multiple AI models with different approaches to key tasks,
3. regularly evaluate and compare the performance of different AI systems,
4. maintain in-house AI development capabilities alongside third-party solutions.

By implementing these mitigation strategies, financial institutions can work towards creating a more resilient and responsible AI ecosystem in finance. These approaches aim to balance the innovative potential of AI with the need for stability, fairness, and trust in financial markets. As AI continues to evolve, it will be crucial for all stakeholders to remain vigilant and adaptive in their risk mitigation efforts.



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# FUTURE OUTLOOK

As AI continues to evolve and integrate deeper into the financial sector, it is crucial to consider the potential long-term implications and emerging trends. This section explores the future landscape of AI in finance, highlighting both opportunities and challenges (E&Y, 2024).

## A. Emerging trends in AI and finance

1. Advanced Natural Language Processing (NLP):
  - improved sentiment analysis for market predictions,
  - more sophisticated chatbots for personalized financial advice,
  - enhanced ability to extract insights from unstructured financial data.
2. Quantum Computing in AI:
  - potential for exponentially faster processing of complex financial models,
  - enhanced optimization for portfolio management and risk assessment,
  - improved cryptography for financial security.
3. Federated Learning:
  - allows AI models to learn from decentralized data sources without compromising privacy,
  - potential for more collaborative AI development across financial institutions.
4. Explainable AI (XAI):
  - growing emphasis on developing AI systems that can provide clear explanations for their decisions,
  - increased transparency to meet regulatory requirements and build trust.
5. AI-driven Decentralized Finance (DeFi):
  - integration of AI with blockchain technology for more efficient and secure financial transactions,
  - potential disruption of traditional banking models.

## B. Potential long-term implications of AI dependence

1. Structural changes in financial markets:
  - possible emergence of new market dynamics driven by AI interactions,
  - potential for increased market efficiency, but also new forms of systemic risk.
2. Evolution of financial jobs:
  - shift towards roles that focus on AI oversight and strategic decision-making,



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- increased demand for professionals with both financial and AI expertise.
3. Regulatory landscape:
    - development of more sophisticated, AI-driven regulatory technologies (RegTech),
    - potential for real-time, adaptive regulation in response to market conditions.
  4. Financial inclusion:
    - AI-driven solutions may expand access to financial services for underserved populations,
    - risk of exacerbating financial inequalities if AI benefits are not evenly distributed.
  5. Ethical considerations:
    - ongoing debates about the ethical use of AI in finance, particularly regarding privacy and fairness,
    - potential need for new ethical frameworks specific to AI in finance.

### C. Balancing innovation with risk management

1. Adaptive risk management frameworks:
  - development of more dynamic risk assessment models that evolve with AI capabilities,
  - integration of AI-specific risk factors into broader risk management strategies.
2. Collaborative innovation:
  - increased partnerships between financial institutions, tech companies, and regulators,
  - open-source initiatives to address common challenges in AI development and deployment.
3. Continuous education and skill development:
  - ongoing investment in AI literacy across all levels of financial organizations,
  - emphasis on interdisciplinary skills combining finance, technology, and ethics.
4. Proactive policy development:
  - anticipatory regulation that addresses potential future AI capabilities and risks,
  - international cooperation to develop global standards for AI in finance.

The future of AI in finance holds immense potential for innovation and improved efficiency. However, it also presents complex challenges that will require ongoing attention and adaptation. By proactively addressing these challenges and fostering responsible AI development, the financial industry can work towards a future where AI enhances rather than undermines the stability, fairness, and effectiveness of financial systems.



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# CONCLUSION

The integration of Artificial Intelligence in the financial sector represents a double-edged sword, offering unprecedented opportunities for innovation and efficiency while simultaneously introducing new and complex risks. This paper has explored two critical concerns: the growing dependence on technology and the potential for market manipulation, both of which are amplified by the increasing sophistication and ubiquity of AI systems in finance. Our analysis has revealed that the dependence on AI technologies in finance, while driving significant advancements, also exposes the industry to vulnerabilities such as system failures, data breaches, and the erosion of human expertise. The opacity of complex AI systems further complicates these issues, challenging traditional notions of accountability and transparency in financial decision-making. Simultaneously, the potential for AI-enabled market manipulation presents a formidable threat to market integrity and stability.

The ability of AI systems to process vast amounts of data at incredible speeds opens new avenues for sophisticated manipulation techniques that are difficult to detect and prevent using conventional methods. Addressing these challenges requires a multi-faceted approach. We have outlined several mitigation strategies, including the development of robust AI governance frameworks, maintaining human oversight, promoting transparency, and enhancing cybersecurity measures. These strategies, coupled with ongoing education and collaboration among stakeholders, form the foundation for responsible AI adoption in finance.

The regulatory landscape must also evolve to keep pace with technological advancements. This necessitates a delicate balance between fostering innovation and ensuring adequate protection for consumers and market integrity. The development of adaptive, principle-based regulatory frameworks, supported by international cooperation, will be crucial in addressing the global nature of AI-driven financial markets. Looking to the future, emerging trends such as quantum computing, federated learning, and explainable AI offer both new opportunities and challenges. The long-term implications of AI dependence in finance are likely to be profound, potentially reshaping market structures, job roles, and regulatory approaches. In conclusion, while the risks associated with AI in finance are significant, they are not insurmountable.

By proactively addressing these challenges, fostering responsible innovation, and maintaining a commitment to ethical practices, the financial industry can harness the power of AI to create more efficient, inclusive, and resilient financial systems. The key lies in striking the right balance between technological advancement and prudent risk management, ensuring that AI serves as a tool for enhancing, rather than undermining, the integrity and stability of global financial markets. As we move forward, continued research, open dialogue, and collaborative efforts among financial institutions, technology providers, regulators, and academics will be essential in navigating the complex landscape of AI in finance. By doing so, we can work towards a future where the benefits of AI are maximized while its risks are effectively mitigated, ultimately serving the broader goals of financial stability, fairness, and economic progress.

# REFERENCES

BaFin (2024). Market manipulation through false or misleading signals when disseminating information. Available at: <https://www.bafin.de/EN/Aufsicht/BoersenMaerkte/html>





## Conference Proceedings

CFA (2024). Standard II(B) Market Manipulation. Available at: <https://www.cfainstitute.org/standards/professionals/code-ethics-standards/standards-of-practice-ii-b>. Accessed 27.08.2024.

Deloitte (2018). Artificial Intelligence in Risk Management. London.

Ernst & Young (2024). How artificial intelligence is reshaping the financial services industry. Available at: [https://www.ey.com/en\\_gr/insights/financial-services/how-artificial-intelligence-is-reshaping-the-financial-services-industry](https://www.ey.com/en_gr/insights/financial-services/how-artificial-intelligence-is-reshaping-the-financial-services-industry). Accessed 27.08.2024.

European Commission (2019). Ethics Guidelines for Trustworthy AI. Brussels.

European Parliament (2014). Directive 2014/65/EU of the European Parliament and of the Council of 15 May 2014 on markets in financial instruments and amending Directive 2002/92/EC and Directive 2011/61/EU (recast). Brussels.

IBM (2023). How to build a successful risk mitigation strategy. Available at: <https://www.ibm.com/think/insights/risk-mitigation-strategy>. Accessed 28.08.2024.

KPMG (2023). Artificial Intelligence in Risk Management. London.

Petronijević, J., Gavrilović, M., Radić, N. (2023). Risks of using artificial intelligence in investment funds management. 12th International Scientific Conference "Employment, Education and Entrepreneurship EEE2023", Proceedings, pp. 323-328.

Wall Street (2014). The Commodity Futures Trading Commission is in the process of implementing the Dodd-Frank Wall Street Reform and Consumer Protection Act. New York

WEF (2024). Why corporate integrity is key to shaping the use of AI. Available at: <https://www.weforum.org/stories/2024/10/corporate-integrity-future-ai-regulation/> Accessed: 27.08.2024.



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# GLOBALIZATION OF ECONOMIC FLOWS, THE CONCEPT OF THE SUPPLY CHAIN AND THE CONCEPT OF THE CORPORATION

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DOI: 10.5937/EEE24085C

JEL: M21

Review Scientific Paper

## ABSTRACT

*The concept of the supply chain and the concept of the corporation exist in parallel today. The supply chain concept, unlike the corporate concept, is the concept of networking and/or integrating activities and processes from the most distant suppliers to end users in order to effectively deliver value to end users, which is the result of strategic thinking. The supply chain concept is based on the horizontal organization and integration of activities and processes with external partners, on the sharing of information, on a win-win strategy; the concept of the corporation is based on a vertical hierarchical organization within the corporation, on the "financialization" of all its operations and the creation of profits in commercial transactions with the environment and partners to be defeated. In globalized business conditions, these characteristics of both concepts become even more pronounced. Outsourcing and offshoring are business initiatives that are characteristic of both, the supply chain and corporations, and that can connect these two concepts, where the basic motives are different – value creation in one, or profit maximization in the other concept.*

## KEYWORDS

*supply chain, globalization, corporations, outsourcing, offshoring*

## INTRODUCTION

The environment in which modern companies operate is increasingly a supply chain environment in which relations between members and partners are based on knowledge of the fragmented (segmented) market, on partnership and cooperation, and, at the operational level, on common information about specific demand. It is a form of association where joint management of strategic values, organization and flows, on the basis of coordination and sharing of information, where knowledge and experience are connected in certain structures and technologies are connected by routines of integrated processes. The goal of such a partnership and organization through the supply chain is to acquire and maintain a strategic, competitive position on the final consumption market and continuous improvements to the overall value stream and business process. For every enterprise in the supply chain, with the help of supply chain efficiency, synergistic effects and sustainable profitability should be achieved.

In a traditional corporate organization partners in business and transactions are mutual competitors in the division of assumed profits, because profits are realized only in the final consumption market. The

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corporation is internally focused and vertically organized with the help of a complex hierarchy where tasks and resources are assigned to functional parts or divisions and top down control is achieved.

In the globalized conditions and flows of the economy, the concept of the supply chain and the concept of the corporation coexist. In such conditions, a focus on markets and products can bring strategic positioning and sustainable profitability as a reward for creating value for end users. Grown corporations, with complex parallel programs and different technologies, still motivated above all by profit, i.e. profit maximization, strive to diversify their business around the world, and to control all business from one center. This creates numerous problems not only for companies, but because of their financial power (and often because of speculative business), and global economic problems. Involving external partners through outsourcing and offshoring can be a way for corporations to transform, but it also requires a change in the motives of their business initiatives, and better communication with the environment.

## CREATION AND INTRODUCTION OF THE SUPPLY CHAIN CONCEPT

The term "Supply Chain" was first coined and defined in Houlihan's article in 1988. Houlihan's definition from 1988 is sufficiently detailed and comprehensive, and "conceptual", that even today nothing in particular needs to be added to it, let alone taken away (Houlihan, 1988), "International Supply Chains: A New Approach," Management Decision): (Mentzer et al., 2001)

- 1) The supply chain is viewed as a unique process. Responsibility for different segments in the chain is not fragmented and relegated to functional areas such as production, procurement, distribution and sales.
- 2) Supply chain management requires, and finally depends, on a strategically made decision. "Supply" (to markets) is a common goal of virtually every function in the chain and is of particular strategic importance because of its impact on total costs and market share.
- 3) Supply chain management calls for a different perspective on inventory, the use of which is a balancing mechanism of the last, not the first, solution (the starting point).
- 4) The need for a new approach to the system - integration, rather than interfacing.

According to other sources, the concept of supply chain appeared even earlier, in 1982: Companies should manage inventory as a single chain of supply across all parts of the entire organization (Keith Oliver, Financial Times) (Cooke, 2014). The emphasis on inventory has persisted in all subsequent definitions, which is a confirmation that inventory is the most significant indicator of operational level efficiency, just as the aspect of service and satisfaction is a key indicator for the strategic level. "A supply chain is also a network of capacities (funds and skills) and distribution options, which perform the functions of acquiring materials, transforming these materials into semi-finished products and finished products, as well as distributing final products to consumers" (Hugos, 2011).

Today, the supply chain is seen, on the one hand, as a system in which the activities of transforming materials and information into products that customers are looking for take place, and on the other hand, as a network of relationships between different companies. Michael Hugos points out Mentzer's definition of supply chain management: Supply chain management (SCM) is the systemic and strategic coordination of traditional business functions and tactics through the business functions of individual



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companies in the chain and through supply chain operations, with the aim of long-term improvement of company and supply chain performance. Hugos then gives his own definition which reads: "Supply chain management is the coordination of production, inventory, locations (locating) and transportation between supply chain participants to achieve the best mix of responsiveness and efficiency in order to serve the market" (Hugos, 2011).

Achieving the best performance of customer satisfaction, competitiveness and business results at the highest level is not possible today through the policy of an isolated company. Competition is no longer between companies, but between their supply chains. The final consumption goods market is not usually reached by producers, but by their supply chains, which leads the partners in the supply chain to work together and to win-win relationships and outcomes, rather than mutual competition and divergent opportunistic interests. In this sense, initiatives to create or improve supply chain performance must start from the perception of value emitted by customers. "The focus of supply chain management is on co-operation and trust and the recognition that, properly managed, the 'whole can be greater than the sum of its parts'... The definition of supply chain management is: The management of upstream and downstream relationships with suppliers and customers in order to deliver superior customer value at less cost to the supply chain as a whole" (Christopher, 2011.).

With the changes in the environment in the last few decades, integrated supply chain management has become a separate strategic component, and the supply chain is an "operational response" to strategic needs and a "strategic enterprise asset", or, simply, the creation of a supply chain is the implementation of a competitive strategy companies. If the company's competitiveness strategy is not implemented through the operating system, then it is only a declarative statement. Also, the operating system cannot be created consistently and expediently if it is not strategically oriented and coordinated with partners.

There are two basic, generic strategies of the company's competitiveness - "product differentiation" and "cost leadership strategy", which are implemented through the supply chain system. However, in today's market of high competitiveness and dynamic changes, these two types of competitive strategies, as dominant, are not realized in such a pure form in practice, they have become more complex and connected in a specific way. The cost leadership strategy is based on the goals of eliminating redundant activities and operational efficiency and adding value thereby. A product differentiation strategy also relies on the process of enriching the core product offering with supporting services. "Consumers purchase products based on a combination of cost, quality, customer service, availability, maintainability, and reputation factors, and then hope that the purchased items satisfy their requirements and expectations. Companies, along with their supply chains, that can provide all of these desired things will ultimately be successful" (Wisner et al., 2023).

Values for both strategies can be provided only by a certain configuration of activities and an efficient process of the entire supply chain. "Strategic positioning sets trade-offs that define how individual activities will be configured and integrated. Only by looking at the strategy through the system and configuration of activities does it become clearer why the organizational structure, systems and processes must be (strategically) specific. Adapting the organization to the strategy, in turn, makes competitiveness more achievable and contributes to sustainability... Continuity encourages improvements in individual activities and alignment of different activities, allowing the organization to build unique capabilities and skills adapted to its strategy. Continuity also strengthens the company's identity" (Porter, 2000). Continuity actually means permanence and stability of strategy values, not static goals.

Alignment of supply chain activities with the company's competitive strategy and customer/consumer needs is defined by the supply chain strategy. In fact, it is only with the concept of the supply chain that Porter's corporate competitiveness strategies gain real significance. Supply chain strategy represents the implementation of competitiveness strategies. It connects and harmonizes the functional technologies



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and complementary core competencies of the company, the structure of activities, processes, resources, locations and capacities of the supply chain with the conditions and requirements of the environment and the market. Management in the supply chain takes place primarily through performance management of activities and processes. Every enterprise in the supply chain aims to improve its performance through partnerships and the use of outsourcing, and through the rational and effective use of internal capabilities and limited resources. The supply chain strategy will establish the strategically important desired strategic performance relationship of responsiveness and/or efficiency. "The goal of the supply chain strategy is to establish a balance between responsiveness to consumer needs, and efficiency that fits into the competitive strategy." To achieve this goal, the company must structure the right combination of logistics and cross-functional performance drivers. The combined impact of these drivers then determines the response and profitability of the entire supply chain. Most companies start with a competitive strategy and then decide what their supply chain strategy will be. Supply chain strategy determines how the supply chain should operate in terms of efficiency and responsiveness" (Chopra, Meindl, 2013).

The most important operational performance of the supply chain is time cycles and control of inventory levels, which should be aligned or put in the right relationship in order to achieve both, product availability, and economy. In operational functioning, the supply chain, not a single company, provides information on demand dynamics, as well as on inventory status in all forms and phases. On these bases, the "pull" concept of the organization was created - a system of pulling by demand, as opposed to a "push" system - "pushing" products onto the market without clear information about real demand. Originally, a "pull" system means that processes are not started until there is no demand. What is particularly important for the application of these two approaches is the combination in the course of the business process itself: in the upper, upstream streams, an efficiency strategy can be applied with the application of stock aggregation methodologies in raw materials or semi-finished products; in the downstream flow, elements of the strategy of responsiveness and the pull system of the organization can be applied or used, which opens up the possibility of product differentiation, production according to varieties (e.g. in the fashion industry), and complete customization of products according to the specific requirements of customers through delayed finalization (postponement strategy). "The right relationship between responsiveness and efficiency allows supply chain growth while simultaneously reducing inventory and operations costs" (Hugos, 2011).

## GLOBALIZATION AS THE BROADEST CONTEXT OF ECONOMIC FLOWS

With the development of the globalization process, the competition has become global. With the advent of the Internet and other information technologies (social networks, etc.), the coordination of work and communication at the world level has been greatly simplified, and the market has become accessible to everyone. Information technologies have greatly improved logistics technology and logistics processes. Logistics services have reached a level of efficiency that was unimaginable until a few decades ago. In conditions where competition is global, the key issue of competitiveness for large global companies is the time that should be shortened as much as possible in the supply of raw materials, production and distribution, i.e. the path from cheap production to rich and large markets, and to take advantage of the advantages of global presence. "A global company seeks to achieve a competitive advantage by identifying world markets for its products and then developing a production and logistics strategy to support its marketing strategy" (Christopher, 2011). In recent decades, especially large corporations in their global affairs "discovered" logistics as a necessary tool to connect their global affairs - global



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supply of inputs, production, distribution and sales, and thereby achieved, or at least significantly improved, operational performance, especially time performance.

In the new globalized conditions, global business is personified by multinational companies. They use "comparative" resource advantages – financial and technological supremacy (often corruption), and natural resources and cheap labor of poorer countries, and then trade around the world. This globally integrates factors of production and markets, and centralizes profits to the detriment of underdeveloped countries. Therefore, multinational companies are supranational institutions that consider national borders as an incident and limitation of their own definition and identity (Drucker, 1986). Global and multinational business was not imposed on companies, but, on the contrary, they imposed it due to their ambitions (with the help of international institutions as their sponsors) through neoliberal doctrine and deregulation of the economic systems of countries around the world.

Globalization and business expansion of large corporations took place to a large extent in the form of outsourcing - external provision of activities. "In their report *The End of Cheap Chinese Labor*, published in the Fall 2012 *Journal of Economic Perspective*, economists Hongbin Li, Lei Li, Binzhen Wu and Yanyan Xiong noted that at the start of China's economic reforms in 1978, the annual earnings of a Chinese worker were only US\$1,004. That was only 3% of the average wage for American workers at the time. By 2010, the average annual salary of a Chinese worker, according to the *China Statistical Yearbook*, was US\$5,487 and China has become a middle-wage country" (Cooke, 2014).

In the first half of 2009, about 33 percent of US apparel imports were from China" (Chopra, Meindl, 2013). During that period, American companies came to China and left as the wages of employees rose, and many stayed either returned, or moved to Vietnam and Cambodia due to the still cheap labor, and the proximity of China and India, which were fast growing markets due to rising discretionary income.

In any case, multinational, global companies will always deal with their corporate interests, combining commercial and financial transactions, allocating capital around the world, creating for many countries short-term surpluses, or deficits in the balance of payments and trade after withdrawal, which in itself brings uncertainty and instability. This approach to management, where cost reduction through low wages and cheap raw materials is always taken into account, in order to achieve higher profits, or through mass availability through all distribution channels, is essentially counterproductive and degrading for the function of innovative management of the enterprise as a social institution.

Globalization is not the immediate cause or the real reason for the emergence of supply chain concepts and practices. That reason was added subsequently with the change in the business environment when many supply chains acquired the attribute of "global". In the conditions of globalization, traditional marketing and communication tools can still be defined according to products (product lines), according to customers and market segments, according to territories, according to tasks (eg standard products and promotion of innovative and new products). The only problem is how to connect all these elements into rational and effective flows, to which the global logistics and distribution profession should contribute. "The globalization of the industry, and therefore the supply chain, is inevitable. However, to enable the potential benefits of global networks to be fully realized, a broader supply chain perspective must be adopted" (Christopher, 2011). The driver and real reason for creating an authentic global supply chain, while respecting the concept, is the need to manage and control the entire value chain flow of growing companies and to achieve a strategic, competitive position on a globally segmented market, which is not a negative phenomenon in itself. The bad neoliberal practice of the corporate model has led to negative phenomena at the global level. What's more, the largest corporations supported and encouraged deregulation, which can be defined as the removal of economic sovereignty, the state, which opened the way for the greed and unethical behavior of big capital.



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# CONCEPT OF CORPORATION VS SUPPLY CHAIN CONCEPT

The supply chain concept (and SCM) ignores the corporation because it is the opposite concept: a corporation is a hierarchical organization that assigns budget and financial and other goals to business units through authoritarian, top-down communication, and that insists on hiding information, trade secrets, and profits. The evolution of the corporation was from a functional to a divisional organization rather than a supply chain. The supply chain is, on the contrary, a cooperative organization (association) that insists on market values, on integrating activities and creating and accelerating processes in the delivery of value, on exchanging or sharing information and interorganizational coordination of decisions. However, with the concept of corporate governance, in many companies, there is still resistance to restructuring and full implementation of the SCM concept at the level of special programs of strategic business units. Key decisions in many companies are still centralized to the extent that during frequent acquisitions, the strategic business unit itself (management and employees) is the last to learn that it has been sold.

Drucker described the processes and practices of corporate decentralization since the 1950s primarily as assigning autonomous jobs to parts of the company with centralized control, calling that process federalization, i.e. federal decentralization (Du Pont Company, General Motors and General Electric Company). Decentralization took place on the basis of the centralized imposition of goals - which goals should be achieved by the organizational unit (division), based on which activities are determined and resources and capacities are allocated for those jobs and tasks, supposedly autonomous units. "All Sears stores, regardless of size or location, have, for instance, a store controller, an operations manager, and department heads for major merchandise areas such as appliances. All GM manufacturing divisions have the same seven key functions: engineering, manufacturing, master mechanic, purchasing, marketing accounting, and personnel, with the head of each reporting directly to the division's general manager. In a federally organized structure, each manager is close enough to business performance and business results to focus on them. He is close enough to results to get immediate feedback from business performance on his own task and work" (Drucker, 1986). So it is an internal focus, not a strategic focus on the market.

In their strategic dilemmas in the last few decades, traditional multinational companies that have become global, decentralize and allocate their capacities considering first of all the dilemma - cheap labor and other resources, or the proximity and environment of consumers and the growth of the discretionary income of the population in developing countries. It is not a dilemma between the concept of the value chain and the normally associated profit, it is usually a rough calculation about the profit: is it more profitable to use cheap labor and other resources of distant countries, or proximity to the market, speed of market entry and sales growth, where they are significant factor in transportation and other logistical costs that can negate the benefits of the first phase.

A company with a corporate-type global supply chain passes none of the huge savings to consumers on the basis of cheap labor, cheap raw materials and energy, appropriating all the profits from such circumstances, and still covering up numerous irrationalities in its organization. The only thing that a global company must deal with most seriously in these conditions is the complex issue of logistics, because logistics costs can almost cancel out all the effects and benefits of technological supremacy, cheap labor and other resources.

In such corporations there must be a "supremacy clause" reserved for central management and for decisions affecting the overall business and long-term welfare. This enables the central management to overcome local ambitions and pride in the common interest. Specifically, there must be three areas reserved for top management: which technologies, markets and products to go into, which companies



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to start and which to leave, and finally, what are the core values, beliefs and principles of the company. In addition, top management must reserve control over the allocation of capital and key resources, as well as the right to appoint management and assign responsibility to autonomous managers. Corporate management can make decisions about key prices and ranges, about the necessary assortment, and the like. The traditional English system in which the executive directors of the board, i.e. regular members of the top management, usually the heads of the main departments and subsidiaries, results in the fact that there is neither top management nor decentralization. Basic decisions are either not made or are made by compromise and trade between department heads, so capital and resource allocation decisions very rarely change (become traditional) (Drucker, 1986).

This kind of organization of the corporation can hide problems with the overall result of the corporation. It is still an internally focused and even too decentralized and fragmented system in which all parts correspond to the top management based on an imposed organization, and far from decentralization based on external, strategic needs and according to the criteria of the researched market (selected market segments to be served) and adequate operating system. In fact, it is about the fact that autonomous companies or strategic business units are not yet assigned enough "strategic things" to dispose of, they are primarily assigned end-to-end operational tasks.

After the 1970s, there was a lot of research that dealt with the problem of company size, the problem of (de)centralization, (in)coherence and diversification of jobs and business. As a key issue of corporate management, the issue of coherence of parallel or successive programs is raised. In that sense, "firms are coherent to the extent that their constituent businesses are related to one another... In many cases, however, diversification is a straightforward consequence of micro-level diversity in the demands of the buyer population... Thus the sequence is generally for firms to begin as a single product and subsequently become multiproduct, rather than the other way around... A firm's coherence increases as the number of common technological and market characteristics found in each product line increases. Coherence is thus a measure of relatedness. A corporation fails to exhibit coherence when common characteristics are allocated randomly across a firm's lines of business" (Teece et al., 1994).

Business diversification is the sphere of the corporate model of managing various programs, while focusing (on product and market) is the sphere of enterprise and market segment management and a form of specialization and strategic positioning. In general, the diversification of a corporation refers to the company's various businesses and the goals of business coherence, primarily from the perspective of profit, the engagement of excess of various resources or the reduction of transaction costs. Focusing refers to products and product lines connected by the same market and most often related or the same basic technologies. Proving that parallel or "conglomerate" businesses and multiple programs of corporations can be coherent, with synergistic effects, is not very successful. A firm will succeed if it is connected to external factors, to the commodity market, with or without a "corporate parent", and not because of parallel diversified businesses.

Ambitiously created diversified businesses of corporations, with a complex hierarchical management structure, or ambitious acquisitions, quickly proved unsuccessful in many cases. The sluggishness of the organization was shown rather than efficiency and vitality. "Certainly in the standard textbook on microeconomic analysis of firms there is usually nothing to explain why firms are diversified, let alone the nature of their diversification.... Thus the conglomerate ITT was put together by Harold Geneen, only to be dismantled by his successors. Similarly, Richard Ferris put together the Allegis Group, starting with United Airlines, only to have it undone months later by his successors" (Teece et al., 1994). The authors of this article (exact research) also conclude: "An understanding of the corporate coherence of its validity would, on the one hand, tend to support our view of the firm as a package of technical and





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organizational competencies ... We also view the hollow corporation (bound only by contracts) as an organizational mutation" (Teece et al., 1994).

Proving the alleged effectiveness of diversified jobs based on technical and organizational competencies, without comparing them with the effects of an alternative, strategically focused and market-determined organization, is not very useful, rather it can be misleading.

Finally, the effects of diversified business could be significant until the middle of the last century, when it was important to be organizationally and technically competent and productive and to engage capital and resources, because the demand was constantly growing. In the conditions of increased competition, fragmented and highly diversified demand of narrow market segments, complex companies with related businesses in different industries and in different markets simply became sluggish. They lack the ability of strategic focus and knowledge of the market, improvement in what the company (enterprise) constantly and best does, operational readiness and focus on current information to continuously act operationally, as well as the values of a unique organizational culture.

A single corporation with diversified businesses cannot evolve a supply chain starting from its previous internal unity and focus. In order to create a supply chain (or several supply chains), restructuring and re-engineering is required, which will consistently link SPJ to the market and external partners with whom integrated processes are created, "from scratch". A supply chain is an externally process-linked and integrated structure purposefully organized to create a value stream for customers and consumers, for someone outside the system. The supply chain concept is a call to corporations for true market-driven reengineering.

Apart from these organizational management techniques and models, the problem of the legitimacy of corporate goals also appears. Pure professionalism and technocratism of management can be the basis for full legitimacy of multinational companies. Legitimacy can only be given by value management goals created for someone outside the corporation. Global society, through all organizations and institutions, proclaims the principles of humanity, equality, progress and well-being for all, but it is debatable whether this is always the case in practice, or whether it is the "populism of the ruling class". (In fact, it is often evident that this is not the case). In this sense, the legitimacy of social organizations and financial institutions and multinational companies is sought on the basis of proclamations.

In practice, that legitimacy (often also legality) still has to be constantly monitored - is the behavior correct, is it moral? "What managers should accept as legitimate authority is the principle of morality... that's why the rhetoric of 'profit maximization', 'profit motives' is not only antisocial, it is immoral... The principle of morality must be based on the goals and characteristics of the organization and in the nature of the institution itself... This is the purpose of the organization and therefore the basis of management authority: to make human work productive... Thus personal power brings social benefit. This can be the basis for legitimacy" (Drucker, 1986).

## OUTSOURCING AND OFFSHORING INITIATIVES

Outsourcing and offshoring are business segments that can link the concept of the supply chain and the concept of the corporation and corporate governance, although the motivations for these practices are not identical.

Outsourcing can be defined as the outsourcing of activities with firms outside the supply chain management system. The development of cooperation between companies in the form of outsourcing (Business Process Outsourcing, BPO), from a supply chain perspective, is a significant implication of



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Porter's value chain theory, which requires that for each activity it must be determined whether it is performed in a competitive manner. If this is not the case, then it is better to entrust those activities to partners who specialize in it, and who will do it cheaper and with better quality. In contrast to vertical organization and integration of processes, when all tasks in process flows are performed within the company (in sourcing or in-house), the practice of outsourcing means that the company assigns some tasks to subcontractors whose specialties and core competencies are those tasks.

Many non-core activities that were performed within the company were a big problem decades ago, because, in a closed internal system, they were performed with poor quality and with high costs and slowed down the process. The companies did not succeed in bringing these activities under control, because they were engaged in their most important activities. For the corporate approach, it was important to make a profit in the final result. Only in recent decades has it been realized that these, essentially secondary, although necessary activities, create major problems and costs in business processes on various grounds. In the processes of reengineering and re-examination of the value chain, in the 1990s, the world's most inventive companies began to free themselves from this burden in a dramatic way, ceding those activities to other companies in other industries, specialists for those jobs.

A characteristic of classic outsourcing (which can also be international) is that the company that engages the outsourcing company has no right, nor ambition, to manage the performance of the process or other segments of that company, as is the case with other partners in the supply chain: the subject of the contract is only the agreed quality, quantity and dynamics of deliveries. For some industries and in many cases, outsourcing is of the greatest strategic importance: it converts fixed costs into variable costs (Cox et al., 2003) because there is no need to build capacities that, in addition, may be underutilized, and with outsourcing, production costs are tied to sold products and as a liability to suppliers, and then, outsourcing companies can also bring new technological solutions (Intel in the electronics industry, for example).

International outsourcing is developing particularly intensively with the development of telecommunications infrastructure. At the beginning, American companies transferred some parts of production and routine work to Mexico or the Far East, primarily because of lower production costs. Today, however, many office and administrative-analytical tasks are outsourced to specialized firms in China, India, and the Philippines. Those companies have a worldwide reputation as specialists, they work with quality and cheaply.

You should also keep in mind the difference between foreign outsourcing and offshore jobs. Offshore companies are established in countries (usually "tax havens") that primarily have cheap labor and special tax treatment. Foreign outsourcing, due to the above reasons (low input prices in poor countries), can be considered extensive outsourcing, in contrast to classical outsourcing, which finds its motives in improving the performance of operational efficiency of the supply chain and improving technology and quality. The outsourcing calculation is simple: the focal company simply pays for the work done and does not get involved in management. In offshoring, the focal company manages the facilities as if it were its own and bears all operating costs and fixed costs of the facility. In relation to offshoring, outsourcing in a business sense carries less risk because there are fewer hidden costs, because management risk is not actually assumed. Quality, quantities, prices and deadlines are agreed upon. Offshore has more complicated communication and thus increased inventory and other hidden costs covered by the parent company.

Today, outsourcing is a source of business improvement and innovation, as well as supply chain agility. Outsourcing providers are best-in-class providers and contribute significantly to improved performance and competitive advantage (Click, Duening, 2005.). At this level of development of the supply chain concept, it can still be concluded that outsourcing is not the essence of the supply chain concept, but indirectly it is. It is a matter of one company, not a supply chain which is a complex structure.



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Companies have their own rational reasons and decide for themselves how they will ensure certain activities and realize the performance of the products and processes they perform. The reasons are: lack of capacity, better quality, lower costs or lack of own expertise and skills. The outsourcing company is outside the supply chain management system and also outside the management system of the ordering company. These are close partnership relationships, but mostly on a transactional level, that is, it is a transactional, more or less long-term business that has its own price and values.

## CONCLUSION

The concept of the supply chain and the traditional concept of the corporation that still exists today are two models and two views of business. A supply chain is a horizontal process structure whose specific configuration creates certain, specific values for end users. A corporation is a vertical hierarchical organization with often diversified operations and parallel programs from which capital owners, creditors expect to maximize profits and returns. From the 1980s to today, the concept of the supply chain has been accepted without hesitation in theory and practice as a necessity and necessity for economic and social reasons. The essence of the supply chain concept is to create value for someone outside the supply chain system, and the companies involved are then social institutions.

For the same reasons, the concept of corporation and especially corporate practice, which often deviates from the proclaimed principles, is under suspicion. This is especially happening today in the globalized environment when the most powerful corporations have grown and accumulated capital that needs to be engaged and increased at any cost, using the global supply of cheap inputs and the global market. At the same time, a significant part of the business of corporations, regardless of their activity, is related to stock market business and speculative business, which is a potential reason for crises, disturbances and problems at the global level.

Global operations bring advantages and access to strategically focused supply chains, targeting carefully researched market segments. For corporations and conglomerates, the main motives are internal and financial and cost reduction through cheap inputs and mass production. The means involved in the organization and strategy of established supply chains and corporate corporations are powerful information technologies and powerful logistics systems. Of particular importance are outsourcing and offshoring jobs, which each of the concepts and models uses for the reasons mentioned.

## REFERENCES

- Chopra, S., Meindl, P. (2013). Supply Chain Management, Strategy, Planning, and Operation. 5<sup>th</sup> edition. Pearson Education, Inc., London.
- Click, R. L., Duening, T. N. (2005). Business Process Outsourcing. John Wiley and Sons, Inc., New Jersey.
- Cooke, J. A. (2014). Protean Supply Chains, Ten Dynamics of Supply and Demand Alignment. New Jersey: John Wiley & Sons, Inc., Hoboken.
- Cox, A., Ireland, P., Lonsdale, C., Sanderson, J., Watson, G. (2003). Supply Chain Management. Prentice Hall, New Jersey.



## Conference Proceedings

Christopher, M. (2011). *Logistics and Supply Chain Management*. Fourth edition. Pearson Education Limited, London.

Houlihan, J. B. (1988). International Supply Chains: A New Approach. *Management Decision*, 26(3), 13-19.

Hugos, M. (2011). *Essentials of Supply Chain Management*. Third edition. John Wiley and Sons, Inc., New Jersey.

Mentzer, J. T., De Witt, W., Keebler, J. S., Min, S., Nix, N. W., Smith, C. D., Zacharia, Z.G. (2001). Defining Supply Chain Management. *Journal of Business Logistics*, 22(2), 1-25.

Porter, M. E. (2000), What is Strategy, *Harvard Business Review*, November-December 1996. (HBR OnPoint, 2000).

Wisner, J., Tan, K-C., Leong, G. K. (2023). *Principles of Supply Chain Management*, 6<sup>th</sup> edition. Cengage Learning, Inc., Boston.



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# COMPARING FRAUD CASES IN NIGERIAN AND US BANKS: LESSONS FOR PREVENTION AND REGULATION

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DOI: 10.5937/EEE24086P  
JEL: G21, G23  
Review Scientific Paper

### ABSTRACT

*This study investigates the prevalence, types, and impacts of bank fraud in Nigeria, comparing it with similar cases in developed countries. Employing a mixed-methods approach, the research combines quantitative and qualitative data from annual reports, academic articles, and case studies. By analysing these sources, the study identifies the factors contributing to bank fraud in Nigeria and evaluates the effectiveness of preventive measures implemented by Nigerian banks. The findings reveal that while Nigeria has experienced a significant increase in bank fraud cases, the average amount lost per case is lower than in developed countries. The most common types of fraud are ATM/card cases and electronic fraud. Factors contributing to bank fraud include inadequate internal controls, technological vulnerabilities, insider threats, and external pressures. The study also evaluates the effectiveness of preventive measures implemented by Nigerian banks, such as advanced technologies, internal controls, and employee training. The results provide valuable insights for policymakers, regulators, and banks in addressing the challenges of bank fraud in Nigeria.*

### KEYWORDS

*bank fraud, Nigeria, preventive measures, comparative analysis, financial institutions*

## INTRODUCTION

Technological advancements have made banks vulnerable to sophisticated fraud schemes, leading to a global concern. In 2023, worldwide fraud losses reached \$4 trillion, with banks as primary targets (ACFE, 2023). This study aims to compare bank fraud trends in Nigeria with developed nation. Fraud is a deliberate deception for personal gain (Soni, Neena, 2013). The ACFE defines it as intentional

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deception, concealment, or breach of trust (ACFE, 2023). The USSC emphasizes financial loss and deceptive tactics (USSC, 2024). Expands the definition to include harm to others.

This study will provide valuable insights into bank fraud trends in Nigeria and inform the development of effective fraud prevention strategies by answering the following questions:

1. What are the predominant types of bank fraud in Nigeria compared to other countries?
2. How does the prevalence of bank fraud in Nigeria compare to developed nations?
3. What factors contribute to varying levels of bank fraud across countries?
4. What are the specific strategies used by banks in Nigeria to prevent and detect bank fraud?
5. How effective are these strategies compared to international best practices?

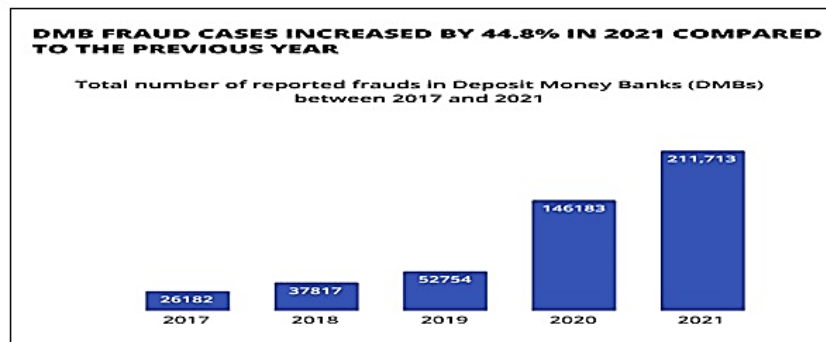


Figure 1. Rise in deposit money bank fraud  
Source: Uma (2023)

### Types of Bank Fraud

Common bank frauds include identity theft, account takeover, credit card fraud, check fraud, and Ponzi schemes.

#### Identity Theft

Identity theft occurs when fraudsters obtain personal information to commit fraud. This can involve phishing, data breaches, or physical theft. Stolen information is used to create accounts, obtain loans, or make purchases. Banks implement safeguards like two-factor authentication and identity verification, but fraudsters constantly evolve their techniques (Soni, Neena, 2013, Jain, Tiwari, Dubey, 2019). Victims bear the burden of detection and reporting, leading to financial and emotional distress (Enoch, John, Olumiyiwa, 2013).



Figure 2: Impact of Identity Fraud in Banks  
Source: Kitten (2021)



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### **Account Takeover**

Fraudsters gain unauthorized access to accounts through viruses, social engineering, or phishing. They can then transfer funds, make purchases, or alter information without the account holder's knowledge. Banks face challenges in preventing account takeover due to increased online and mobile banking (Akinyomi, 2012).

### **Credit Card Fraud**

Credit card fraud involves unauthorized use of a credit card number or stolen card. This can occur through skimming, phishing, or using stolen information for online transactions. 11% of reported fraud cases in 2018 were credit card fraud (ACFE, 2023). Banks use CVV codes and EMV chips for security, but fraudsters find ways to bypass them (Enoch, Hohn, Olomuyiwa, 2013, CBN, 2023).

### **Check Fraud**

Check fraud involves using falsified or altered checks to obtain funds from bank accounts. This can include writing fake checks, changing payee information, or using lost or stolen checks. Check fraud can result in significant losses for both individuals and banks (Subramanian, 2014). 82% of organizations experienced check fraud attempts in 2019 (CBN, 2023). Banks implement check verification systems and fraud detection algorithms, but sophisticated fraudsters can evade these measures (FBI, 2023, Bakiaris, Papachristou, 2017, Idolor, 2010).

### **Ponzi Schemes**

Ponzi schemes promise high returns to investors but use new investor funds to pay off existing ones. Fraudsters posing as reputable investment firms can lure clients into these scams (Podkolzina, Belousov et al. (2019)). Bernie Madoff's scheme caused billions in losses. The CBN advises investors to be cautious of high-return, low-risk investments (CBN, 2023). Banks may unintentionally facilitate Ponzi schemes by offering services to scammers. Identifying fraudulent schemes can be challenging, and banks may face legal repercussions if involved (Thammareddi, Agarwal et al., 2023, Ata, Hazim, 2020).

### **Impact on Banks and Customers**

Fraud has significant financial and reputational implications for banks. It can erode trust, lead to operational challenges, and result in fines and legal penalties. Customers may experience financial losses, identity theft, and emotional distress.

Banks are responsible for safeguarding their customers' money, and when fraudulent activities occur, it can result in significant monetary losses. This can include large-scale fraudulent actions like insider trading as well as smaller-scale frauds like credit card scams (Olumiyiwa, 2023). The Association of Certified Fraud Examiners said that in 2020, fraud cost banks an estimated 5% of their yearly income (ACFE, 2023). Such losses not only affect the bank's bottom line, but they also have a cascading effect on their customers and the economy as a whole.

Fraud also has a significant impact on banks' reputation and credibility (Mangala, Soni, 2023, Emmy, Chinwe, Emmanuel, 2016). Banks must uphold customer trust by handling their money with integrity and protecting it from fraudulent activities, but failure to do so can lead to customer loss and revenue loss. In a survey conducted by PwC, 77% of respondents said they would be less likely to do business with a bank that had experienced fraud (Kopalo, Olaniyan, 2018). The negative effects of fraud on a bank's reputation can be long-lasting and can result in the loss of both current and potential customers.



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Figure 3: Loss due to fraudulent Loans  
 Source: Olumiyiwa (2023)

Furthermore, fraud can also have a significant impact on customers. One of the primary consequences of fraud for customers is the financial loss they experience.

### Impact of Fraud on Banks and Customers

Fraud has significant consequences for both banks and customers. Financially vulnerable individuals may suffer devastating losses (PwC, 2023). Additionally, fraud can lead to emotional distress, increased anxiety, and loss of trust in financial institutions (Christinawati, Setiyawati, 2022). Fraud can also have long-term effects on consumers' credit ratings (Kolapo, Olaniyan, 2018, Christinawati, Setiyawati, 2022). Undiscovered credit card fraud can result in missed payments and damage to credit scores, hindering future access to credit (Cavaliere, Subbash, Rao et al., 2021). In the digital era, banks hold vast amounts of customer data, making them vulnerable to data breaches and identity theft (Idolor, 2010, Kolapo, Olaniyan, 2018). This can lead to financial losses, identity theft, and reputational damage for consumers.

## METHODOLOGY

This study used a mixed-methods approach, combining quantitative and qualitative research. Quantitative data was gathered from annual reports of Access Bank, First Bank, Fidelity Bank, and the Central Bank of Nigeria. Qualitative data was collected through in-depth case studies of specific fraud incidents. Both quantitative and qualitative methods were used to analyze the data. Descriptive statistics were used for quantitative analysis, while thematic and content analysis were used for qualitative analysis.

## RESULTS AND FINDINGS

### Access Bank case:

- Fined N2 billion by the CBN for anti-money laundering violations.





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- Ordered to pay N42 billion to a customer for unlawful deductions.
- Three former employees charged with stealing N10 million.
- Highest number of fraud cases in 2020 (2,901 cases, N6.41 billion).

### First Bank case:

- Fined N1 billion by the CBN for anti-money laundering violations.
- Ordered to pay N2.5 billion to a customer for unlawfully freezing her account.
- Two former employees arrested for stealing N264 million.
- Second-highest number of fraud cases in 2020 (2,502 cases, N5.27 billion).

### Fidelity Bank case:

- Experienced ATM fraud, resulting in N40 million loss.
- Former employee convicted of defrauding the bank of N6.4 million.
- Recorded 18 cases of insider-related fraud in 2015.
- Recorded 69 cases of loan fraud in 2018.

## Comparative Analysis

Table 1. Summary of Comparative Metrics Among Case Study Banks

Categories of Frauds	Access Bank	First Bank	Fidelity Bank
Reported Fraud cases (2019)	3,049	2,183	1,934
Average amount lost per fraud cases	<b>₦887,000 (approximately \$1,830)</b>	<b>₦1.24 million (approximately \$2,560)</b>	<b>₦753,000 (approximately \$1,550).</b>
Types of fraud cases	ATM/Card cases-1,493 Electronic fraud cases-474	Electronic fraud cases-746 ATM/Card cases-994	ATM/Card-related fraud cases at 1,116 cases. Electronic fraud cases-572

Source: NIBSS (2023) Comparison of Fraud Cases in Nigerian Banks

**Access Bank and First Bank have both experienced fraud cases.** However, Access Bank has reported a higher number of cases and a higher total amount lost. In 2020, Access Bank reported 3,049 cases, while First Bank reported 2,183. However, First Bank had a higher average loss per case (₦1.24 million) compared to Access Bank (₦887,000)23.

**The types of fraud differed.** Access Bank had more ATM/Card-related fraud (1,493 cases), while First Bank had more electronic fraud (746 cases)24. Access Bank's larger scale and operations in multiple



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African countries may make it a more attractive target for fraudsters. Both banks have faced fines from the CBN for regulatory violations.

Fidelity Bank also experienced fraud cases, reporting 1,934 in 2020. Although lower than First Bank, Fidelity Bank had a higher average loss per case (₦753,000) compared to Access Bank. Similar to the other banks, Fidelity Bank had more ATM/Card-related fraud cases.

### Comparison with Other Countries

Table 2. Summary of Bank fraud cases in US Banks

Categories of Fraud Cases	Capital One	Wells Fargo	Goldman Sachs
Reported Fraud cases (2019)	4,300	1,068	1,189
Average amount lost per fraud cases	\$1,230	\$1,449	\$2,710
Types of fraud cases	Credit card fraud-1,500 Online banking-190 Market misconduct-337	Identity theft-280 Bribery and corruption-160	Online banking-190 Identity theft and account takeover- 560

*Source: Office of the Special Inspector General for the Troubled Asset Relief Program [SIGTARP] (2023)*

### Comparison of Fraud in Nigerian and US Banks

While Nigerian banks reported a higher number of fraud cases in 2019 compared to US institutions like Capital One, Wells Fargo, and Goldman Sachs, the average amount lost per case was significantly lower in Nigeria. This could be due to differences in currency values, economic status, and security measures.

### Fraud Case Comparison

Number of cases: Nigerian banks reported 3,049-2,183 cases, while US banks reported 1,068-1,189. Average loss: Nigerian banks lost ₦753,000-₦1.24 million per case, while US banks lost \$1,230-\$2,710. Types of fraud: Nigerian banks primarily reported ATM/card and electronic fraud, while US banks reported identity theft, credit card fraud, and online banking fraud. These differences may be attributed to Nigeria's developing banking sector and its ongoing digitalization. While US banks have more advanced security measures, Nigerian banks may be more vulnerable to fraud due to their stage of development

### Effectiveness of Preventive Measures

All three banks have implemented robust fraud prevention measures, including advanced technology and tightened internal controls. Access Bank uses real-time monitoring and staff training. First Bank has focused on multi-factor authentication and biometric authentication. Fidelity Bank has implemented advanced fraud detection software, customer education, and enhanced security measures. These measures have helped reduce fraud incidents. However, challenges remain, such as card skimming and internal fraud, highlighting the need for continuous improvement in fraud prevention strategies.



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# CONCLUSION AND RECOMMENDATIONS

Fraud is a significant issue in Nigeria's banking sector, affecting banks and customers. It results in financial losses, reputational damage, emotional distress, and compromised personal information. All three major banks (Access Bank, First Bank, and Fidelity Bank) have experienced fraud. While Access Bank has reported more cases, First Bank has higher average losses per case. Compared to US banks, Nigerian banks have reported more fraud cases but lower average losses. Factors contributing to fraud include inadequate internal controls, technological advancements, insider fraud, lack of customer awareness, and corruption. Banks should invest in advanced fraud detection systems, strengthen internal controls, conduct regular staff training, educate customers, and strengthen customer authentication processes.

## REFERENCES

- Akinyomi, O. J. (2012). Examination of fraud in the Nigerian banking sector and its prevention. *Asian Journal of Management Research*, 3(1), 182-194.
- Association of Certified Fraud Examiners (2023). 2023 Global Fraud Survey. Retrieved from <https://www.acfe.com/fraud-resources/global-fraud-survey>
- Ata, O., Hazim, L. (2020). Comparative analysis of different distributions dataset by using data mining techniques on credit card fraud detection. *Tehnički vjesnik*, 27(2), 618-626.
- Bekiaris, M., Papachristou, G. (2017). Corporate and accounting fraud: Types, causes and fraudster's business profile. *Corporate Ownership & Control*, 15(1), 467-475.
- Cavaliere, L. P., Subhash, N., Rao, P.V.D et al. (2021). The Impact of Internet Fraud on Financial Performance of Banks. *Turkish Online Journal of Qualitative Inquiry*, 12(6), 8126-8157.
- Central Bank of Nigeria (2023). Advanced fee fraud (419). Retrieved from <https://www.cbn.gov.ng/419/Cases.asp>
- Central Bank of Nigeria (2023). Nigeria Electronic Fraud Forum (NeFF). Retrieved from <https://www.cbn.gov.ng/documents/NeFFar.asp>
- Christinawati, M., Setiyawati, H. (2022). Factors Affecting Banking Fraud Prevention and Their Impact On The Quality of Financial Statements. *International Journal of Social Science and Business*, 6(2), 215-224.
- Emmy, O., Chinwe, O. C., Emmanuel, O. C. (2016). Impact of fraud on risk assets of Nigerian commercial banks. *Journal of Finance and Economic Research*, 3(1), 81-96.
- Enoch, Y. S., John, A. K., Olumuyiwa, A. E. (2013). Mitigating Cyber Identity Fraud using Advanced Multi Anti-Phishing Technique. *International Journal of Advanced Computer Science and Applications*, 4(3), 156-164.
- Federal Bureau of Investigation (2023). Bank crime statistics. Retrieved from <https://www.fbi.gov/how-we-can-help-you/more-fbi-services-and-information/library/bank-crime-statistics>
- Hoffmann, A. O., Birnbrich, C. (2012). The impact of fraud prevention on bank-customer relationships: An empirical investigation in retail banking. *International Journal of Bank Marketing*, 30(5), 390-407.



## Conference Proceedings

Ibemere, D. (2024). Fraud Alert: First Bank, Access, GTB, UBA expose tricks, advise customers to protect bank accounts. Retrieved from <https://www.legit.ng/business-economy/money/1570866-access-gtb-bank-sends-scam-alarm-messages-customers/>

Idolor, E. J. (2010). Bank frauds in Nigeria: Underlying causes, effects and possible remedies. *African Journal of Accounting, Economics, Finance and Banking Research*, 6(6), 62-80.

Jain, Y., Tiwari, N., Dubey, S., Jain, S. (2019). A comparative analysis of various credit card fraud detection techniques. *International Journal of Recent Technology and Engineering*, 7(5), 402-407.

Kolapo, F. T., Olaniyan, T. O. (2018). The impact of fraud on the performance of deposit money banks in Nigeria. *International Journal of Innovative Finance and Economics Research*, 1(6), 40-49.

Mangala, D., Soni, L. (2023). A systematic literature review on frauds in banking sector. *Journal of financial crime*, 30(1), 285-301.

Nigeria Inter-Bank Settlement System [NIBSS] (2023). 2023 annual fraud landscape. Retrieved from <https://nibss-plc.com.ng/2023-annual-fraud-landscape/>

Nigeria Inter-Bank Settlement System [NIBSS] (2023). 2023 annual fraud landscape. Retrieved from <https://nibss-plc.com.ng/2023-annual-fraud-landscape/>

Olumiyiwa, O. (2023). A clash between Nigerian banks and neobanks highlights financial industry's complicated fraud problems. Retrieved [https://pmnewsnigeria.com/2023/08/06/first-bank-staff-nwadiashi-who-debited-over-n9m-from-customers-account-bags-jail-term/#google\\_vignette](https://pmnewsnigeria.com/2023/08/06/first-bank-staff-nwadiashi-who-debited-over-n9m-from-customers-account-bags-jail-term/#google_vignette)

PwC (2023). Strengthen bank fraud and financial crime defenses amid activity surge. Retrieved from <https://www.pwc.com/us/en/industries/financial-services/library/our-take/bank-stress/strengthen-bank-defenses.html>

Podkolzina, I. M., Belousov, A. I., Uzdenova, F. M., Romanko, L. V., Chernikova, O. A. (2019, October). Forms of financial fraud and ways to minimize risks. In: Institute of Scientific Communications Conference (pp. 2197-2205). Springer International Publishing, Cham.

Soni, R. R., Neena, S. (2013). An investigative study of banking cyber frauds with special reference to private and public sector banks. *Research Journal of Management Sciences*, 2(7), 22-27.

Subramanian, R. (2014). *Bank fraud: Using technology to combat losses*. John Wiley & Sons, New York.

Thammareddi, L., Agarwal, S., Bhanushali, A., Patel, K., Venkata, S. (2023). Analysis On cybersecurity threats in modern banking and machine learning techniques for fraud detection. *An International Multi-disciplinary Online Journal*, 3(11), 1-11.

The United States Sentencing Commission (USSC) (2024). Fraud. Retrieved from <https://www.uscc.gov/topic/fraud>