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EDITORIAL

Upon completion of the double-blind peer review process, Issue 1 Volume 28 Year 2026 of the scientific journal *Economic Horizons* contains five original research papers, one review paper and the announcement of the scientific conference.

Starting from the premise that artificial intelligence has become a significant driver of economic development, the coauthors *Zoran Mastilo*, *Adis Puška*, and *Anđelka* Štilić examine the potential of Southeast European (SEE) countries in the field of artificial intelligence application. The study employs values from the Government AI Readiness Index, which comprises nine indicators, to assess the potential of SEE countries in this important domain. In addition, a multi-criteria decision-making method is applied to compare SEE countries according to the level of artificial intelligence utilization. The results indicate that the indicators of maturity and adaptability carry greater weights compared to other indicators, with Greece and Bulgaria achieving the most favorable values. These findings are further confirmed through sensitivity analysis.

The growth of global trade over the past few decades, along with the increasingly active participation of countries in trade flows and supply chains, has highlighted logistics as one of the key factors facilitating international trade. However, the question remains as to who benefits the most from logistics. Accordingly, the coauthors *Filip Ž. Bugarčić* and *Viktorija Skvarciany* aim to examine the contribution of logistics to the enhancement of exports and imports in selected industries within OECD countries, as well as to determine the importance of logistics performance depending on sector-specific characteristics and product features. The results of the panel regression analysis indicate a significant impact of logistics on international trade within industries. Logistics makes a particularly strong contribution to trade in industrial goods and time-sensitive products, with a more pronounced effect on imports. These findings underscore the importance of logistics systems and related operations in the identified sectors.

In today's highly competitive business environment, companies facing labor shortages struggle to attract, motivate, and retain talent. Employer branding, understood as a combination of functional, economic, and psychological benefits provided by employment, represents one of the approaches companies develop to create a compelling employee value proposition and sustain their workforce. In this context, the coauthors *Nemanja Berber*, *Agneš Slavić*, and *Dimitrije Gašić* investigate the relationship between perceived employer branding and employees' intention to remain with the organization. The results of PLS-SEM analysis, based on a sample of 209 employees in the Republic of Serbia, indicate a positive relationship between the observed variables and lead to the conclusion that a favorable perception of employer branding increases employees' intention to stay. The strongest effects on retention intention were found for the following factors: a healthy work environment, training and development, work–life balance, ethics and corporate social responsibility, and compensation and benefits.

Given that, in addition to economic considerations, the environmental dimension is also crucial for business operations, and that the level of integration of environmental aspects into accounting practices remains low, the coauthors *Dejan Jovanović*, *Milan Čupić*, *Ivana Medved*, and *Jelena Poljašević* examine the extent to which firms are familiar with environmental cost accounting methods and whether corporate practices differ depending on the implementation of the ISO 14001 standard. The research was conducted on a sample of companies in the Republic of Serbia that are required to report data to the National Pollutant Release and Transfer Register. The results, based on descriptive statistics and nonparametric tests, indicate that companies pursue a reactive environmental policy,

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recognizing costs only after they arise, while neglecting preventive measures. Environmental costs are often concealed within general overheads due to reliance on traditional costing methods. The authors conclude that the main issues are an inadequate regulatory framework and a lack of motivation, pointing to the need for systemic changes, stronger incentives for companies, and improvements in the regulatory framework.

Emphasizing the importance of recognizing employees' subjective perceptions of workplace conditions that influence their behavior, the coauthors *Ivana Jolović, Stefan Zdravković*, and *Nevena Jolović* analyze the impact of perceived organizational justice on employees' turnover intentions. In addition, they examine the potential mediating role of organizational commitment in this relationship. The research is based on a combination of a theoretical review of relevant literature and an empirical analysis of the attitudes of millennial employees in the Serbian economy, using advanced statistical techniques. The findings confirm the hypothesis that organizational commitment mediates the relationship between perceived organizational justice and millennials' intention to leave the organization.

Highlighting that tourism faces challenges associated with modern, fast-paced lifestyles, the coauthors *Vedran Zubović* and *Ema Petaković Ikica* explore the concept of slow tourism, which promotes less frequent but richer and more sustainable travel experiences, focused on quality rather than quantity. The paper analyzes 47 scientific articles from the Web of Science and Scopus databases in order to examine the impact of slow tourism on sustainability, as well as on the perceived quality of tourism and tourism services. The study identifies six key dimensions of quality: spatial quality, product and service quality, local quality of life, quality of the tourist experience, perceived service quality, and transport quality. The results contribute to a deeper understanding of the importance of slow tourism for both tourists and destinations.

This Issue of the Journal contains the announcement of the international scientific conference on *Contemporary Issues in Economics, Business and Management – EBM 2026*, which was contributed by *Jelena Erić Nielsen*, Chairwoman of the Program Board. The Conference will be held in Kragujevac organized by the Faculty of Economics of the University of Kragujevac on 16th and 17th December 2026.

On behalf of the Editorial Board and in my own behalf, I hereby express my gratitude to the authors of the contributions published in Issue 1 of the Journal. Simultaneously, my special gratitude goes to the reviewers whose constructive and critical comments and suggestions given to the authors of the submitted contributions have contributed to raising the level of the quality of the published papers.

In January 2026, the Faculty of Economics made a change in the Editorial Board of the Journal. The members of the former convocation of the Editorial Board contributed to the continuous improvement of the scientific journal *Economic Horizons* in international citation databases.

This is the occasion to express gratitude to the members of the former convocation of the Editorial Board on behalf of the Faculty of Economics of the University of Kragujevac, as the publisher of the *Economic Horizons* scientific journal, the Editorial Board of the Journal, and on my own behalf. My special gratitude goes to the former Editor-in Chief, Professor Milena Jakšić, whose dedication and commitment have significantly contributed to the Journal's continuous advancement. I also thank the eminent representatives of the academic community, whose acceptance of the membership on the Editorial Board of the Journal allows them to contribute to the reputation of both the Economic Horizons and the Faculty of Economics of the University of Kragujevac.

The publishing of the *Economic Horizons journal* is financially supported by the Ministry of Science, Technological Development and Innovation of the Republic of Serbia.

Vladimir Mihajlović
Editor-in-Chief

Vladimir Mihajlović is an Associate Professor at the Faculty of Economics, University of Kragujevac, where he earned his PhD in the scientific field of General Economics and Economic Development. The main areas of his scientific research pertain to the development of economic thought, macroeconomic analysis and modeling, and the labor market.

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AN ASSESSMENT OF THE POTENTIAL OF ARTIFICIAL INTELLIGENCE APPLICATIONS FOR SUSTAINABLE DEVELOPMENT IN SOUTHEASTERN EUROPEAN COUNTRIES

Zoran Mastilo[1], Adis Puška[2] and Anđelka Štilić[3]*

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Artificial Intelligence (AI) has become a key factor in the development of countries. Countries have recognized the potential of using AI to achieve sustainable development. This research explores the potential of the Southeast European (SEE) countries in the field of AI applications. The Government AI Readiness Index, with its nine indicators, is used to assess readiness for AI applications. A comparison of the SEE countries for the application of AI was conducted using Multi-Criteria Decision Making (MCDM) methods. The methods used were MEREC (Method based on the Removal Effects of Criteria) and CORASO (COmpromise Ranking from Alternative SOlutions). The results of the MEREC method show that the maturity and adaptability indicators have higher weight values compared to the other ones. The results of the CORASO method show that Greece and Bulgaria have the strongest indicators, with the sensitivity analysis confirming these findings.

Keywords: artificial intelligence, sustainable development, Government AI Readiness Index, MCDM, MEREC, CORASO

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INTRODUCTION

Digital technologies and modern solutions increasingly influence the functioning of countries' economies (Adeyinka, 2023). Among these solutions, there is an increasing focus on developing artificial intelligence (AI) (Kuyoro, Fatade & Onuiri, 2025). Research is increasingly focused on developing new solutions and applying AI in real-world use. AI helps all segments of society and is becoming a key factor in digitalization processes (Peterka & Stroukal, 2024). AI has a wide range of applications and is reflected in processes automation, data analysis, and resource

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optimization, and can be used in the sustainable development of countries (Dabic-Miletic, 2024). Based on this, many countries are developing strategies so as to incorporate the application of AI in various sectors in order to leverage its benefits.

The Southeastern Europe (SEE) countries are facing digital transformations and the development of AI in all segments (Hristozov & Nozharov, 2024). However, for this to be applied in these countries, they must be ready to implement AI solutions. Their readiness for this is examined in terms of the development of their administration, technology, and infrastructure (Borissov & Hristozov, 2024). These are the key aspects that the SEE countries need to have. It is characteristic of the SEE countries that these segments are not developed to the same extent, so some countries are ahead of the others. Therefore, it is necessary to consider the advantages and limitations of the SEE countries when applying AI solutions is concerned.

Resource management is one of the key functions of AI in support of a country's sustainable development. AI-based resource management should be organized in a way to achieve sustainable development (Sarfraz, 2024), with the focus on environmental preservation, simultaneously improving the quality of life for the population. AI can play a significant role in the sustainable development of countries, making it necessary to capitalize on this opportunity (Lipianina-Honcharenko, Komar, Melnyk & Komarnytsky, 2024). The successful integration of AI depends on the relationship among government institutions, academic institutions, and the private sector (Purwanto, 2024). It is necessary to involve all relevant institutions in order to capitalize on the opportunities for applying AI in a country's development (Kaur, Kumar, Singh & Huang, 2024).

Different approaches have been developed to assess a country's readiness to use AI. The Government AI Readiness Index (2024) is one possible approach. This index consists of 40 indicators grouped into the three main categories: government, technology and data, and infrastructure. It highlights a country's readiness to adopt and use AI and can also identify gaps in these countries. Using the indicators contained in this index provides valuable data that can be used to develop strategies for integrating AI solutions in the SEE countries.

Digital transformation and the application of AI are becoming essential tools for improving countries' competitiveness and sustainable development (Driss, Dafri & Zouaoui, 2024). The SEE countries are facing various challenges they must address. AI can assist with this, but it is also necessary to modernize the public sector, education, and various economic sectors (Popescu, 2024). The question arises as to the level of the readiness of these countries to adopt AI in public administration, only to be followed by other sectors within these countries. The report entitled "The Government AI Readiness Index for 2024" (2024) gives the answer to the question of the SEE countries' capacity in terms of AI application. Based on the indicators presented in this report, a deeper analysis will be conducted in order to identify how AI can contribute to the achievement of sustainable development in the SEE countries. This study aims to link AI with sustainable development, which serves as the motivation for this research. The primary objective of this research is to assess the readiness of the SEE countries to implement AI for sustainable development, using the indicators of the Government AI Readiness Index for 2024 and the Multi-Criteria Decision Making (MCDM) method. Based on this research objective, specific research objectives are defined, intending to:

- identify the indicators for assessing the readiness of the SEE countries to implement AI from the Government AI Readiness Index report,
- compare the indicators of the SEE countries in terms of their capacities for AI implementation, especially in public administration,
- determine the importance of the indicators for the SEE countries' readiness to implement AI using the MEREC (MEthod based on the Removal Effects of Criteria) method,
- rank the SEE countries according to their potential for AI implementation using the CORASO (COmpromise Ranking from Alternative SOlutions) method,

- provide recommendations on how the SEE countries can achieve sustainable development through the use of AI.

This research makes multiple contributions, which are first reflected in the theoretical connection between AI and the sustainable development of the SEE countries. Then, it helps determine the potential and readiness of the SEE countries to implement AI, which will be achieved through the methodological framework that represents yet another contribution of this research. Additionally, it provides the current picture of the SEE countries in terms of their readiness to implement AI, based on which guidelines are given on how to enhance the countries' readiness to implement AI and advance their sustainable development.

LITERATURE REVIEW

AI is driving innovation across various sectors, enabling more efficient decision-making (Rajagopal, Qureshi, Durga, Ramirez Asis, Huerta Soto, Gupta & Deepak, 2022) and resource optimization (Wang, Deng, Zhou & Wu, 2023) and improving the quality of life (Olawade, David-Olawade, Wada, Asaolu, Adereni & Ling, 2024). Its applications range from economic and social aspects to environmental initiatives aimed at fostering sustainable development (Kulkov, Kulkova, Rohrbeck, Menvielle, Kaartemo & Makkonen, 2023). AI can contribute to all the dimensions of sustainable development: economic performance (through automation and productivity improvements (Mathew, Brintha & Jappes, 2023), improving the quality of life (through better services in healthcare (Aminizadeh, Heidari, Dehghan, Toumaj, Rezaei, Navimipour, Stroppa & Unal, 2024) and education (Srinivasa, Kurni & Saritha, 2022), as well as environmental sustainability (through energy optimization (Fan, Yan & Wen, 2023) and waste reduction (Onyeaka, Tamasiga, Nwauzoma, Miri, Juliet, Nwaiwu & Akinsemolu, 2023).

In the SEE, which is facing economic convergence and technological modernization challenges, AI represents an opportunity to accelerate development (Bazhal, 2022). However, the degree of the implementation of AI solutions depends on several factors, including institutional capacities, regulatory frameworks, and digitalization levels (Shostak, Lipych, Anatolii, Volynets, Andrew & Morokhova, 2024). Therefore, it is crucial to analyze how ready the SEE governments are to adopt AI technologies and how this affects their sustainable growth. One of the most relevant indicators for assessing a government's readiness for AI is the "Government AI Readiness Index" (Nzobonimpa & Savard, 2023; Nasution, Elveny, Pamucar, Popovic & Andrić Gušavac, 2024). This index evaluates a country's ability to develop, implement, and use AI technologies so as to foster social and economic development. For the SEE, this index can provide an insight into the strengths and weaknesses of individual governments in terms of AI strategies.

Whether a country is ready to implement AI technologies or not requires a systematic approach based on objective indicators (Myllyaho, Raatikainen, Männistö, Mikkonen & Nurminen, 2021; Kar, Choudhary & Singh, 2022). In addition to national strategies, it is vital to consider the role of regional and international initiatives, such as the EU Digital and AI Program, which can accelerate the development of AI systems in the SEE. The connection with the EU funds and regulatory frameworks can significantly impact the implementation of AI technologies in this region. A comparative analysis based on the "Government AI Readiness Index" can indicate specific areas in which improvements are needed in order to make AI a tool for sustainable growth.

In this context, MCDM methods effectively evaluate complex phenomena, such as AI readiness. In various research studies, the MEREC method has been used to identify the importance of indicators (Keshavarz-Ghorabaee, Amiri, Zavadskas, Turskis & Antucheviciene, 2021), which is particularly useful in the analyses which require crucial reliance on objective data in order to obtain objective weights for indicators. On the other hand, the CORASO method enables the precise ranking of alternatives based on their proximity to the best or the worst values for specific indicators. It calculates the deviation of each

alternative from the best or the worst values and determines the final ranking (Puška, Nedeljković, Božanić, Štilić & Muhsen, 2024). A combined application of these methods can contribute to a comprehensive analysis of the readiness of the SEE countries to adopt AI technologies.

The following section provides a brief review of several studies in which the Government AI Readiness Index was used. A study by H. Amin Mohamed (2024) examined how prepared countries were to adopt AI to boost economic growth. The results of this study showed that the level of the readiness of countries to implement AI affected economic growth, particularly through improvements in public services and the enhanced productivity of government agencies. S. Ahangama and S. Krishnan (2023) investigated the relationship between e-participation and readiness to implement AI concerning citizens' well-being. The study demonstrated that readiness to implement AI had a positive impact on enhancing living standards through a more efficient use of technology, particularly in the context of AI. M. Alfadhli, N. C. Onat, M. Kucukvar and S. Al-Maadeed (2025) analyzed the readiness of countries to implement AI, with the focus on digital transformation. In their study, they concluded that there was significant room for improving AI application in practice. A. Socol and I. C. Iuga (2024) analyzed the impact of readiness to implement AI in the EU countries and its effect on brain drain. This research showed that wherever there was a greater brain drain in the EU countries, it negatively impacted the country's ability to implement AI. Therefore, it was necessary to retain ITC experts to improve readiness for AI implementation, which would have an influence on the economic development of those countries.

H. M. Tun, L. Naing, O. A. Malik and H. A. Rahman (2025) examined the readiness of the ASEAN countries to implement AI in healthcare. Using the indicators from the Government AI Readiness Index, they demonstrated that significant differences existed between the observed countries. Singapore showed the best results, whereas countries such as Cambodia and Myanmar lagged due to the underdeveloped infrastructure and noncompliance with the regulatory frameworks for AI implementation in healthcare. L. Shonhe and M. Kolobe (2023) used this index to study Botswana's readiness to implement AI. This research identified shortcomings in the country's development strategies, as well as its infrastructure and human resources. According to them, Botswana needed to make more effective plans and investments in digital transformation, particularly for AI implementation.

S. Nzobonimpa and J. Savard (2023) examined the relationship between the potential for AI implementation and innovation. The results of this study showed that, although there was a high level of technical readiness to implement AI, this did not mean that AI would be used responsibly. Still, the principles of transparency and ethics are essential for AI to make a meaningful contribution to a country's development. M. K. M. Nasution *et al* (2024) examined the Government AI Readiness Index methodology, offering alternative approaches to classifying countries. The application of this classification leads to better results in terms of countries' readiness to implement AI. The literature to date suggests that AI has the potential to contribute to sustainable development (Mariani, Machado, Magrelli & Dwivedi, 2023; Verdecchia, Sallou & Cruz, 2023). However, its implementation varies depending on the political priorities, technological capacities, and institutional readiness of each country (Afolabi, 2023).

This paper attempts to contribute to the understanding of the potential for AI implementation in the SEE countries by combining the "Government AI Readiness Index" with the MCDM methods, which will determine which SEE countries have the greatest potential for artificial intelligence application and provide the guidelines on what these countries need to improve in order to apply AI. The results are expected to contribute to a better understanding of the potential of AI in the SEE countries, enabling these countries to achieve sustainable growth and development. The reason for initiating this research lies in the fact that the SEE countries have not been studied separately to date. In addition, observing these countries provides an insight into how the EU member states and EU accession candidate countries can leverage the potential application of AI, which

will help identify how the candidate countries can improve themselves so as to avoid falling behind the EU member states in the AI application potential.

METHODOLOGY AND RESEARCH METHODS

This research used the Government AI Readiness Index report to assess the countries' readiness to implement AI. Recognized by the leading global organizations, such as UNESCO and the G20, this report has become the key reference in the field. Therefore, it is used as a reliable and recognizable source to assess how institutions and countries are prepared to apply AI. The 2024 edition evaluated 188 countries, measuring their preparedness for AI adoption. This assessment is particularly relevant given AI's growing role in national development. Additionally, this index assesses AI's capacity to improve public services and contribute to national development. Moreover, economic uncertainty, climate change, and inequality have made AI adoption increasingly important for governments seeking improved outcomes.

The Government AI Readiness Index report distinguishes three dimensions: Government, Technology, and Data and Infrastructure, each being divided into three indicators, each indicator being further clarified with forty additional dimensions. These indicators were selected in order to ensure the consistency of the data related to the potential of AI applications in individual countries. The report summarizes all the dimensions into nine indicators grouped into three main categories. Each indicator includes additional dimensions as part of its structure. Selecting these nine indicators in this way ensures data accuracy, simultaneously preserving the value of all the dimensions and maintaining the representativeness of the data. Additionally, these nine indicators provide a more detailed explanation of countries' readiness to adopt AI in relation to the three main categories. However, if all 40 dimensions were observed, the data would be too scattered, and some dimensions would not have a significant impact, while the others would have a greater impact. Moreover, the individual impact of a large number of dimensions is smaller than when there are fewer dimensions, for which reason nine indicators were selected, not three main categories or all 40 dimensions. In this way, the values of these indicators are relevant for countries to adopt the policies that improve the conditions for AI applications. The indicators used are as follows:

- data representativeness (C1), which shows how many countries have helpful data on AI application and development. If the data are not representative, country analyses can be debatable. Therefore, data on AI solutions development in a single country must be unbiased.
- data availability (C2), which shows how easy it is to access data on AI development and how open these data are for a broader use. If data are available, they enable faster AI development and foster innovation. Open data enable cooperation between the public and private sectors.
- infrastructure (C3), which shows the availability of the information technology (IT) infrastructure and a country's technological development. A lack of infrastructure can significantly jeopardize AI implementation.
- human capital (C4), which refers to the availability of AI experts. A country needs to invest in the education of the personnel required for AI implementation. A lack of these personnel can slow down AI implementation.
- the innovation capability (C5), which is reflected in the application and development of new technologies and solutions. To encourage innovative activities, cooperation between the academic community, business entities, and the public sector is necessary. The countries that enable innovative activities are better able to apply AI technologies.
- maturity (C6), which refers to the level at which a particular country is in AI implementation. This includes the existence of the legal bases and research institutions that will increase AI application. The higher the maturity level of a state, the more willing it is to apply AI solutions.

- adaptability (C7), which measures a state's ability to adapt to new trends in the AI industry. Greater flexibility enables countries to adopt new AI solutions more quickly, increasing their own competitiveness.
- the digital capability (C8), which refers to the general digital infrastructure, new digital literacy, and the use of digital technologies. The widespread application of these technologies facilitates the implementation of AI solutions and increases a country's efficiency. Countries with a higher level of digital capacity adopt technological innovations, including AI application, more efficiently and faster.
- governance and ethics (C9), which show the existence of the legal frameworks for the ethical use of AI technologies. It is necessary to define how AI solutions are reliably and transparently applied. This reduces the risk of the misuse of AI applications. Clear ethical standards are essential for building trust in AI solutions and ensuring their sustainable use.

Each SEE country is assessed based on these indicators and the scores listed in the 2024 Government AI Readiness Index. A combination of the MCDM methods, namely MEREC and CORASO, are used to examine which SEE countries have the best indicators based on this report. The MEREC method determines the importance of these indicators, while the CORASO method ranks the SEE countries based on these indicators. In this study, the importance of the indicators is first determined using the MEREC method, which objectively determines weights using the indicators of the observed SEE countries. This method was developed by M. Keshavarz-Ghorabaee *et al* (2021), and includes the following steps:

Step 1. Forming a decision matrix.

Step 2. Data normalization. Since all indicators should have higher scores, the following normalization is applied:

$$n_{ij} = \frac{x_{ij}}{\max x_j}; \text{ for the benefit indicators} \quad (1)$$

$x_{j\,max}$ - the maximum value of the indicator

Step 3. The calculation of the overall performance of the alternatives (S_i).

$$S_i = \ln\left(1 + \left(\frac{1}{m}\sum_j \left|\ln\left(n_{ij}^x\right)\right|\right)\right) \quad (2)$$

Step 4. The calculation of the effects of the alternatives.

$$S'_{ij} = \ln\left(1 + \left(\frac{1}{m}\sum_{k,k\neq j}\left|\ln\left(n_{ik}^x\right)\right|\right)\right) \quad (3)$$

Step 5. The calculation of the sum of deviations.

$$E_j = \sum_i \left|S'_{ij} - S_i\right| \quad (4)$$

Step 6. The calculation of the weights of the indicators.

$$w_j = \frac{E_j}{\sum_k E_k} \quad (5)$$

After determining the importance of the indicators in terms of the weights, the SEE countries are ranked so as to identify which countries are more prepared to implement AI. The CORASO method was designed to rank the alternatives based on the alternative solutions representing the maximum or minimum values of the alternatives for individual indicators, based on which it can be said that the ranking is performed on the best or the worst values of the alternatives for the indicators. For an alternative to rank better, this method (Puška *et al*, 2024) requires values closer to the maximum values and as far from the minimum values as possible.

Step 1. Forming a decision matrix.

Step 2. Data normalization.

$$n_{ij} = \frac{x_{ij}}{\max x_j}; \text{ for the benefit indicators} \quad (6)$$

Step 7. Determining alternative solutions.

Step 8. Weighting normalized data.

$$v_j = w_j \cdot n_{ij} \quad (7)$$

Step 9. Aggregate values.

$$S_j = \sum_{i=1}^{n} \tilde{v}_j \quad (8)$$

Step 10. Deviations from alternative solutions.

$$R_j = \frac{S_j}{S_{j\,max\,AS}} \quad (9)$$

$$R'_j = \frac{S_{min\,AS}}{S_j} \quad (10)$$

Step 11. Determining the value of the CORASO method.

$$Q_i = \frac{R_j - R'_j}{R_j + R'_j} \quad (11)$$

After the ranking order is determined, a sensitivity analysis is performed in order to determine the indicator with the biggest influence on the ranking order (Lukić, 2024) of the SEE countries.

RESULTS

To identify the SEE countries with the biggest potential for applying AI in order to foster sustainable growth, the initial decision matrix (Table 1) is first created, which is the first step in both the MEREC and CORASO methods.

After the initial decision matrix is formed, it is necessary to normalize the data to make it uniform and ready for analysis. Since each indicator should be as large as possible, it is necessary that normalization, in which the highest values are first identified for each indicator, then the individual data within each indicator are divided by the highest value, should be performed for the benefit indicators. For the indicator C1 and Albania, the calculation is as follows:

$$n_{11} = \frac{83.88}{98.75} = 0.849 \quad (12)$$

This procedure is applied to all the data in the decision matrix, forming normalized data and the normalized decision matrix (Table 2). The resulting normalized decision matrix is used to calculate the importance of the indicator weights using the MEREC method and determine the ranking of the SEE countries using the CORASO method.

The next step in the MEREC method is to calculate the overall performance of the alternatives (S_i). In this step, the absolute value of the natural logarithm is first calculated for all the normalized data. The sum of these values is calculated for each alternative, and this value is divided by the number of the indicators, with the value one (1) added to the obtained value. Finally, the value of the natural logarithm of this value is recalculated. The calculation of the individual steps of these methods is explained using the example of Albania and the indicator C1.

$$\begin{aligned} S_1 = \ln(1 + (\frac{1}{9}(&|\ln(0.849)| + |\ln(0.713)| + |\ln(0.563)| \\ &+ |\ln(0.704)| + |\ln(0.670)| + |\ln(0.374)| + |\ln(1.000)| \\ &+ |\ln(1.000)| + |\ln(0.675)|)) = 0.3043 \end{aligned} \quad (13)$$

In this way, the values of the total performance of the alternatives (S_i) are calculated for the other countries. Then, the effects of the alternatives are calculated in the same way as has been done in the previous step, except that the indicator which this step is calculated for is overlooked. This forms the decision matrix

Table 1 The initial decision matrix

	C1	C2	C3	C4	C5	C6	C7	C8	C9
Albania	83.88	59.68	36.77	36.60	35.48	13.01	72.72	59.69	59.31
Bosnia and Herzegovina	78.90	53.72	32.55	36.24	33.42	18.10	33.38	29.09	44.48
Bulgaria	87.58	83.66	65.31	37.59	49.79	26.24	52.05	49.65	59.07
Montenegro	89.41	66.98	52.06	36.76	37.88	25.55	54.11	44.78	58.73
Greece	90.61	81.34	55.69	51.96	52.93	34.77	55.99	58.83	87.84
Croatia	95.05	67.95	59.84	47.56	46.20	25.41	50.29	49.28	63.88
N. Macedonia	98.75	54.86	45.88	34.95	39.53	22.61	49.10	40.80	56.15
Romania	78.80	60.96	53.98	45.53	47.32	28.39	43.25	50.95	82.81
Serbia	85.90	78.40	37.74	49.21	43.57	21.89	50.76	48.73	80.04

Source: Authors

that includes the effects of the alternatives. Lastly, the absolute value of the sum of the deviations is calculated, as well as the indicator weights (Table 3). The results of the MEREC method show that the indicator C6 - maturity - has the highest weight, only to be followed by the indicator C7 - adaptability, while the indicator C1 - data representativeness - has the lowest weight.

Table 2 The normalized decision matrix

	C1	C2	C3	C4	C5	C6	C7	C8	C9
Albania	0.849	0.713	0.563	0.704	0.670	0.374	1.000	1.000	0.675
Bosnia and Herzegovina	0.799	0.642	0.498	0.697	0.631	0.521	0.459	0.487	0.506
Bulgaria	0.887	1.000	1.000	0.723	0.941	0.755	0.716	0.832	0.672
Montenegro	0.905	0.801	0.797	0.707	0.716	0.735	0.744	0.750	0.669
Greece	0.918	0.972	0.853	1.000	1.000	1.000	0.770	0.986	1.000
Croatia	0.963	0.812	0.916	0.915	0.873	0.731	0.692	0.826	0.727
N. Macedonia	1.000	0.656	0.702	0.673	0.747	0.650	0.675	0.684	0.639
Romania	0.798	0.729	0.827	0.876	0.894	0.817	0.595	0.854	0.943
Serbia	0.870	0.937	0.578	0.947	0.823	0.630	0.698	0.816	0.911

Source: Authors

Table 3 The indicator weights calculation by the MEREC method

		C1	C2	C3	C4	C5	C6	C7	C8	C9	S_i
	Albania	0.163	0.338	0.574	0.350	0.400	0.983	0.000	0.000	0.393	0.304
	Bosnia and Herzegovina	0.224	0.443	0.696	0.360	0.460	0.653	0.779	0.719	0.680	0.443
	Bulgaria	0.120	0.000	0.000	0.324	0.061	0.281	0.334	0.184	0.397	0.173
	Montenegro	0.099	0.222	0.227	0.346	0.335	0.308	0.296	0.287	0.403	0.247
	Greece	0.086	0.028	0.159	0.000	0.000	0.000	0.261	0.015	0.000	0.059
	Croatia	0.038	0.208	0.087	0.088	0.136	0.314	0.369	0.192	0.319	0.178
	N. Macedonia	0.000	0.422	0.353	0.397	0.292	0.430	0.393	0.380	0.447	0.297
	Romania	0.226	0.317	0.191	0.132	0.112	0.203	0.520	0.158	0.059	0.193
	Serbia	0.139	0.065	0.548	0.054	0.195	0.463	0.360	0.203	0.093	0.212
		C1	C2	C3	C4	C5	C6	C7	C8	C9	
	Albania	0.291	0.276	0.256	0.275	0.271	0.220	0.304	0.304	0.272	
	Bosnia and Herzegovina	0.427	0.411	0.392	0.417	0.410	0.395	0.386	0.390	0.393	
	Bulgaria	0.162	0.173	0.173	0.142	0.167	0.147	0.141	0.156	0.135	
	Montenegro	0.238	0.228	0.227	0.217	0.218	0.220	0.221	0.222	0.212	
S'_{ij}	Greece	0.050	0.056	0.042	0.059	0.059	0.059	0.031	0.058	0.059	
	Croatia	0.174	0.158	0.170	0.169	0.165	0.148	0.143	0.160	0.148	
	N. Macedonia	0.297	0.262	0.268	0.264	0.273	0.261	0.264	0.265	0.260	
	Romania	0.172	0.164	0.175	0.181	0.183	0.174	0.144	0.178	0.188	
	Serbia	0.199	0.206	0.161	0.207	0.194	0.169	0.179	0.193	0.203	
	E_j	0.096	0.173	0.242	0.175	0.167	0.312	0.292	0.180	0.237	
	w_j	0.051	0.092	0.129	0.093	0.089	0.167	0.156	0.096	0.127	

Source: Authors

After calculating the weights of the indicators, the SEE countries are ranked using the CORASO method based on the Government AI Readiness Index. Then, the normalized data are calculated, and alternative solutions are determined. The maximum alternative solution is the maximum value of the normalized data for each indicator. In contrast, the minimum alternative solution is the minimum value of the normalized data for each indicator. Finally, the normalized data are multiplied by appropriate weights.

$$v_{11} = 0.051 \cdot 0.849 = 0.043 \tag{14}$$

The next step implies the calculation of the aggregate values of the SEE countries and the alternative solutions.

$$S_1 = 0.043 + 0.066 + 0.073 + 0.066 + 0.060 + 0.062 + 0.156 + 0.096 + 0.085 = 0.707 \tag{15}$$

Then, the deviation from the alternative solutions is calculated. Finally, the value of the CORASO method is calculated as well.

$$R_1 = \frac{0.707}{1.000} = 0.707$$
$$R'_1 = \frac{0.528}{0.707} = 0.747$$
$$Q_1 = \frac{0.707 - 0.747}{0.707 + 0.747} = -0.027 \tag{16}$$

The results of the CORASO method (Table 4) show that Greece, Bulgaria, and Croatia display the best results. Bosnia and Herzegovina shows the worst results. These results indicate that the EU SEE countries outperform non-EU SEE countries. According to the results of the CORASO method, Greece has results (0.2487) much better than the results of all the other countries, whereas Bosnia and Herzegovina has by far the worst results (-0.2634).

Sensitivity analysis aims to determine the extent to which an individual indicator affects the ranking (Trung, Dudić, Dung & Truong, 2024). During the sensitivity analysis conducted in this study, scenarios are formed based on the initial weights of the indicators. Each indicator is reduced by 85%. In comparison, the other indicators are increased by 5% (Table 5), so the sum of the weights of the indicators is approximately equal to unity (1). Since there are nine indicators, nine scenarios are formed. The ranking is performed using the CORASO method.

Table 4 The CORASO method results

	S_i	R_i	R'_i	Q_i	Rank
Albania	0.7070	0.7070	0.7470	- 0.0275	7
Bosnia and Herzegovina	0.5549	0.5549	0.9517	- 0.2634	9
Bulgaria	0.8203	0.8203	0.6439	0.1205	2
Montenegro	0.7479	0.7479	0.7062	0.0287	6
Greece	0.9370	0.9370	0.5637	0.2487	1
Croatia	0.8065	0.8065	0.6549	0.1037	3
N. Macedonia	0.6917	0.6917	0.7635	- 0.0493	8
Romania	0.8062	0.8062	0.6551	0.1034	4
Serbia	0.7747	0.7747	0.6818	0.0638	5
MAX AS	1.0000				
MIN AS	0.5282				

Source: Authors

The sensitivity analysis results confirm the original results of the CORASO method, indicating that Greece achieves the best results in all the scenarios, while Bosnia and Herzegovina achieves the worst in all the scenarios (Figure 1). The other countries change their ranking depending on the scenario applied. Thus, Bulgaria's ranking order changes in two scenarios (S2 and S3), the reason for which should be looked for in the fact that Bulgaria has the best indicators of all the countries in terms of data availability (C2) and infrastructure (C3). With the decreasing importance of these indicators, Bulgaria falls to third place in the ranking and is overtaken by Croatia, in the scenario S2, and Romania, in the scenario S3. This analysis reveals that no single indicator is decisive for the ranking of the SEE countries. Still, all of them have an equal impact, so the changes in the ranking are negligible.

DISCUSSION

AI plays a major role in the achievement of national growth and particularly in the sustainable development of countries (Goralski & Tan, 2020;

Table 5 The sensitivity analysis scenarios

	C1	C2	C3	C4	C5	C6	C7	C8	C9
S0	0.0510	0.0923	0.1290	0.0934	0.0891	0.1667	0.1559	0.0959	0.1267
S1	0.0077	0.0969	0.1355	0.0981	0.0936	0.1751	0.1637	0.1007	0.1330
S2	0.1046	0.0138	0.1355	0.0981	0.0936	0.1751	0.1637	0.1007	0.1330
S3	0.1046	0.0969	0.0194	0.0981	0.0936	0.1751	0.1637	0.1007	0.1330
S4	0.1046	0.0969	0.1355	0.0140	0.0936	0.1751	0.1637	0.1007	0.1330
S5	0.1046	0.0969	0.1355	0.0981	0.0134	0.1751	0.1637	0.1007	0.1330
S6	0.1046	0.0969	0.1355	0.0981	0.0936	0.0250	0.1637	0.1007	0.1330
S7	0.1046	0.0969	0.1355	0.0981	0.0936	0.1751	0.0234	0.1007	0.1330
S8	0.1046	0.0969	0.1355	0.0981	0.0936	0.1751	0.1637	0.0144	0.1330
S9	0.1046	0.0969	0.1355	0.0981	0.0936	0.1751	0.1637	0.1007	0.0190

Source: Authors

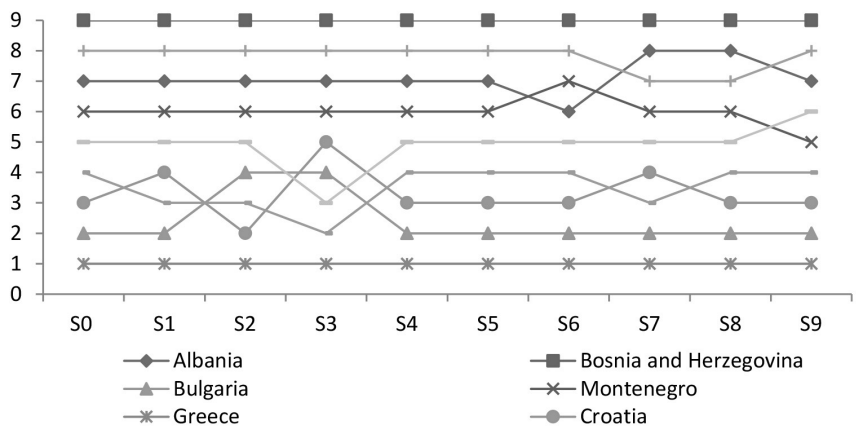

Figure 1 The sensitivity analysis results

Source: Authors

Liengpunsakul, 2021). AI has a wide range of applications and can be used to achieve sustainability goals. However, to achieve sustainable development through AI, a country must have a good potential for AI application. A country's potential for AI application can be investigated in different ways. Applying the Report of the Government AI Readiness Index indicator is one of the methods used in this study. This report has been used in previous studies (Nzobonimpa & Savard, 2023; Nasution *et al*, 2024) but has not been used in ranking the SEE countries.

The readiness to apply AI is an important factor in the assessment of the possibility of integrating AI into various sectors of the economy, public administration, and the functioning of a country's society. Using the Government AI Readiness Index, this research provides an insight into the level of infrastructure, innovation, and the other factors that form the basis for the implementation of AI solutions, as was done in the A. Socol and I. C. Iuga (2024) research study. These factors are presented in the indicators contained in this report. A total of nine indicators were used to observe the SEE countries. The specificity of these countries lies in their varying levels of development, with some countries (such as Albania, Serbia, Bosnia and Herzegovina, North Macedonia, and Montenegro) belonging to developing countries. These countries are also EU accession candidate

countries (Ramasauskaite, 2024). However, Bulgaria and Romania are also developing countries, even though they are EU members (Gajović, 2024). These countries should use AI to improve environmental efficiency, better manage economic processes, and ensure better social inclusion (Talapbayeva, Yerniyazova, Kultanova & Akbayev, 2024).

This research study focuses on the SEE countries in order to assess their readiness to implement AI technology, particularly in achieving sustainable growth and development. Two MCDM methods are used for this purpose, namely MEREC and CORASO. The purpose of these methods, along with other MCDM methods, is to rank alternatives based on selected indicators (Đukić, Novićević Čečević & Jevtić Tomić, 2025). The MEREC method was utilized in this study to determine the significance of the indicators used. This method is one of the objective methods for determining indicator weights. It determines the indicator weight based on data dispersion in that particular indicator in relation to other indicators. The more dispersed data, the higher the indicator weight, and vice versa. In this way, the maturity indicator received the highest weight because the normalized data value ranged from 0.374 to 1.000. This indicator is followed by the adaptability indicator, where the normalized data values ranged from 0.459 to 1.000. This should be kept in mind when using this method in future research. The advantage of determining the indicators in this way is reflected in the avoidance of subjectivity in decision-making; the disadvantage, however, implies that some indicators may not be particularly important and receive a greater weight than others. Therefore, it is important to determine when to use the method for subjective or objective weight determinations.

After the weights had been determined, the CORASO method was used. The results of this method showed that Greece had the best indicators compared to the other SEE countries, which was because it had the best values in four indicators: C4 - Human Capital, C5 - Innovation Capacity, C6 - Maturity, and C9 - Governance and Ethics. On the other hand, Albania and Bulgaria had the best results in two indicators. Bulgaria, therefore, ranked second, whereas Albania ranked only seventh among the included countries, the reason for which should be sought in the values of the other indicators with the lowest value even in the indicator C6 - Maturity. This indicator was also the most important in determining the ranking; although Albania had the best values in two indicators, it ranked only seventh.

To improve these countries' potential for applying AI in sustainable development, a sensitivity analysis was conducted. This analysis highlighted both the strengths and weaknesses of each observed country. However, Greece was the best in all nine scenarios, whereas Bosnia and Herzegovina was the worst, indicating that Greece was ahead of the SEE countries, whereas Bosnia and Herzegovina needed to improve several indicators so as to realize its full potential. This analysis revealed that Croatia needed to enhance the data availability indicator, whereas Albania required improvement in the maturity indicator. After determining their potential, these countries must use AI more effectively in sustainable development. They must improve their practice of applying AI and invest more in developing AI solutions. First, of course, it is necessary to improve public administration in order to enhance the services it provides to businesses and the population. This research was therefore conducted so as to determine the potential of the SEE countries in terms of changing AI.

CONCLUSION

The research aimed to examine the potential for applying AI as a factor in achieving sustainable development in the SEE countries. The Government AI Readiness Index was used to assess each SEE country's ability to implement AI. To identify which countries have the best potential for AI implementation, the MEREC and CORASO MCDM methods, which ranked the SEE countries based on the Government AI Readiness Index indicators, were utilized. The results of the CORASO method showed that Greece had demonstrated the strongest indicators, whereas Bosnia and Herzegovina had showed the lowest potential for developing AI

solutions. The results obtained from the MEREC method indicated that the maturity and adaptability indicators had received the highest weight values and had the greatest influence on the ranking. In contrast, the data representativeness indicator had the least influence.

Policymakers can use the findings of this research to improve the conditions in individual SEE countries, thus encouraging a broader adoption of AI in practice. The results of the sensitivity analysis can play a key role in this effort. The analysis showed that Greece had achieved the best results across all the scenarios, whereas Bosnia and Herzegovina had shown the worst. These findings indicate that Greece does not have weak indicators regarding AI implementation and should continue to build on its strengths to make further improvements. In contrast, Bosnia and Herzegovina needs a complete overhaul to enhance its AI potential. Without such changes, Bosnia and Herzegovina risks falling behind the other countries in AI application, which may make it less competitive as AI is becoming increasingly integrated into practice.

Additionally, this research study shows that the EU member states have a greater potential than the EU candidate countries, which suggests that the candidate countries should put more effort into building their potential, particularly regarding the application of AI solutions for enhanced sustainable development. Specifically, these countries must improve their digital infrastructure, strengthen institutional support, and increase investment in AI technologies. These actions are essential for the implementation of AI solutions. To do this, it is important to develop the strategies that guide these countries to invest more in the AI solutions that boost environmental efficiency, improve economic processes, and foster social inclusion. By doing so, these countries can improve their competitiveness in the global digital landscape, which is vital for their growth.

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LOGISTICS AS A DRIVER OF INTERNATIONAL TRADE: AN INDUSTRY-LEVEL ANALYSIS

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The growth of global trade in the last few decades and a more active involvement of countries in trade flows and supply chains have highlighted logistics as one of the most important trade facilitation factors. However, the question is who benefits the most from logistics. The paper aims to examine the contribution logistics make to the promotion of exports and imports in the selected industries in the OECD countries, the evaluation and comparison of the importance of logistics performance depending on the specific sector and product characteristics. Panel regression modelling was employed to evaluate the impact of logistics on international trade. The findings reveal its importance in international trade at the industry level. The results indicate a special contribution of logistics to the stimulation of the trade of industrial products and time-sensitive goods, with a greater contribution to imports. These findings emphasize the special importance of a logistics system and related operations in the identified sectors.

Keywords: logistics performance, industry-level trade, product group, export, import

JEL Classification: F13, F14, L52, L9

INTRODUCTION

The structure of world trade reveals a dominant role of the different types of the commodities that heavily rely on infrastructure, transport, and related logistics services in cross-border operations. Small open economies and developing countries need to find a way for more efficient movement across borders. While trade is increasingly organized through value chains, logistics is becoming the "glue" on the global and regional levels that holds value chains together (World Trade Organization, 2021). However, the starting point is the assumption that its importance can differ significantly, depending on the economic structure, the dominant participation of individual sectors, and the importance of logistics operations in international trade, by specific industries and product groups.

The quality of logistics operations and related infrastructure is an important factor for the companies operating in various industries that strive to engage themselves in cross-border trade. Logistics

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performance includes requirements regarding the quality of physical, "hard" infrastructure, as well as the "soft" logistics components related to the efficiency of customs procedures and the quality of logistics service (Ojala, Arvis, Shepherd, Wiederer, Raj, Dairabayeva & Kiiski, 2018). According to Ü. Töngür, K. Türkcan and S. Ekmen-Özçelik (2020), exports strongly depend on infrastructure and are more sensitive to national logistics performance. Regarding the "soft" component, certain studies see the efficiency of customs as an important, even decisive factor within the framework of logistics performance for competitiveness (Ekici, Kabak & Ülengin, 2016). The contribution of logistics services can be seen through the costs and time components in certain product groups. J. Blyde and D. Molina (2015) determined that the transport of time-sensitive and perishable products has the greatest dependence on transport time. Also, semi-finished products, parts and components, which are mainly used in further production processes, significantly depend on transport and logistics efficiency (Hummels & Schaur, 2013; Saslavsky & Shepherd, 2014).

The importance of logistics has already been recognized in incentivizing the total volume of international trade (Martí, Puertas & García, 2014; Gani, 2017; Çelebi, 2019; Zaninović, Zaninović & Pavlić Skender, 2021), and in promoting competitiveness and economic growth as well (Bugarčić, Mićić & Stanišić, 2023). However, no empirical evidence has been found at the industry or product level. This gap raises doubts about the specific contribution of logistics to trade promotion by product groups. Based on the existing knowledge, there is still no evidence showing in which sector efficient logistics yields the most significant results. The main goal of this study is to investigate the impact of logistics performance across individual product groups and identify and explain the differences between the selected sectors. Such evidence could clarify the significance of logistics performance for particular industries. Additionally, the scope of the analysis is expanded by using industry-level data for exports and imports separately in the OECD countries. This approach reduces the influence of external factors on the total volume of countries' exports and imports. Using panel data and a linear regression approach, the article aims to identify and compare the impact of logistics, measured by applying the Logistics Performance Index (LPI) on the selected industries, and identify the specific sectors that are more reliant on logistics performance. This concept could provide an answer to the research question posed in this study: Which industry is most dependent on logistics performance in terms of exports and imports?

The article is structured into several sections. After the introduction, the literature review pertaining to international trade at the product/industry level is presented. In the third section, the methodology and the data are explained, and in the fourth section, the results of the empirical analysis and discussion are given. The final section presents the concluding remarks.

LITERATURE REVIEW

Previous studies have considered the factors contributing to export promotion at the level of product groups and sectors from different perspectives. T. Beck (2002) showed that economies with higher levels of financial development tended to specialize in the industries that were more dependent on external finance. B. Abu Al-Foul and M. Soliman (2008) found that FDI inflow had a positive effect on both merchandise and manufacturing exports. N. Gur (2013) examined whether financially integrated countries exported more in the industries that depended heavily on external finance or not. The findings showed that international portfolio equity investments increased exports more in the industries that depended heavily on external sources of finance. Institutional quality is also an important factor. S. Nazlioglu (2013) investigated the impact of the exchange rate volatility on exports and found that it differed across the industries and that foreign income played the key role in determining industry-level exports.

G. Bayar, M. Ünal and S. Tokpunar (2015) studied the structure of Turkish exports to the EU countries and found that the statistically significant variables were

the industrial production index, the sectoral export unit price index, the partner country's sectoral imports from the World, and the partner country's import prices. Differences in the level of the impact and significance were identified, depending on specific export markets and industries. H. Yilmazkuday (2021) also investigated the drivers of global trade at the product level. The findings indicated that the supply-side effects, including production or exporting costs in source countries, made the most important contribution to changes in global trade. In this respect, export-related costs, such as operational costs of exporting, could be crucial. Based on product-level trade decomposition, chemicals and allied industries made the greatest contribution to the supply-side effects.

Logistics quality is one of the key segments within the framework of the supply-side and operating costs of exports. Bearing in mind its contribution at the aggregate level, several studies have tried to determine the time and logistics sensitivity, depending on the product type. Using a relative gravity model of trade, S. Djankov, C. Freund and C. S. Pham (2010) examined how time lags affected trade. Their results indicated that each additional day of product delay reduced trade by more than 1%. The authors compared these data with the fact that one day of delay in the international delivery of a product was equivalent to an additional distance of 70 kilometers between trading countries. Delivery time is especially important for delay-sensitive products, such as perishables, food, and agricultural products and goods with limited shelf life and delivery. The conclusion based on this study imposes the necessity of creating more efficient distribution systems as a trade facilitation tool. Analogously, D. L. Hummels and G. Schaur (2013) estimated that each day in transit of goods was equivalent to an additional duty of 0.6 to 2.1%. They concluded that the most time-sensitive trade flows included trade in parts, semi-products, and production components, the delay of which would further delay production processes in the importing country. The COVID-19 crisis reminded us that sensitive and perishable products required special engagement and the timely management of logistics activities to ensure safe placement according to required quality standards (Illahi & Mir, 2021). P. A. Zaninović *et al* (2021) found intermediate goods to be more sensitive to trade than capital or consumption goods, indicating the need for further research into the contribution of logistics through research in different product groups within different classes of goods.

Within the framework of modern global supply chains (GSC), value-added export is more important than the total volume. For this reason, it is particularly important to determine the factors that contribute to the promotion of the export of goods with higher value-added, where the role of logistics performance has been identified when speaking about the aggregate level of countries' exports (Zaninović & Bugarčić, 2023). Here arises the question of the contribution of logistics in certain sectors. For several industries participating in global value chains (GVC), the countries identified as the most competitive based on the total exports are often found to be less competitive when evaluated in terms of domestic value-added (Ceglowski, 2017) and the main drivers for export value-added is an increase in the export scale and the multiplier effect (Wang, Zhang, Xie & Su, 2020). The importance of logistics is especially emphasized in the time of the expansion of e-commerce (Kiba-Janiak, Cheba, Mucowska & de Oliveira, 2022), where certain industries are faced with changes of earlier business patterns and special requirements in terms of delivery.

Looking at the importance of logistics by the observed sectors, a lack of the timely delivery of machines to customers and the unregulated purchase of goods associated with the delivery of the machines are among the many problems manufacturers are faced with (Sarabi & Darestani, 2021), which leads to further problems in the production and distribution processes if there is no adequate logistical support, in which sense, the production of the largest number of industrial products significantly depends on the development of the logistics sector, as well as continuous technical improvements and new solutions within these activities (Angreani, Vijaya & Wicaksono, 2020). The special importance and specificity of logistics operations are also recognized

in the oil industry, which carries special requirements in terms of distribution and delivery (Dempster, Pedron, Medova, Scott & Sembos, 2022). One of the most represented sectors is certainly the food industry and related product groups. In this sector, logistics is still a challenging issue affecting companies' performance and customer decisions, with a great potential to improve effectiveness and sustainability (Paciarotti & Torregiani, 2021). What is common to most industries is that the quality of logistics services impacts consumer loyalty to a great extent (Huma, Ahmed, Ikram & Khawaja, 2020).

For more precise conclusions, the role of logistics must be viewed individually by industry. Based on the current knowledge, this question needs to be further investigated.

RESEARCH METHODS

In order to investigate the impact of logistics on international trade at the industry level, the Logistics Performance Index (LPI) was selected as the main independent variable. The LPI was developed by the World Bank (Ojala *et al*, 2018; Arvis, Ojala, Shepherd, Ulybina & Wiederer, 2023) and represents the quality of national logistics systems, starting from 2007. It is one of the most comprehensive comparable measures of national logistics systems available for 166 countries. It includes all the regions of the world and countries at all stages of development. The LPI reflects a total of six aspects of logistics performance related to (i) infrastructure, (ii) customs efficiency, (iii) logistics services quality, (iv) timeliness, (v) the ability to track and trace, and (vi) the availability of competitively priced international shipments, separately in six subindices. Scores are evaluated for the overall LPI and individual elements, and range from 1 (the worst performance) to 5 (the best score). Moreover, another independent variable used in the current research is FDI (Foreign Direct Investment, measured by FDI net inflows as a percentage of GDP). FDI is important in the context of investigating the impact of logistics. The connection is proven in previous studies (Luttermann, Kotzab & Halaszovich, 2020; Bugarčić & Skvarciany, 2024), while the importance for international trade reflects in the influence of developing logistics infrastructure projects, which enhance the efficiency of supply chains, foster economic integration, and stimulate economic growth. Those determinants are critical factors in facilitating and expanding international trade. Another independent variable is IVA (Industry Value Added, measured in millions of dollars). It measures the productivity, efficiency, and economic contribution of industries, and helps identify the relationship between logistics performance and industry competitiveness, guides investment priorities, and allows for a detailed analysis of the impacts of logistics on specific sectors. This variable was chosen in this study to control for the results and reduce a potential bias, given that industry-level data were used. Exports and Imports were employed as the dependent variables. The sample includes the OECD countries, and the analysis covers the selected industries and the period from 2007 to 2018, chosen according to data availability.

Several industries were analyzed in the current research, namely food products, beverages and tobacco (Model 1), animal and vegetable oils (Model 2), machinery and equipment (Model 3), and manufactured articles (Model 4). A total of two equations were specified for each sector, the first treating Imports as the dependent variable, and the second treating Exports as the dependent variable.

In order to proceed with the linear panel regression analysis, it was essential to find out if the series were stationary or not. For this purpose, unit-root tests were done. All the variables, except the LPI, were balanced. Hence, the Levin-Lin-Chu test was applied to them. For the LPI as the unbalanced variable, a Fisher-type test was performed (see Tables 1 and 2).

In order to investigate which regression model was the most appropriate, the Hausman test was employed. According to the results, Model 1 (with both Imports and Exports) was a random-effect model (the p-value of the Hausman test was greater than 0.05). In Model 2, with Imports as the dependent

Table 1 The Levin-Lin-Chu test for the balanced data

Levin-Lin-Chu	Statistic	p-value
Imports (Model 1a)		
Unadjusted t	-4.7e+02	
Adjusted t*	-5.1e+02	0.0000
Experts (Model 1b)		
Unadjusted t	-11.9537	
Adjusted t*	-12.6719	0.0000
Imports (Model 2a)		
Unadjusted t	-55.3840	
Adjusted t*	-59.0548	0.0000
Exports (Model 2a)		
Unadjusted t	-71.3149	
Adjusted t*	-76.8496	0.0000
Imports (Model 3a)		
Unadjusted t	-11.1458	
Adjusted t*	-9.3150	0.0000
Exports (Model 3b)		
Unadjusted t	-21.1893	
Adjusted t*	-19.1276	0.0000
Imports (Model 4a)		
Unadjusted t	-7.0556	
Adjusted t*	-6.8331	0.0000
Exports (Model 4b)		
Unadjusted t	-10.9853	
Adjusted t*	-10.4654	0.0000
FDI		
Unadjusted t	-53.1264	
Adjusted t*	-56.4578	0.0000
IVA		
Unadjusted t	-14.9617	
Adjusted t*	-14.0692	0.0000

Source: Authors

Table 2 The Fisher-type test for the unbalanced data

Fisher-type test	Statistic	p-value
LPI		
Inverse chi-squared(76) P	191.7282	0.0000
Inverse normal	-6.1776	0.0000
Inverse logit t(194) L*	-7.200	0.0000
Modified inv. Chi-squared Pm	9.3868	0.0000

Notes: As all the p-values equal 0, the series are stationary, which means that panel regression (fixed-effect or random-effect) could be conducted.

Source: Authors

variable, the model is fixed-effect (p-value < 0.05); with Exports as the dependent variable, the model is random-effect (p-value > 0.05). In the case of Model 3, with Imports as the dependent variable, the model is random-effect (p-value > 0.05), whereas with Exports as the dependent variable, the model is fixed-effect (p-value < 0.05). The last Model 4, with Imports as the dependent variable, the model is random-effect (p-value > 0.05), whereas with Exports as the dependent variable, the model is fixed-effect (p-value < 0.05). The theoretical models are presented in Table 3.

RESULTS AND DISCUSSION

Based on the selected methodology, it was possible to identify the influence of the degree of logistics performance on the four specific sectors. First, the export results are presented, according to the previously defined models. Table 2 shows the statistical significance of the LPI in all the selected industries, whereas in Models 1 and 2, the LPI is significant at the 0.05 level. Regarding the magnitude of the coefficient, it was found that logistics performance made the greatest contribution to stimulating exports in Model 1 and Model 4 (see Table 4).

The results show that logistics is an essential factor for export promotion. However, some R^2 are relatively low; still, a decision was made to interpret these models as, according to W. Jianlong, S. H. Jaaman and H. B. Samsudin (2015), the ability of R^2 to interpret information was not supported by the empirical research. Logistics performance is of the utmost importance in food and beverage exports. This evidence is consistent with the previous research in the importance of transport efficiency and logistics activities for perishable goods with a limited shelf life and sensitive transport times and conditions (Djankov *et al*, 2010; Hummels & Schaur, 2013; Illahi & Mir, 2021), including demand for a short supply chain in the food industry (Paciarotti & Torregiani, 2021). These products, especially the export of foods, require high-quality logistics support and timely delivery. The efficiency of administrative and customs authorities, an appropriate infrastructure for efficient

Table 3 The research models

Industry	Definition
Food products, beverages and tobacco	Model 1a: $Import_{it} = \alpha + \beta_1 LPI1_{it} + \beta_2 FDI_{2it} + \beta_3 IVA_{3it} + u_{it} + \epsilon_i$, Model 1b: $Export_{it} = \alpha + \beta_4 LPI4_{it} + \beta_5 FDI_{5it} + \beta_6 IVA_{6it} + u_{it} + \epsilon_i$, where: α- the intercept $\beta_1, \beta_2, \ldots, \beta_6$ - the coefficients to be estimated for the independent variables u_{it} - the idiosyncratic error term for the entity *i* at the time *t* ϵ_i - the random error term
Animal and vegetable oils	Model 2a: $Import_{it} = \alpha + \beta_7 LPI_{7it} + \beta_8 FDI_{8it} + \beta_9 IVA_{9it} + u_{it}$, where: α - the intercept for the entity *i* $\beta_7, \beta_8, \beta_9$ - the coefficients to be estimated for the independent variables u_{it} - the idiosyncratic error term for the entity *i* at the time *t* Model 2b: $Export_{it} = \alpha + \beta_{10} LPI_{10it} + \beta_{11} FDI_{11it} + \beta_{12} IVA_{12it} + u_{it} + \epsilon_i$, where: α - the intercept $\beta_{10}, \beta_{11}, \beta_{12}$ - the coefficients to be estimated for the independent variables u_{it} - the idiosyncratic error term for the entity *i* at the time *t* ϵ_i - the random error term
Machinery and equipment	Model 3a: $Import_{it} = \alpha + \beta_{13} LPI_{13it} + \beta_{14} FDI_{14it} + \beta_{15} IVA_{15it} + u_{it} + \epsilon_i$, where: α - the intercept $\beta_{13}, \beta_{14}, \beta_{15}$ - the coefficients to be estimated for the independent variables u_{it} - the idiosyncratic error term for the entity *i* at the time *t* ϵ_i - the random error term Model 3b: $Export_{it} = \alpha + \beta_{16} LPI_{16it} + \beta_{17} FDI_{17it} + \beta_{18} IVA_{18it} + u_{it}$, where: α - the intercept for the entity *i* $\beta_{16}, \beta_{17}, \beta_{18}$ - the coefficients to be estimated for the independent variables u_{it} - the idiosyncratic error term for the entity *i* at the time *t*
Manufactured articles	Model 4a: $Import_{it} = \alpha + \beta_{19} LPI_{19it} + \beta_{20} FDI_{20it} + \beta_{21} IVA_{21it} + u_{it} + \epsilon_i$, where: α - the intercept $\beta_{19}, \beta_{20}, \beta_{21}$ - the coefficients to be estimated for the independent variables u_{it} - the idiosyncratic error term for the entity i at the time *t* ϵ_i - the random error term Model 4b: $Export_{it} = \alpha + \beta_{22} LPI_{22it} + \beta_{23} FDI_{23it} + \beta_{24} IVA_{24it} + u_{it}$, where: α- the intercept for the entity *i* $\beta_{22}, \beta_{23}, \beta_{24}$ - the coefficients to be estimated for the independent variables u_{it} - the idiosyncratic error term for the entity *i* at the time *t*

Source: Authors

transport, and a high-quality and competent logistics providers are indispensable.

Also, industrial products record the highest value of the coefficient. The complexity of modern industrial production, trade within the GVC, and increased requirements in the field of delivery impose a special requirement on logistics when the promotion of the processing industry exports are concerned. The results are built on earlier evidence on the impact of logistics on the product processing stage (Zaninović *et al*, 2021), which favors a higher logistics

requirement for intermediate goods. They are more sensitive to trade than capital or consumption goods. The complexity of production requires constant connections between different phases in different locations, which places logistics at the center of these activities. In this sense, logistics can be considered a production factor, especially within Industry 4.0 requirements (Angreani *et al*, 2020).

Model 2 and Model 3, which include the products classified as animal and vegetable oils and machinery and equipment also show dependence on logistics performance. These products often have special requirements in terms of logistics activities, where meeting specific conditions in this field enables trade of any kind (Sarabi & Darestani, 2021; Dempster *et al*, 2022). The smaller volume and frequency of the export of these products in the observed countries can justify the lower coefficients. In this way, in addition to delivery time, the frequency of trade can be highlighted as an important determinant in terms of the logistics intensity of certain industries and product groups. If exports are more frequent and complex, and with higher delivery requirements, logistics will make a stronger contribution.

Table 2 shows the effects logistics has on imports for the selected industries. At first, it can be seen that, in all the observed models, the LPI coefficient shows higher values for imports than for exports, which is indicative of a more significant contribution of logistics to imports than to exports (see Table 5).

The greater impact of logistics on the imports side is opposite to the previous evidence, which highlights that logistics performance is more important for exporting than for importing countries (Martí, Puertas & García, 2014; Gani, 2017; Töngür *et al*, 2020). On the other hand, P. A. Zaninović and F. Ž. Bugarčić (2023) conclude that the logistics performance of the partner country plays a more critical role than the logistics performance of the reporting country. This

Table 4 The Impact of the LPI on the industry-level exports

Variables	Food products, beverages and tobacco (Model 1a)	Animal and vegetable oils (Model 2a)	Machinery and equipment (Model 3a)	Manufactured articles (Model 4a)
LPI	5.13**	3.47**	1.59*	5.57*
FDI	-5.22**	-3221486**	-7.01	-6.17**
IVA	200141.1***		4844.129	
R^2	48.88	13.5	18.62	21.15
Number of obs.	225	225	193	225

Source: Authors

Table 5 The impact of the LPI on the industry-level imports

Variables	Food products, beverages and tobacco (Model 1b)	Animal and vegetable oils (Model 2b)	Machinery and equipment (Model 3b)	Manufactured articles (Model 4b)
LPI	9.23**	3.59*	1.26*	8.10*
FDI	-3.09	-5933987***	-7.44	-7.04
IVA	253597.6***		-31463.21	
R^2	62.25	15.89	27.09	16.46
Number of obs.	225	225	193	225

Source: Authors

circumstance can be attributed to the perspective of the investigation, since previous studies have focused on the total volume of countries' exports and imports. At the same time, the results are presented for separate industries. Another problem is the selection of the countries to which the OECD countries import to a great extent, especially production components and industrial products of lower processing stages. The presented results, again with the most substantial impact of the LPI in Model 1 and Model 4, reveal the high importance of logistics in efficient imports, in which regard it can be stated that a national logistics system is necessary for imports, as well as for the domestic industry and the national economy to function efficiently, particularly in the context of modern global supply chains (GSC).

CONCLUSION

The growing importance of logistics and its impact on global trade flows has created an imperative for further research in this area. The previous research presented in the Literature Review emphasizes the role of logistics performance as a significant factor in trade facilitation, especially in modern GSCs. This evidence imposes the need for acquiring further knowledge of its contribution to specific industries. Assuming the different needs of individual industries and product groups depending on their specific requirements for logistics operations and preconditions within the logistics system, the paper fills the gap in the literature pertaining to a lack of evidence on the impact of these activities on exports and imports at this level. The effects of these operations have not been observed at the individual industry level yet.

Based on the presented results, obtained through the panel analysis with secondary data, it is possible to draw lessons regarding the importance of logistics performance in individual industries for the first time. The evidence presented in this paper indicates the vital role of logistics across all the observed product groups, especially in the processing industry, manufactured goods, and the food and beverage sector. This underscores the importance of timeliness and efficiency of delivery, which are critical in the modern business environment, particularly in international trade. Additionally, a greater significance of logistics performance for imports was identified, highlighting the need for more efficient procurement due to the increased fragmentation of production activities at the international level, which provides an answer to the research question.

This paper highlights several implications. Theoretically, the importance of logistics advantages in the industries with a strong impact of the LPI on exports and imports is confirmed. Thus, the improvement of the logistics system and related activities contributes to the promotion of international trade, particularly in the industries with special requirements related to delivery, either due to the limited shelf life of products or due to requirements for the inputs needed for further manufacturing processes. Such a concept in the field of theory emphasizes the importance of the activities of international logistics when trade promotion, both exports and imports, is concerned.

With regard to practical implications, they can be grouped in two ways: those intended for the creators of the economic or trade policy, and for those directly concerning the operations of companies in certain industries. The knowledge of the impact of logistics performance in the observed industries and their differences provides policymakers with a basis for formulating a strategy within the logistics system to facilitate trade in those industries in which the economy has a strategic interest. In this way, the direct targeting of the strategy for improving logistics performance will contribute most to the economies relying on the exports or imports of products from the processing industry, including food, beverages, and tobacco. As for individual companies, the assessment of their success in a specific sector must depend on the logistics environment, due to the particular requirements of specific industries in the logistics field. The companies that operate in the identified logistics-intensive industries will undoubtedly tend to improve those operations and base their business on more robust support from the components of this system.

The limitations of this research study reflect in data availability, given that the LPI limits the number of the years of observation. On the other hand, due to the availability of the data on exports and imports at the industry level, it was impossible to use the latest data for 2023. Also, due to the limited data at the country level, the study had to opt for a sample including the OECD countries. Future research can undoubtedly overcome these shortcomings through a more extended period of observation and a larger number of countries, simultaneously identifying differences arising from the development level. Using FDI as the control variable in the analysis can lead to endogeneity issues, since it can indirectly affect trade through investments in infrastructure and integration into global supply chains. Therefore, there is a risk of reverse causality and omitted variables. However, considering that this is the first paper to analyze the impact of logistics performance at the industry level, future research could include more variables, use different methods, including more industries at the 2-digit level, and use different classifications and product groups for analysis.

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THE RELATIONSHIP BETWEEN EMPLOYER BRAND AND INTENTIONS TO STAY IN ORGANIZATIONS

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In the modern highly competitive business environment, companies characterized by labor shortage are struggling to attract, motivate, and retain talents. As a mix of functional, economic, and psychological benefits that stem from employment, employer brand is one of the approaches that companies develop to create employee value proposition and maintain their workforce. Many employees decide to stay in or leave a company based on the whole human resource management system that a company offers. This paper mainly aims to investigate the relationship between the perceived employer brand and employees' intention to stay in an organization. The research is based on a sample of 209 employees working in Serbia. The research methodology consists of the theoretical and empirical quantitative research in the proposed relationship. The analytical procedure used is PLS-SEM. The results show a positive relationship between the observed variables and points to the conclusion that a positive perception of employer brand leads to employees' higher intention to stay in an organization. The strongest effect on intention to stay was made by a healthy working atmosphere, followed by training and development, work-life balance, ethics and corporate social responsibility, and finally, compensation and benefits.

Keywords: employer brand, intention to stay, human resources management, PLS-SEM

JEL Classification: J24, M12, M54

INTRODUCTION

In the modern highly competitive business environment, companies characterized by labor shortage are struggling to attract, motivate, and retain talents (Poór, Slavić, Nikolić & Berber, 2021). As a mix of functional, economic, and psychological benefits stemming from employment (Ambler & Barrow, 1996), employer brand is one of the approaches that companies develop in order to create employee value proposition and maintain their workforce. Many employees decide to stay in or leave a company based on the whole human resource management system that an organization offers.

The brand represents "valuable intangible assets and one of the most important resources that offers a number of benefits and therefore the brand

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must be constantly built and carefully managed" (Brzaković, Brzaković & Brzaković, 2019, p. 17). The implementation of different branding techniques in human resource management (HRM) is a relatively recent phenomenon (Slavković & Mirić, 2024a). Employer brand is understood as an effective strategy for "attracting and retaining qualified individuals and differentiating the company from its competitors in the labor market. The development of employer brand was aimed at developing long-term and sustainable relationships with employees. Employer branding philosophy based on the focus on employees as internal clients tend to be different from the other companies' approaches that are focused on attracting and retaining human capital" (Slavković & Ognjanović, 2024, pp. 25-26). According to the definition, it is obvious that employer brand is gaining more and more attention from both the academic and the business sides. Researchers are trying to investigate the effects of employer branding on several outcomes and employees' attitudes, as well as certain objective results, such as productivity, profitability, and the like. Business is trying to develop a specific brand that will attract, motivate, and retain companies' workforce. This is why it is very important to investigate employer brand, especially in the business context of the Republic of Serbia, in which new developments of academic empirical research in this particular field have been detected recently. Also, there is limited research in how employees perceive their organizations' employer brands (Kanwal & Van Hoye, 2024). The research results may serve as a recommendation for companies on how to create employer brand and what HRM practices are needed for employer branding to be successful.

Given the claim that employer brand can enhance the employee attraction and retention and that there is limited research results on employees' perceptions of employer brand, this paper mainly aims to investigate the relationship between the perceived employer brand and employees' intention to stay in an organization. The research is based on a sample of 209 employees working in Serbia. The research methodology consists of theoretical and empirical quantitative research in the assumed relationship. The analytical procedure used is PLS-SEM. Although previous research has been conducted in the relationship between employer brand and intention to stay in (or intention to leave) Serbia, most of those studies have used employer brand as a single construct (Pavlović & Slavković, 2024), or as more individual constructs (organizational culture, training, etc.) (Slavković & Mirić, 2024b), rather than a second-order formative construct. By implementing this approach, this study seeks to fill this gap in the existing literature in Serbia.

The paper is structured into four sections. The first part presents the main theoretical background on employer branding and the relationship with employees' intentions to stay. The second part gives an explanation of the research methodology. The third part deals with the data analysis results and discussion, while the final part is the conclusion with empirical implications, propositions for future research, and the research limitations.

LITERATURE REVIEW AND HYPOTHESIS SETTING

Employer brand

Employer brand is not a novel concept as some of the first definitions were formulated in the 1990s. Today, the way companies can build stronger relationships with their employees and make them more loyal to their employers is becoming increasingly important. "Employer branding is defined as the process of reckoning the picture of the organization as a suitable place to work. The picture is portrayed to potential (external) and existing (internal) employees to entice and absorb and retain the most talented employees in the organization" (Poonam, 2019, p. 669). It is "an aggregate of a company's effort to acquaint to present and future prospective staffs that it is an adorable place to work for" (Lloyd, 2002). According to T. Ambler and S. Barrow's research (1996), it is possible to view employees as consumers, suggesting that just as companies build brands to attract customers, they should also create appealing employer brands

to attract and retain talents. This initial definition laid the foundation for the growing importance of employer branding as a strategic part of human resources and overall talent management. The term *employer branding* suggests "the differentiation of a firm's characteristics as an employer from those of its competitors" (Backhaus & Tikko, 2004, p. 502). Today, employer branding combines several fields, mainly marketing and human resource management (Cvjetković & Babić, 2023).

Employer branding can be explained in the context of social exchange theory (SET), according to which employees will reciprocate towards organizational policies and practices in their behaviors and attitudes. SET suggests that the interaction between two parties involves reciprocal interdependence (Blau, 1964). "Organizations initiate the social exchange process by valuing their employees' contributions and caring for their well-being. Thereby, employees respond with suitable behaviors" (Meira & Hancer, 2021, p. 670). SET's basic assumption implies that "positive, beneficial actions by an organization towards employees contribute to the establishment of high-quality exchange relationships that create obligations for employees to reciprocate in positive, beneficial ways. According to the theory, employees would reciprocate by adopting a more positive attitude (commitment, engagement, intention to stay) towards the workplace when they are exposed to desirable HR practices and a favorable work environment" (Berber & Gašić, 2024, pp. 723-724).

Many authors have investigated the benefits of a good employer brand. The most significant benefits provided by employer branding are (Virijević Jovanović & Zdravković, 2014):

- increasing productivity and profitability,
- greater employee loyalty,
- increasing the employee retention rate,
- employees dedicated to organizational goals,
- a low risk of talented employees leaving,
- positioning the company as an attractive employer,
- lower recruitment costs,
- employees recommend the company as a desirable employer,
- strengthening the core competencies,
- ensured long-term competitiveness, and
- good interpersonal relations in the company.

The internal factors of the employer's attractiveness include (Slavić & Berber, 2022):

- recruitment activities,
- company stability,
- work-life balance and job security,
- the reward system,
- the company's innovativeness and employees' competences,
- training and development,
- a healthy working atmosphere,
- an adequate salary,
- substantive jobs,
- a good relationship with the superiors,
- good cooperation with colleagues, and
- talent management practices.

Three different perspectives have been predominant in the employer branding literature, namely "the external perspective (outsiders' perceptions), the internal perspective (employees' perceptions), and the construed image perspective (insiders' perceptions of outsiders' views)" (De Stobbeleir, De Clippeleer, Caniëls, Goedertier, Deprez, De Vos & Buyens, 2018, p. 4). Internal branding (branding towards employees) and external branding (branding towards candidates) are the two main perspectives (Charbonnier-Voirin & Vignolles, 2015). Internal branding involves using recommendations from the existing employees as a means to attract new candidates. Beside the above-mentioned internal factors, it is also important to emphasize the vital role of the work itself, the characteristics of job design (Kerekes *et al*, 2023). External branding involves spreading information about the company in the talent market via the Internet and the other media. Without internal branding based on positive employees' experiences, external branding will quickly experience a decline

in its attractiveness and investments will fail. Brand building is a two-way process involving both the existing and future employees. An employer brand is "communicated to current employees internally and to potential ones externally as well" (Kuráth, Szabó-Bálint & Jarjabka, 2021, p. 12). While a company strives to create a reputation that will attract talented individuals, it must meet business standards, create a favorable climate, and build respect and trust among employees so as to ensure internal branding. The employer branding process should enable employees to be corporate brand ambassadors, who attract new talents and establish long-term relationships with consumers (Slavić & Berber, 2022).

Employer brand and employees' intention to stay in an organization

Recent research has increasingly focused on the relationship between employer branding and employee retention, highlighting the various mediating and moderating factors that influence employees' intention to stay with their organizations. A significant body of literature suggests that a strong employer brand positively correlates with employee retention by enhancing job satisfaction, organizational commitment, and perceived organizational support.

Several prior research studies have investigated the relationships between employer branding and employees' intention to stay in or leave companies in the service sectors. D. Alzaid and S. Dukhaykh (2023) emphasize that a robust employer brand can enhance employee retention in Saudi Arabia's banking sector by fostering relational psychological contracts. The study findings reveal that employer branding is positively and significantly related to relational psychological contracts and employee retention. This notion is supported by A. Rai and B. Nandy (2021), who found that organizational identification and person-organization fit mediated the relationship between employer branding and employees' intention to stay in the Indian power sector. Furthermore, S. Bharadwaj and M. Yameen (2020) and N. Khan, S. Bharadwaj, A. Khatoon and M. Jamal (2021) highlighted the role of corporate social responsibility (CSR) as a dimension of employer branding that significantly enhanced retention rates. When an organization continues to deliver the benefits expected by their existing employees through its employer brand, the employees tend to demonstrate increased loyalty, which ultimately leads to employee retention and their intention to stay in the company (Alshathry, Clarke & Goodman, 2017; Chopra, Sahoo & Patel, 2024).

A. Ahmad, M. N. Khan, and M. A. Haque (2020) investigated the role of employer branding in enhancing employee attraction and retention within the Indian banking sector. The study targeted employees from both private and government banks. The final sample consisted of 75 valid responses. The findings emphasized that employer branding attributes, such as ethical behavior, societal contributions, and career growth opportunities, strongly influenced both employee attraction and employee retention. Contrary to the previous one, the research study conducted by S. Sahu, A. Pathardikara and A. Kumara (2018) examined the mediating effects of employee engagement, employer branding, and psychological attachment on the relationship between transformational leadership and intention to leave among Indian IT professionals. The results showed that transformational leadership significantly predicted employee engagement and, together with engagement, explained substantial variance in employer branding. Employer branding strongly influenced psychological attachment, but neither engagement nor branding had a significant direct effect on intention to leave. Mediation analysis indicated that none of the hypothesized mediation effects on turnover intention were supported.

A. Kar and T. Nguyen Thi Phuong (2022) conducted an empirical study to examine how different employer branding dimensions influenced turnover intentions among hospitality employees in Vietnam during the COVID-19 pandemic. Using a structured questionnaire, they included 200 current hospitality employees in the survey and analyzed the data utilizing structural equation modeling (SEM). The study measured the six employer branding values: *economic*, *social*, *development*, *security*, *application*, and *interest* adopted from established employer

attractiveness frameworks. The results showed that the economic, social, development, and security values had significant negative effects on turnover intention, whereas the *application* and *interest* values were not significant predictors. The findings suggest that, during crisis conditions, employees prioritize tangible rewards, career development, workplace relationships, and job stability over opportunities to apply skills or perform interesting work.

H. M. Nguyen and L. V. Nguyen (2023) examined the interrelationships between employer attractiveness, employee engagement, and employee performance within Vietnamese manufacturing and service organizations. Employing a quantitative survey design, the authors collected data from 937 employees across 37 companies. The results revealed that employer attractiveness measured with similar constructs as in A. Kar and T. Nguyen Thi Phuong (2022) significantly and positively influenced employee engagement, which in turn had a strong positive effect on employee performance.

Moreover, the generational context plays a critical role in shaping the dynamics of employer branding and employee retention. E. Hendriana, A. Christoper, H. Zain and N. Pricilia (2023) specifically examined Generation Z, revealing that the work-life balance and employer branding were pivotal in influencing this group's retention intentions. This aligns with the findings of I. Gracita and R. Anindita (2023) that organizational commitment mediated the relationship between employer branding and turnover intentions, suggesting that tailored employer branding strategies could effectively address the unique needs of different generational cohorts. H. Kanwal and G. Van Hoye (2024) showed that employer brand was a valuable source for fostering employees' organizational identification, whereas higher organizational identification reduced employee turnover (Bharadwaj, Khan & Yameen, 2022).

In addition to these factors, the role of internal communication and employee engagement as the essential components of employer branding has been highlighted. A. Špoljarić and A. Tkalac Verčić (2021) argue that satisfaction with internal communication significantly influences employee engagement and perceptions of employer brand, which are critical for employee retention. This perspective is supported by M. Bussin and H. Mouton (2019), who found that effective employer branding not only enhanced employee retention but also moderated compensation expectations, suggesting that employees were more likely to stay with the organizations they perceived as organizations valuing their contributions. A. Tkalac Verčić (2021) investigated how employee engagement, perceived organizational support, and employer branding influenced internal communication satisfaction within organizations. The study employed a quantitative, cross-sectional survey method, collecting data from 2,024 employees in Slovenia across multiple industries, making it one of the largest national datasets in this research area. The results demonstrated that employee engagement had the strongest positive effect on internal communication satisfaction, followed by perceived organizational support and employer branding. Employer branding not only directly improved communication satisfaction but also had an indirect effect through its influence on engagement. This research enriches the employer branding literature by positioning it as a key driver of internal communication satisfaction, alongside engagement and organizational support, in the Central European context. Similarly, N. Pološki Vokić, A. Tkalac Verčić and D. Sinčić Ćorić (2023) conducted a research study on a sample of 3,457 Croatian employees. They investigated the relationship between internal communication satisfaction and employer attractiveness. The results showed that there was a positive relationship between the mentioned constructs; therefore, good internal communication added to employer attractiveness.

Employer branding and employee retention in Serbia

Serbia's evolving economic landscape marked by transition towards a more competitive labor market has elevated the strategic importance of employer branding as a tool for talent attraction and retention. Gallup (2025) found that, in Serbia, there 33% of employees actively searched for new positions,

although they had already been employed. They stated this indicator as the employee's intention to leave ("To what extent are you currently looking for a job different from the one you have now? Are you actively looking for another job, watching for new opportunities but not actively looking for them, or are you not looking for another job at all?"). Local studies emphasize that cultivating a strong employer brand involves not only external reputation management but also internal dimensions, such as organizational culture, training and development, and employee satisfaction, all of which influence employees' decisions to stay or leave.

Earlier work by M. Slavković, G. Pavlović, and M. Simić (2018) further expands this insight, examining how recruitment practices intertwine with employer branding to influence employee satisfaction. The research found that recruitment positively influenced employee satisfaction and that employer branding served as a mediator between recruitment processes and satisfaction levels, reinforcing employer branding with both strategic and procedural intent.

M. Slavković and M. Mirić (2024b) conducted a study across 128 Serbian companies, applying PLS-SEM to explore how various elements of employer branding influenced employee retention and found that job satisfaction acted as a partial mediator between organizational culture and employee retention, a complete mediator between employee training and development and retention, and a partial mediator between employer reputation and retention. Their findings suggest that, while favorable branding strategies are critical, actual retention outcomes are heavily shaped by employees' perceived satisfaction. In a similar study emphasizing affective commitment, M. Slavković and M. Mirić (2024a) conducted a survey which included 146 Serbian enterprises and demonstrated that, as employees' emotional attachment to their organizations, affective commitment partially mediated the relationship between the employer brand values (such as organizational culture, training and development, and reputation) and job satisfaction, which indicated that the emotional aspect of workplace experience significantly underpinned how employer branding translated into retention.

Other scholars in Serbia point to the growing relevance of employer branding in the "war for talent." T. Krušković, B. Ilić and S. Anđelić (2023) highlighted employer branding as a key motivational mechanism for both employee attraction and retention, particularly in competitive sectors. J. Lukić, M. Brkljač and K. Perčić (2019) found that interpersonal relations and work atmosphere (75.5%), the good treatment of employees by management (69.4%), and opportunities for professional development (68.7%) were the practices applied to make employees more attached to their companies. Employment security and the amount of the salary and bonuses rank fourth and fifth.

It can be concluded that Serbian empirical research illustrates a consistent theme that employer branding is most effective when embedded in the internal fabric of the organization. Organizational culture, development opportunities, reputation, recruitment practices, job satisfaction, and affective commitment interact in complex ways to shape whether employees intend to stay in an organization or not.

Based on the literature review and the theoretical foundation of employer brand, this study finds employer branding to be a vital strategic tool for enhancing employee retention. The interplay of the factors, such as organizational identification, job satisfaction, generational characteristics, and internal communication, underscores the complexity of this relationship. The organizations that effectively leverage their employer brand can foster a more committed workforce, ultimately leading to improved employee retention outcomes. Employer brand is composed of different constituting elements related to the work environment, economic value (compensation), career development, corporate social responsibility, and the like. Accordingly, the following research hypothesis is set:

H1: Employer brand is positively related to employees' intention to stay in a company.

METHODOLOGY

The methodology section presents the information about the sample and the variables used in the analysis, as well as data processing.

The sample

Data collection was performed using an electronic questionnaire on the LinkedIn social network in December 2023. Non-probability convenience sampling was utilized, targeting the most easily accessible individuals for the research. A total of 300 questionnaires were sent out. Upon completion of data collection, it was determined that 227 responses had been collected. After the data purification process, the final sample was reduced to the 209 valid answers that were used in the analysis. To mitigate a non-response bias, the authors first reduced the non-responses, i.e. stressed anonymity and emphasized academic sponsorship and the importance of the survey (Berber & Gašić, 2024). The response rate was 69.67%. Although the sample was relatively small, the utilization of the "ten times more" rule (Hair, Risher, Sarstedt & Ringle, 2019), where the sample needs to be at least ten times greater than the number of the structural paths between the variables, helped to find that the sample was suitable for further analysis.

In the sample of 209 respondents from the private organizations operating in the service sector, mainly the IT sector, 36% of the respondents were male and 64% were female. The largest share of the respondents ranged from 25 to 30 years of age (19.2%), only to be followed by those from 31 to 35 (18.3%), then from 36 to 40 (18.3%), and from 41 to 45 (10.6%), whereas a very small share of the respondents were those over 55 years of age (9.6%), i.e. from 51 to 55 (9.6%), from 18 to 24 (8.2%) and from 46 to 50 years of age (6.3%). When the respondents' education level is concerned, most respondents evidently completed high school (54.8%), 23.1% obtained a university diploma, and 10.1% were with a master's degree; only 12% accounted for those with college education. Most respondents had 5 to 10 years of work experience (74%), whereas only 26% of them had less than 5 years of work experience. Also, the largest number of the respondents were in non-managerial positions (74%), and 26% of them claimed they worked in certain managerial positions.

The questionnaire and the variables

The questionnaire was developed based on the previous research conducted in this area. The questionnaire was divided into three parts. The first part consisted of the statements about the respondents' demographic profile. The second part of the questionnaire included the statements concerning employer brand. The questionnaire was an adapted questionnaire from K. Tanwar and A. Prasad (2017) and consisted of 23 statements related to the five dimensions for measuring employer brand. A total of six statements referred to *healthy work atmosphere (HWA),* such as "my organization provides decision-making autonomy to its employees", "my organization offers a relatively stress-free work environment", or "my organization offers opportunities to enjoy group atmosphere." A total of six statements pertained to *training and development (TD),* such as "my organization provides us with online training courses," "my organization offers us opportunities to work on foreign projects," or "my organization communicates a clear advancement path for its employees." A total of three statements referred to *work-life balance (WLB),* such as "my organization provides flexible working hours," or "my organization offers the opportunity to work from home." There were four statements related to *ethics and corporate social responsibility (ETH),* such as "my organization has a fair attitude towards the employees," or "there is a confidential procedure to report misconduct at work." The final four statements related to *compensation and benefits (CB),* such as "my organization provides good health benefits," or "my organization generally offers a high salary". Higher arithmetic means indicate that the respondents have higher positive opinions on those practices. The third part of the questionnaire contained adapted statements about *intention to stay (IS)* in the company (Daly & Dee, 2006) to determine the relationship with the employer brand. Those are the following statements: "under no circumstances will I voluntarily leave this organization before retirement," "I would

be reluctant to leave this organization," or "I plan to stay in this organization as long as possible." The respondents answered the questions within the range from 1 to 5 on the Likert scale (1=strongly disagree, 5=strongly agree). Some items were modified so as to align with the specific cultural and linguistic particulars of the Serbian context and the specific private sector organizations.

The SPSS and SmartPLS software were utilized to analyze the data by means of descriptive statistics and PLS-SEM analysis.

RESULTS AND DISCUSSION

A path analysis was carried out in order to investigate the reflective and formative constructs and bootstrapping was performed so as to investigate the structural model. Path analysis was used to test the measurement model using the reliability of the indicators and the constructs, as well as the convergent and discriminant validities, while the structural model was tested by applying the bootstrapping procedure based on 5,000 subsamples (Berber & Gašić, 2024). This type of measurement was proposed for the reflective constructions in the model (Hair *et al*, 2019). The loadings of the indicators ranging between 0.4 and 0.7 should be retained only if their removal did not have an impact on the average variance extracted and composite reliability (Hair, Sarstedt, Hopkins & Kuppelwieser, 2014). The outer loadings of all the indicators were checked, and it was found that all of them had reached the minimum level of 0.7 and that all of them could be included in further analysis (Table 1). However, the later analysis of the VIF and the cross-loadings showed that the indicators CB1, CB4, SI2, ETH2, TD6, and TD3 had high VIFs (above the threshold of 5.0) and were highly correlated; therefore, they were excluded from the model. Figure 1 summarizes all the above-mentioned points.

The formative construct in the model was tested by the outer weight, and its significance was tested through the standard deviation, t-statistics, and p-value. Multicollinearity analysis was also performed using the variance inflation factor (VIF). Based on the values

Table 1 The factor loadings

	Indicators	CB	ETH	HWA	IS	TD	WLB
CB	CB2	0.918					
	CB3	0.901					
ETH	ETH1		0.901				
	ETH3		0.863				
	ETH4		0.792				
HWA	HWA1			0.848			
	HWA2			0.915			
	HWA3			0.691			
	HWA4			0.872			
	HWA5			0.890			
	HWA6			0.845			
IS	SI1				0.833		
	SI3				0.804		
	SI4				0.860		
TD	TD1					0.822	
	TD2					0.942	
	TD4					0.931	
	TD5					0.916	
WLB	WLB1						0.908
	WLB2						0.928
	WLB3						0.923

Source: Authors

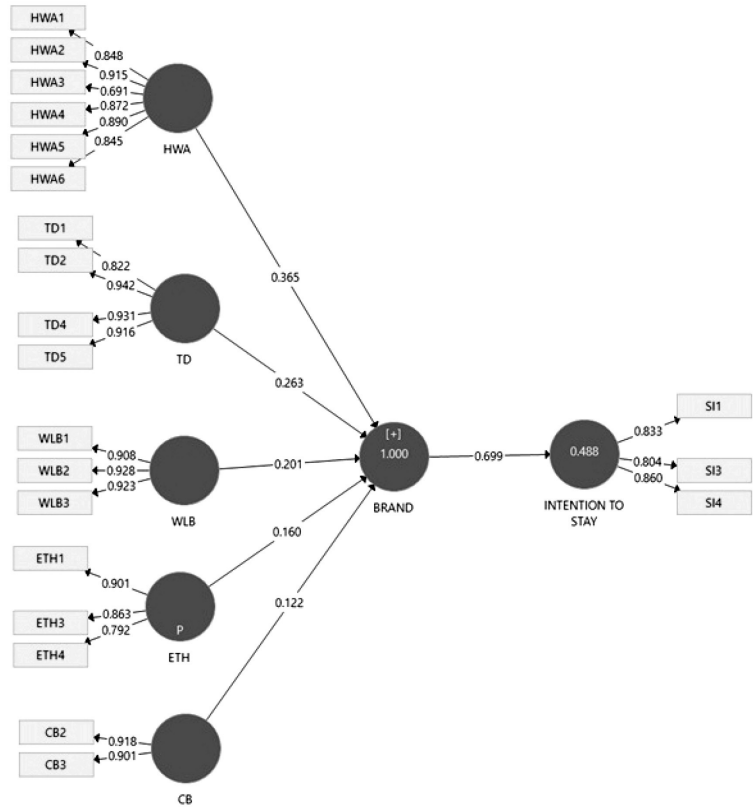

Figure 1 The path analysis

Source: Authors

in Table 4, it was concluded that all the coefficients of the path were positive and significant (p-values< 0.05), which meant that the higher-order construct, i.e. the *employer brand*, consisted of five variables. Multicollinearity analysis (the common method bias) was performed by calculating the variance inflation factor. N. Kock (2015) argued that, if the VIF were lower than 3.3 for all the values, then there was no multicollinearity issue. Based on the analysis, it was concluded that there was no multicollinearity between the formative constructs because the values of the VIFs were less than 3.3. It was confirmed that the formative part of the model was reliable and valid.

Table 2 presents the reliability test, Cronbach's Alpha, Composite Reliability, and Average Variance Extracted (AVE). The lowest acceptable limit of Cronbach's Alpha should be 0.6 (Dakduk, González & Portalanza, 2019). The lowest limit of the acceptability of Composite Reliability should be 0.7 (Hair *et al*, 2019). Based on the data accounted for in Table 2, it was determined that convergent validity had been satisfied, as the constructs had met all the criteria.

Table 2 The reliability of the constructs and convergent validity

	Cronbach's Alpha	CR	AVE
CB	0.791	0.905	0.827
ETH	0.812	0.889	0.728
HWA	0.920	0.938	0.717
INTENTION TO STAY	0.782	0.872	0.693
TD	0.925	0.947	0.817
WLB	0.909	0.943	0.846

Source: Authors

Table 3 Discriminant validity (the Fornell-Larcker criterion)

	CB	ETH	HWA	IS	TD	WLB
CB	0.909					
ETH	0.700	0.853				
HWA	0.619	0.802	0.847			
INTENTION TO STAY	0.560	0.614	0.699	0.833		
TD	0.740	0.740	0.793	0.595	0.904	
WLB	0.773	0.738	0.742	0.601	0.797	0.920

Source: Authors

Table 4 The formative second-order construct and the structural model

	β	STDEV	t-Statistics	p-Values
Second-order construct				
CB → BRAND	0.122	0.006	19.687	0.000
ETH → BRAND	0.160	0.010	16.439	0.000
HWA → BRAND	0.365	0.011	33.721	0.000
TD → BRAND	0.263	0.008	32.819	0.000
WLB → BRAND	0.201	0.007	27.896	0.000
Direct and indirect effects				
BRAND → INTENTION TO STAY	0.699	0.040	17.654	0.000
CB → BRAND → INTENTION TO STAY	0.085	0.006	14.024	0.000
ETH → BRAND → INTENTION TO STAY	0.112	0.009	12.254	0.000
HWA → BRAND → INTENTION TO STAY	0.255	0.016	15.928	0.000
TD → BRAND → INTENTION TO STAY	0.184	0.011	16.543	0.000
WLB → BRAND → INTENTION TO STAY	0.140	0.009	15.580	0.000

Source: Authors

Apart from convergent validity, discriminant validity was also examined. Discriminant validity was assessed by the Fornell-Larcker Criterion, according to which the root from the AVE of a latent variable must have a higher value than all correlations with other latent variables (Fornell & Larcker, 1981). Table 3 demonstrates that discriminant validity was met because the value of the root of the AVE on the diagonal was higher than all the values below for each variable.

The final step was to analyze the relationship between the independent variable (the *employer brand*) and the dependent variables (intention to stay). As a statistical measure of the proportion of the variance for the dependent variable explained by the independent variable, R^2 (R-squared) shows that 48.8% of the variance in the *intention to stay* is explained by the *employer brand* in the model. The quality of the structural model was verified using the cross-validated Redundancy Index (Stone-Geisser's Q2). The calculation was performed by the blindfolding technique in the Smart PLS. Both Q2 values (0.623 for the *employer brand* and 0.324 for the *intention to stay*) fall within the positive range, thus indicating a high-quality structural model.

The results shown in Table 4 and Figure 2 indicate a statistically significant relationship between the *employer brand* and the *intention to stay* ($\beta = 0.699$; $t = 17.654$; $p = 0.000$).

A more detailed analysis showed which element of the *employer brand* had the strongest effect on the *intention to stay*. According to the data shown in Table 4, the healthy working atmosphere ($\beta = 0.255$; $t = 15.928$; $p = 0.000$) had the strongest effect on the *intention to*

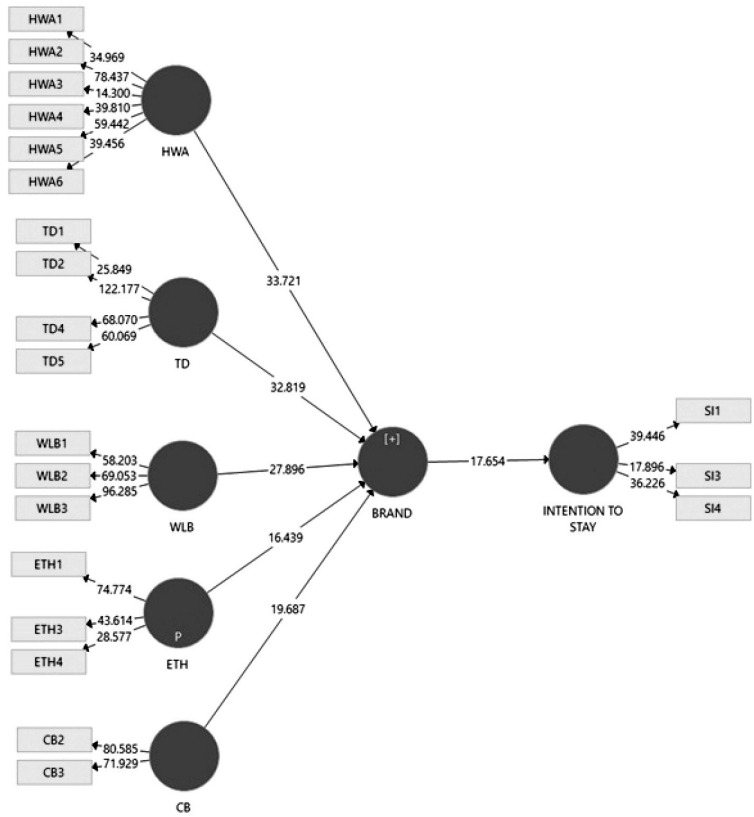

Figure 2 The bootstrapping analysis

Source: Authors

stay, only to be followed by training and development (β = 0.184; t = 16.543; p = 0.000), work-life balance (β = 0.140; t = 15.580; p = 0.000), ethics and corporate social responsibility (β = 0.112; t = 12.254; p = 0.000), and, finally, compensation and benefits (β = 0.085; t = 14.024; p = 0.000). Based on the above-mentioned points, the proposed hypothesis H1 was confirmed.

The results suggest that the non-material and relational aspects of the work environment have a stronger effect on retention intentions than financial incentives, reinforcing the strategic importance of holistic employer branding approaches. These results are consistent with the earlier findings by A. Rai and B. Nandy (2021) and D. Alzaid and S. Dukhaykh (2023), who highlighted the role of employer branding in fostering relational psychological contracts and organizational identification, thus leading to stronger employee retention. The high predictive value of healthy working atmosphere mirrors the emphasis on workplace relationships and job satisfaction observed in the hospitality sector during the crisis conditions (Kar & Nguyen Thi Phuong, 2022) and in the context of Generation Z retention drivers (Hendriana *et al*, 2023). The importance of training and development as the second strongest factor aligns with A. Ahmad *et al* (2020) and H. M. Nguyen and L. N. Nguyen (2023), both of whom found career growth opportunities to be central to employer attractiveness and engagement. The relatively smaller, yet significant, effect of compensation and benefits echoes M. Bussin and H. Mouton's (2019) and J. Lukić *et al*'s (2019) observations that a strong employer brand can moderate the weight of financial rewards in retention-related decisions.

Furthermore, the identified role of ethics and CSR as a predictor supports the conclusions of S. Bharadwaj and M. Yameen (2020) and N. Khan *et al* (2021) that social responsibility strengthens loyalty and reduces turnover.

CONCLUSION

The findings of this study align with previous research (Bharadwaj & Yameen, 2020; Khan *et al*, 2021; Alzaid & Dukhaykh, 2023), reinforcing the notion that employer branding plays a significant role in employee retention. The results obtained in this study confirm that a well-perceived employer brand positively influences employees' intention to stay, with the strongest contributing factor being *healthy working atmosphere*, followed by *training and development opportunities*, *work-life balance*, *ethics and corporate social responsibility*, and *compensation and benefits*. Employer branding is not merely a tool for attracting talents, but a strategic HRM approach that influences organizational sustainability. By aligning employer brand attributes with employees' expectations and needs, companies can foster a committed workforce, reduce turnover rates, and enhance overall business performance. The organizations that invest in employer branding as an ongoing strategic priority, rather than a one-time initiative, will be better positioned to retain top talent and maintain a competitive advantage in the labor market. Overall, this study extends previous research by providing empirical evidence from the Serbian private service sector, demonstrating that, while tangible benefits do remain relevant, on the one hand, relational, developmental, and value-based employer branding attributes have a greater influence on employees' intention to stay, on the other hand.

From the theoretical perspective, this study contributes to the growing body of knowledge on employer branding by providing empirical insights into its effects on employee retention in the Serbian business context. The research study bridges the existing gap by examining how employees perceive employer brand attributes and how these perceptions translate into retention intentions. Also, yet another theoretical contribution is that the study has proven the implementation of the second-order formative construct of employer branding in the model with intention to stay. The findings further validate the applicability of social exchange theory (SET) in explaining the relationship between employer branding and employee commitment, confirming that employees reciprocate favorable HR practices with increased loyalty and reduced turnover intentions. Additionally, this study confirms the reliability and validity of the measurement instrument previously used in different business environments, demonstrating its applicability in Serbia as well. The results suggest that employer branding is not only an external marketing tool but also a critical internal HRM strategy that influences key organizational outcomes, such as workforce stability and engagement.

Organizations should prioritize creating a conducive working atmosphere by fostering a supportive and inclusive workplace culture, where employees feel valued and respected. Open communication, participative decision-making, and supportive leadership are crucial for building a positive work environment. Additionally, implementing well-being programs focused on mental and physical health, such as stress management workshops and flexible work arrangements, is essential. Investing in continuous learning opportunities, career development programs, and mentorship initiatives should be central in HRM strategies, ensuring clear career progression and skill enhancement that align with both employees' aspirations and business needs. Encouraging lifelong learning through digital platforms and certification programs can significantly boost employee engagement and commitment. Enhancing work-life balance through flexible work arrangements, such as remote work, hybrid models, and compressed workweeks, alongside policies supporting parental leave, childcare, and personal time off, can improve overall job satisfaction, particularly for younger employees. Promoting a culture that emphasizes performance over long working hours helps reduce burnout and increases retention. Strengthening ethics and corporate social responsibility (CSR) by

integrating ethical business practices into a corporate strategy, ensuring transparency, fairness, and integrity in decision-making, and actively involving employees in CSR activities can enhance the organization's reputation and foster a sense of purpose. Lastly, developing competitive and fair compensation and benefits through regular market benchmarking, offering personalized benefits like performance-based incentives, wellness packages, and recognition programs, and establishing transparent and equitable pay structures can help to reduce turnover and foster trust within the workforce.

Despite the study's contributions, several limitations of this study should be acknowledged. Although sufficient for PLS-SEM analysis, the sample size could be expanded so as to ensure greater generalizability across multiple industries and demographic groups. Future research should explore potential moderating effects of the demographic variables such as age, gender, education level, and managerial status on the relationship between employer branding and retention intentions. Additionally, as this study utilized a cross-sectional research design, future longitudinal studies are recommended in order to examine the long-term effects of employer branding on retention and other employee outcomes. Exploring industry-specific employer branding strategies and their impact on organizational performance could provide further practical insights. Qualitative research methods, such as in-depth interviews or focus groups, could complement quantitative findings by offering richer insights into employees' perceptions and experiences related to employer branding.

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IDENTIFICATION, MEASUREMENT AND RECORDING OF ENVIRONMENTAL COSTS: THE CASE OF COMPANIES IN SERBIA

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Starting from the importance of proper identification, allocation, and management of costs, as well as the fact that, in addition to the economic dimension, the ecological aspect is also crucial for company operations – and considering the low level of the integration of environmental aspects into accounting practices – this paper aims to examine the extent to which companies are familiar with environmental cost-accounting methods and whether practices differ depending on the implementation of the ISO 14001 standard. The research was conducted on a sample of companies obliged to report data to the National Register of Pollution Sources. The data analysis was carried out using quantitative statistical methods, primarily descriptive statistics and non-parametric tests. The results indicate that companies pursue a reactive environmental policy, recognizing costs only after they occur, while preventive measures are neglected. Environmental costs are often hidden within general costs due to reliance on traditional accounting methods. It is concluded that the main issues are an inadequate regulatory framework and a lack of motivation. The research highlights the need for systemic changes, greater company motivation, and the improvement of the regulatory framework.

Keywords: environmental costs, environmental accounting, cost-accounting methodologies, ISO 14001

JEL Classification: M41, M49, Q59

INTRODUCTION

Throughout history, companies were not required to worry about pollution and were relatively indifferent to whether their air emissions reduced air quality, whether they discharged untreated wastewater into rivers, or whether they endangered plant and animal life or not. This indifference stemmed from a deeply rooted perception that there was an abundance of resources that organizations and individuals could use without affecting the environment. However, environmental issues are now an integral part of modern business strategies. A. Susanto and

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M. Meiryani (2019) suggest that a company's response to environmental challenges is crucial not only for the environment itself but also for the development of its corporate image, sustainable practices, and environmental certification. These aspects enhance a company's reputation and improve managers' understanding of environmental issues and their responsibilities toward society as a whole.

Companies are facing increasing pressure to demonstrate the value and performance of their Environmental Management Systems (EMS). Managers are also becoming more aware of the benefits of properly identifying, measuring, allocating, and recording environmental costs (Stanescu, Cucui, Ionescu, Paschia, Coman, Nicolau, Uzlau & Lixandru, 2021; Broccardo, Giordino, Yaqub & Alshibani, 2024). Experience shows that managers have very limited access to current cost-accounting documentation and are generally aware of only a small portion of total environmental protection costs. On the other hand, financial controllers hold most of the relevant information but are unable to isolate environmental costs without further guidance from cost accounting. Therefore, companies should rely on cost accounting to correctly identify and measure environmental costs before allocating them to the appropriate production activity and before implementing control measures (UNDSD, 2001; IFAC, 2005). In doing so, the company will not only reduce costs but also its negative environmental impact, operating in line with the Sustainable Development Goals (European Commission, 2023), thereby improving the overall quality of society (Wedasuari, Yintayani & Sudana, 2022). For these reasons, government institutions should exert institutional pressure by creating environmental protection laws and encouraging companies and media to report on environmental issues (Deb, Rahman & Rahman, 2023; Wiredu, Osei Agyemang & Agbadzidah, 2023).

Environmental accounting can significantly influence the measurement, identification, and disclosure of valuable information on the environmental impact of a company's activities (Üçoğlu, 2022; Ratmono, Mail, Cahyonowati & Janie, 2024). It also helps organizations identify resource usage and the environmental costs arising from their operations (Schaltegger, Christ, Wenzig & Burritt, 2022). The calculation of environmental costs contributes to corporate sustainability by identifying environmental protection costs, which are often "overlooked" in conventional cost accounting. The efficient calculation of environmental costs is essential for identifying and quantifying environmental protection costs, which are often hidden among general overheads (UNDSD, 2001; IFAC, 2005). As a result, production management is neither motivated to reduce them nor aware of their magnitude and impact, which is particularly important given that environmental costs can account for more than 20% of total operating costs (Ditz, Ranganathan & Banks, 1995; Expósito, 2018).

The calculation of environmental costs is still in its early stages in developing countries (Nyide & Lekhanya, 2016), as priority is given to issues such as unemployment, reducing inflation rates, infrastructure development, and the like. Consequently, there is limited empirical evidence on companies' attitudes toward the identification, measurement, allocation, and recording of environmental costs, as well as their reporting. Therefore, the subject of this research is the identification, measurement, and recording of environmental costs in companies operating in Serbia. The paper aims to examine the extent to which companies are familiar with the methods of environmental cost accounting and whether practices differ depending on the implementation of the ISO 14001 standard.

The study was conducted on a sample of the companies that are required to submit data on environmental pollution sources to the National Register of Pollution Sources (NRPS) in compliance with the provisions of the Protocol on Pollutant Release and Transfer Registers (PRTR) (https://sepa.gov.rs/prtr-registar/). The data had been collected through interviews and a questionnaire distributed to the management of each company in the sample. The data analysis was conducted using descriptive statistics and non-parametric tests.

The study contributes to the literature in three ways. Firstly, environmental accounting is increasingly gaining attention in both the academic literature and practice, as environmental costs can be significant

for certain industrial sectors. This is supported by studies conducted more than thirty years ago, such as the study by D. Ditz *et al* (1995), which showed that environmental costs in the Yorktown refinery accounted for at least 22% of operating costs, as well as more recent studies, such as A. Expósito (2018), which found that environmental costs represented 20% of the total costs of the water supply service in the agricultural sector in the river basin areas of the Spanish Mediterranean. Therefore, the first contribution of this study relates to the literature on the share of environmental costs in total costs, as well as the approaches to identifying and assessing environmental costs. The study provides the evidence of a relatively low share of environmental costs in the total costs of Serbian companies and the excessive reliance of Serbian companies on traditional cost-accounting methods.

Secondly, environmental regulations have become significantly stricter in many countries (e.g. Germany, Sweden, the Netherlands, France, Japan, and Canada), and they are expected to become even more stringent in the future. Non-compliance with the law often results in substantial fines and penalties, creating strong incentives for adherence. However, even if a company complies with the law, this does not mean that it will avoid high environmental costs. Therefore, it becomes an important business objective to choose the most cost-effective way to comply with regulations and minimize the company's environmental impact. To achieve this goal, companies must measure and manage environmental costs. The second contribution of this study thus relates to the literature on the relative importance of environmental regulation in influencing companies to keep records of the environmental impact of their business activities. The study provides the evidence that the companies included in the sample almost exclusively keep records of internal failure costs and only consider those environmental costs they are legally required to account for.

Thirdly, the growing environmental awareness among consumers and the pressure from environmentally responsible competitors are becoming a significant competitive challenge for companies. To respond to these pressures, companies must pay attention to their environmental impact, as well as the management of environmental costs. Therefore, the third contribution of this study relates to the literature on the relationship between specific efforts made by companies to improve their competitive position and the records they keep of their environmental impact. The study provides the evidence that the implementation of the ISO 14001 standards and the decision to include environmental costs in the cost calculation of finished products (CCFP) significantly influence certain records, particularly those of potential environmental liabilities, environmental obligations, and costs.

The paper is structured into five sections. After the introduction, it provides the theoretical framework of the study and a review of previous research. The third section explains the research methodology. The results of the empirical study are presented in the fourth section. Finally, the fifth section offers conclusions and points out the limitations and possible directions for future research.

THEORETICAL FRAMEWORK, REVIEW OF PREVIOUS RESEARCH, AND DEVELOPMENT OF RESEARCH QUESTIONS

The interest in identifying, measuring, allocating, and recording environmental costs is relatively recent. Namely, as long as the public was insufficiently concerned about the damage companies caused to the environment, the legal system allowed polluters to shift the costs of cleanup onto society. However, social expectations have changed, and society has begun to demand that companies reduce their negative environmental impacts. Additionally, changes in legislation and consumer pressures are the factors that have created the need to account for environmental costs using various methodological approaches. Developed accounting procedures regarding environmental costs contribute to improving environmental protection activities, the sustainable development of companies, and the enhancement of community relations (Figure 1).

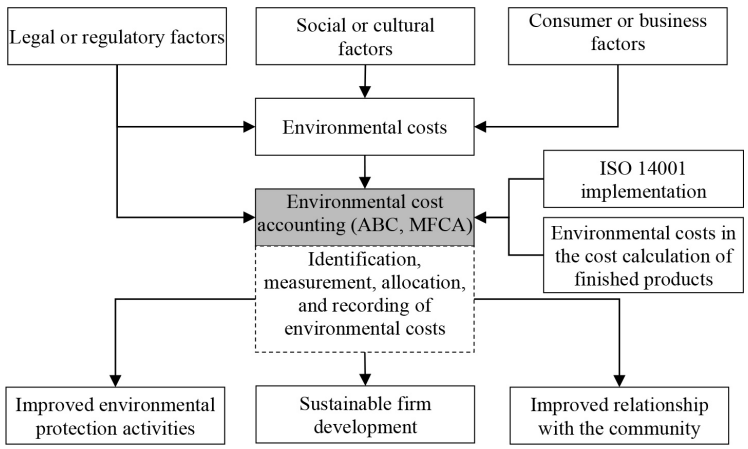

Figure 1 The summary of a theoretical framework and previous research

Source: Authors

The theoretical framework and the results of the previous studies presented below, and summarized in Figure 1, are the starting point for formulating the research questions.

Environmental costs

Environmental costs are often hidden, related to the occurrence of a certain event, and intangible, whereas some arise before the start of certain activities, and some arise potentially in the future. The key challenge for the accounting profession regarding environmental costs is their precise and complete identification. Like other costs, environmental costs can be defined and classified in different ways (UNDSD, 2001; Wang, Wang, Zhu & Li, 2018; Gonzalez & Peña-Vinces, 2022).

The United States Environmental Protection Agency (EPA, 1995) defines environmental costs as the costs with a direct financial impact on a company (private costs), individuals, society, and the environment (societal costs), but points out that a firm's definition of environmental costs depends on how it intends to use the information on them. In some countries, it is legally determined for tax and/or statistical purposes that environmental costs include the costs of labor and equipment generally used to improve the environmental impact of the firm. For some companies, however, this definition does not include the essential element – the total cost of waste.

As waste indicates production inefficiency, the costs of waste materials, capital and labor, as well as the costs and taxes linked to creating landfills, should also be considered. A review of several projects conducted by companies mainly in Austria and Germany carried out by the Berlin Institute for Ecological Economy Research, Augsburg Institute for Management and Environment, and the Technical University of Graz, showed that the costs of waste disposal typically accounted for 1-10% of total environmental costs, whereas the costs of acquiring wasted materials represented 40-90% of environmental costs, depending on the business sector (UNDSD, 2001).

Given that there are different definitions of environmental costs, R. L. Burritt (2004) points out that five classifications deserve to be paid special attention to when defining and determining the importance of environmental costs in business operations. These five classifications are based on:

- conventional cost accounting – the job and the process; direct and indirect; historical and standard; fixed and variable; ordinary and extraordinary;
- measurability – conventional; indirect hidden; less tangible; contingent; societal;

- quality – prevention; assessment (appraisal); internal and external failures;
- the life cycle and activities – the life cycle; research and development; design; production etc.; activity-based; unit; batch; product sustaining; facility-level; and
- the target audience – internal (managers, employees) and external (shareholders, tax and environmental agencies, suppliers, creditors, the public, local communities, etc.).

In addition to this classification, C. C. Gonzalez and J. Peña-Vinces (2022) point out that environmental costs can be classified as the costs of a) prevention, b) detection, c) internal failures, and d) external failures.

Both theory and practice suggest that there is no universally accepted classification of environmental costs, as it is influenced by numerous factors. Considering the subject and the aim of this research, the study will adopt the classification of environmental costs proposed by C. C. Gonzalez and J. Peña-Vinces (2022), which aligns with the classification of quality costs.

The determinants of environmental costs

Companies usually incur environmental costs for three reasons: 1) legal or regulatory, 2) social or cultural, and 3) consumer or business. The knowledge of environmental costs and their causes can lead to the process redesign that results in less material use and fewer pollutant emissions into the environment (the interaction between innovation and cost reduction incentives). By reducing costs in the present and the future, the company is expected to become more competitive.

The above indicates that information on environmental costs is important for a company for several reasons. It improves the decision-making process (Doorasamy, 2015; Rounaghi, 2019), serves as support for financial disclosure (Hubbard, 2006; Okafor, 2018), improves the efficiency of waste management (Yousefloo & Babazadeh, 2020), and boosts a company's performance, especially through ecological innovations (Gerged, Zahoor & Cowton, 2024). Additionally, under the polluter pays principle, environmental costs are included in the price of the product, which leads to an increase in sales prices (Herrera Diaz, Scouse & Kelley, 2022). Environmental costs are determined by the nature of the activity itself, the approach to creating the product assortment, the choice of technological processes, and the use of equipment to achieve the goals of sustainable development.

There is evidence that environmental costs can be reduced by investing more in prevention and detection activities. An example often cited in the literature is the Ford Motor Company, which was committed to improving its environmental performance. As part of this comprehensive commitment, Ford obtained the ISO 14001 certification at all of its facilities worldwide, which saved hundreds of thousands of dollars in environmental costs. General Motors reduced its waste disposal costs by $12 million by establishing a reusable container program with its suppliers, Commonwealth Edison realized $25 million in financial benefits through a more effective use of resources, and Public Service Electric and Gas Company saved more than $2 million in 1997 by modernizing its inventory management process (EPA, 2000). In addition, Baxter International Inc., a manufacturer of medical products, reduced toxic waste emissions into the air, the water and the land from 1992 to 1999 by increasing recycling, thus achieving environmental savings of $98 million. Similarly, Interface Inc. saved $50 million over four years through lower material costs, energy cost savings, and waste reduction (Hansen & Mowen, 2003).

S. T. Mukah (2021) found that the calculation of environmental costs contributes to pollution prevention, global environmental preservation, and resource recycling, and consequently to the productivity of companies in the timber industry of Cameroon. E. G. Mieseigha and C. J. Ihenien (2014) found that waste management, employee health, financial, and other environmental costs are relevant in making strategic business decisions. They suggested that companies should make information on environmental costs available so that the true costs of the company could be properly determined and allocated.

The aforementioned statements unequivocally indicate that it is crucial for a company to have a well-developed and efficient environmental cost accounting system.

Environmental cost accounting

The importance of environmental accounting stems from the understanding that the calculation of environmental costs aims to achieve sustainable development and a positive relationship with the community and ensure effectiveness and efficiency in environmental protection activities. M. Porter and C. van der Linde (1995) find that companies do not usually track environmental spending carefully and that they could benefit from the implementation of more modern accounting systems in order to measure underutilized resources. R. L. Burritt, C. Herzig, S. Schaltegger and T. Viere (2019) reveal the importance of fostering cleaner production practices through a number of management accounting tools, arguing that companies should not rely on only one management accounting method, like material flow cost accounting, if they are to improve their environmental performance and stakeholder relations.

P. de Beer and F. Friend (2006) point out that environmental cost accounting contributes to environmental cost and liabilities reductions. They indicate the importance of the EEGECOST (Environmental Engineering Group Environmental Costing) model, developed to promote environmental accounting in South Africa. They used the EEGECOST model in a case study on the life cycle assessment of a functional unit of one million cigarettes at the Heidelberg factory of British American Tobacco (BAT). The case study indicated the importance of accounting for environmental costs, both internal and external, and their allocation to cost types and cost drivers in a structured environmental accounting model. They also found that impact costs (fines, penalties, provisions, etc.), internal intangible costs, and external costs were usually not considered in traditional accounting systems, although they accounted for 16% of the total production costs of cigarette production. The results indicated that the model could assist the South African industry in identifying, recording, and allocating environmental costs within environmental media groups, using cost types and cost drivers, to improve their corporate decision-making processes.

Regulation is often identified as the key determinant of environmental costs and accounting practices. S. Joshi, R. Krishnan and L. Lave (2001) find that an increase in regulatory stringency significantly increases the visible and hidden costs of complying with environmental regulation, where the hidden costs are eight to ten times the visible costs at the margin. They further reveal that managers are aware of these hidden costs but find it difficult to isolate and measure them through traditional cost-accounting systems. Similarly, J. Senn and S. Giordano-Spring (2020) find that French companies indicate the difficulty of splitting between environmental and non-environmental costs because of the lack of a measurement method, express the need for more environmental accounting regulation, and tend to limit environmental accounting information disclosure to the existing regulation.

M. M. Hossain (2019) found that the critical challenges for the implementation of environmental accounting in Bangladesh were environmental cost involvement, a lack of skilled workforce, a lack of the set rules on environmental accounting, inadequate environmental accounting standards, the low adoption of environmental accounting, no specific principles of environmental accounting, and so on. T. K. T. Nguyen (2020) conducted a study on the application of environmental accounting in the mining industry of Vietnam and found that various factors influenced the adoption of environmental accounting, including the coercive pressure from government agencies, the environmental awareness of senior executives, business characteristics, and accountants' qualifications in environmental accounting. N. H. Tran, T. T. H. Nguyen and T. P. Nguyen (2021) investigated the factors influencing the implementation of environmental management accounting in Vietnam's automotive industry and found that the coercive, normative, and mimetic pressure, business environmental uncertainty, the environmental strategy, the benefits of applying

environmental management accounting, and task complexity were especially important.

The implementation of the ISO 14001 is also often considered an important factor in the implementation of environmental accounting and its effectiveness. M. S. Ismail, A. Ramli and F. Darus (2014) find that the ISO 14001 certified Malesyan companies (mostly manufacturing ones) have implemented environmental management accounting practices in their efforts to account for hidden environmental costs and fulfil their role as socially responsible companies. D. Jovanović and V. Janjić (2018) find that the benefits of the ISO 14001 implementation are reflected in the improvement of a firm's environmental performance, efficiency, and profitability. They also find that Serbian companies only partly recognize the role of accounting in the ISO 14001 implementation.

Based on the theoretical framework and previous research studies, this paper addresses the following research questions:

- Do companies in Serbia record environmental costs as a separate category of costs?
- What types of environmental costs do companies in Serbia most commonly identify, and do they recognize and record preventive environmental costs?
- Are environmental costs included in the cost calculation of finished products, and what is their share in the total costs?
- Which cost calculation methods do companies in Serbia most frequently use, and are they familiar with the methods such as Activity-Based Costing (ABC) and Material Flow Cost Accounting (MFCA)?
- Is there a statistically significant difference between the companies that apply the ISO 14001 standard and those that do not in terms of recording activities with an environmental impact?
- Is there a statistically significant difference in the way environmental activities are recorded between the companies that include environmental costs in the cost calculation of finished products and those that do not?

METHODOLOGICAL APPROACH

The main steps and activities of the research methodology used in this study are summarized in Figure 2.

The data were collected through a questionnaire survey and interviews with the management of the companies included in the sample. The questionnaire

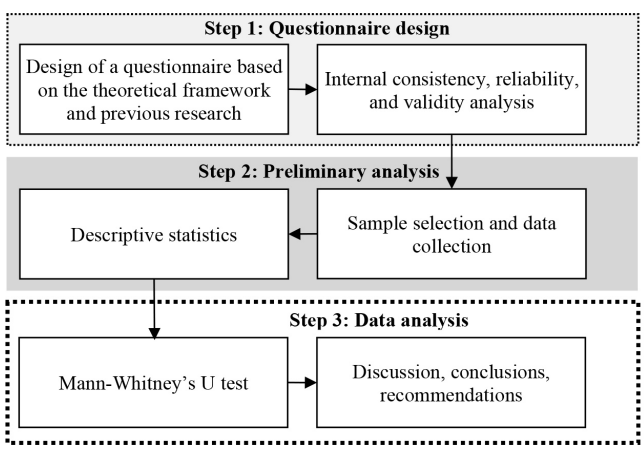

Figure 2 The research methodology

Source: Authors

was designed following the assumptions, concepts, and results identified in the studies presented in the theoretical background and the literature review. The questionnaire consists of 18 questions, and this study includes the questions related to the environmental costs and environmental business activities records kept by the companies included in the sample. Most questions in the questionnaire are close-ended, based on the five-point Likert scale. The managers were offered the answers, ranging from 1 – strongly disagree to 5 – strongly agree.

Lengthy statements, ambiguous pronoun references, and negatively worded and connotatively inconsistent statements were avoided, and the readability of each statement was considered (DeVellis, 2016). The questionnaire was tested in a pilot study so as to ensure a proper interpretation and reduce ambiguity in statements. Afterwards, minor changes were made in the wording of the questions. The value of Cronbach's Alpha is 0.834 and is greater than 0.7, which indicates that the final version of the questionnaire has good internal consistency (Hair, Risher, Sarstedt & Ringle, 2019).

The study was conducted on a sample of companies obligated to submit the data on the sources of environmental pollution to the NRPS, under the provisions of the PRTR protocol (Official Gazette of the Republic of Serbia, 2011). According to the Serbian Environmental Protection Agency (SEPA, 2022), 179 companies (250 plants) were obligated to submit the data to the NRPS. The questionnaire was sent to all 179 companies, out of which 59 completed the questionnaire. This gives a response rate of 32.96%, which is similar to some previous studies (Darnall, Henriques & Sadorsky, 2008; Henri, Boiral & Roy, 2016; Mativenga, Agwa-Ejon, Mbohwa, Sultan & Shuaib, 2017; Astuti & Datrini, 2021). All the companies included in the sample had been phoned before sending the questionnaire in order to obtain proper mailing addresses of the firm's management and more detailed information about the firm's attitude towards environmental management through interviews.

As is shown in Table 1, the majority of the companies were limited liability (55.9%) and joint-stock companies (32.2%), while public companies (11.9%) were the least represented. The majority were large companies (42.4 %), while small companies (22.0%) were the least represented. As many as 55.9% of companies implemented ISO 14001. The majority of the respondents were women (61.0%) and persons aged 36 to 45 (39.0%). The respondents were mostly CEOs (15.2%), CFOs (32.2%), and CTOs (8.5%). As many as 44.1% of the questionnaires were filled out by the Chief Commercial Officers (CCO), the heads of accounting, the QMS and EMS directors, and the others. The sample predominantly included the respondents with a university degree (97.0%), where 57.6% graduated in economics. Finally, the questionnaire was predominantly composed of

Table 1 The characteristics of the sample

	Frequency	%
The legal form of the firm:		
public company	7	11.9
joint-stock company	19	32.2
limited liability company	33	55.9
The company size:		
small	13	22.0
medium	21	35.6
large	25	42.4
The ISO 14001 standard implemented		
Yes	33	55.9
No	26	44.1
The gender:		
male	23	39.0
female	36	61.0
The position in the company		
Chief Executive Officer (CEO)	9	15.2
Chief Financial Officer (CFO)	19	32.2
Chief Technical Officer (CTO)	5	8.5
Other	26	44.1
Years of experience:		
3 - 5	4	6.8
6 - 10	7	11.9
11 - 15	11	18.6
16 - 25	19	32.2
>25	18	30.5
Total	59	100.0

Source: Authors

the people with more than 10 years of experience (81.3%). Given the characteristics of the sample and the structure of the respondents – namely that the questionnaire was completed by the university-educated individuals in the managerial positions employed in the companies listed in the NRPS – and based on similar studies conducted worldwide, it can be concluded that the sample is relevant.

The data obtained from the questionnaire were analyzed in the Statistical Package for Social Sciences (SPSS), Version 20.0. Descriptive statistics were used to measure the central tendency (mean, median, and mode) and variability (standard deviation) of the variables. The non-parametric Mann-Whitney U test was used to identify significant differences in the respondents' answers.

RESEARCH RESULTS AND DISCUSSION

Before examining the aspects specifically focused on the calculation of environmental costs, Table 2 presents the results of the analysis of the responses related to the record-keeping of the activities that impact the environment. The respondents were asked to use the Likert scale to indicate whether they maintained records of the activities that affected the environment. Based on the analysis of their responses, it can be concluded that the companies do keep such records, considering that the average value is above 4, while both the mode and the median are equal to 5 – i.e. the most frequent response was 5. The highest mean values were recorded for waste management (4.83), energy consumption (4.73), and environmental liabilities (4.53), which is expected given that companies are legally required to keep records in these areas.

The analysis of respondents' answers regarding the cost calculation methods applied in the companies included in the sample is presented in Table 3, which shows the respondents' answers concerning the cost-accounting methods applied in the companies included in the sample. The results indicate that 69.5% of the companies include environmental costs in the CCFP, 49.2% of respondents are familiar with activity-based costing (ABC), and 44.1% of the respondents are familiar with material flow cost accounting (MFCA). It should be noted that one question in the questionnaire was open-ended, and the respondents were supposed to answer which cost-accounting system they used in cost accounting. The results obtained by analyzing the answers to this question and by interviewing the respondents as well indicate that Serbian companies still do not recognize the true importance of cost accounting. The companies included in the sample that apply cost accounting and answered this question apply actual costing or a combination of actual and standard costing, while only one company applies ABC (it is a large company

Table 2 The analysis of the records of the activities that have an impact on the environment

	N	Min	Max	AS	SD	Med.	Mod.
Waste	59	2	5	4.83	0.53	5	5
Energy use	59	1	5	4.73	0.78	5	5
Environmental obligations	59	1	5	4.53	0.86	5	5
Costs related to environmental protection	59	1	5	4.51	0.99	5	5
Product and packaging recycling	59	1	5	4.27	1.05	5	5
Potential environmental obligations	59	1	5	4.25	1.01	5	5
Returnable packaging	59	1	5	4.25	1.20	5	5

Notes: N – the number of the respondents, Min – minimum, Max – maximum, SD – standard deviation, Med. - Median, Mod. - Modus

Source: Authors

Table 3 The cost-accounting methods applied in the companies included in the sample

	Are environmental costs included in CCFP?		Are you familiar with ABC?		Are you familiar with MFCA?	
	N	%	N	%	N	%
Yes	41	69.5	29	49.2	26	44.1
No	18	30.5	30	50.8	33	55.9
Total	59	100.0	59	100.0	59	100.0

Note: N – the number of the respondents

Source: Authors

with foreign capital). The results are in accordance with earlier empirical research, which also showed that companies in Serbia relied on traditional cost-accounting methods and rarely applied modern cost-accounting methods (Jovanović, Janjić & Janković, 2014).

Table 4 shows the structure of the sample based on the share of the environmental costs in the total costs. The share of the environmental costs is lower than 3% in the majority of the companies included in the sample, whereas only six (10.2%) respondents stated that the share was greater than 10%. The respondents could also specify the types of the environmental costs recorded in their firm. Following the classification of environmental costs presented in C. C. Gonzalez and J. Peña-Vinces (2022), it was found that the sample companies most often recorded the costs of internal defects (the costs of the measurement, testing, removal, and treatment of hazardous and non-hazardous waste and wastewater; the costs of monitoring water, air, and soil; the costs of packaging and waste disposal; the costs of operating and maintaining the equipment used for reducing or eliminating pollution; environmental taxes), and rarely recorded the costs of external defects (the costs of the restoration and arrangement of green areas; the costs of the inefficient use of materials, energy, and land; the costs of cleaning contaminated land and water), and prevention costs (the costs of studies on the assessment of an environmental impact; the costs of the project and technical documentation for the elimination of pollution; the costs of conducting contamination tests; the costs of the salaries of the employees in the environmental protection sector).

Types of environmental costs recorded in companies included in the sample imply that they generally implement a defensive environmental policy. By including a proactive environmental strategy in the company's business strategy and through the effective management of environmental protection, companies can achieve numerous benefits related to reduced waste and costs, increased customer satisfaction, greater employee commitment, better quality products, and improved public relations (Gadenne, Kennedy & McKeiver, 2009). The companies included in the sample, however, almost exclusively keep a record of the costs of defects and consider the environmental costs they are legally obligated to when cost accounting is concerned. The preventive activities in most companies are reduced to a minimum.

A total of 23 companies (8 large, 9 medium-sized and 6 small) answered the question on the amount of environmental costs. Environmental costs range from 2,500 euros (mostly in the small companies) to

Table 4 The share of the environmental costs in the total costs of the firm

	Frequency	%	Cumulative %
less than 3%	32	54.2	54.2
from 3% to 5%	14	23.7	78.0
from 5% to 10%	7	11.9	89.8
from 10% to 15%	3	5.1	94.9
more than 15%	3	5.1	100.0
Total	59	100.0	

Source: Authors

500,000 euros (mostly in the medium-sized and large companies). The exception is one company with the environmental costs of 23 million euros – it is a public company that had large environmental investments recorded as environmental costs. The stated amounts should, however, be taken with a grain of salt given that the cost accounting applied by the companies included in the sample is underdeveloped and relies on the traditional cost-accounting methods that do not recognize environmental costs as a separate category of costs, implying that most environmental costs are hidden within general costs. More specifically, it can be assumed that the amount of the environmental costs is probably higher for all the companies included in the sample taking into account that they are considered major polluters and are legally obligated to submit data on pollution to the NRPS.

Attempts were made in previous studies to determine whether the ISO 14001 implementation and the decision to include environmental costs in CCFP affect the approach companies use to keep records of activities with an environmental impact. The motivation for these studies lies in the potential benefits that companies may have from the implementation of the ISO 14001 and the correlation between the calculation of environmental costs and the ISO 14001 when the identification, reduction, and inclusion of environmental costs in CCFP are concerned. These studies usually find that the ISO 14001 implementation leads to environmental costs and waste reduction and a more efficient use of resources (Gavronski, Ferrer & Paiva, 2008; Jovanović & Janjić, 2018; Zimon, Madzík, Dellana, Sroufe, Ikram & Lysenko-Ryba, 2022). To further investigate these issues, the Mann-Whitney U test was used in this study, and statistically significant results are accounted for in Tables 5 and 6.

Based on the results of the Mann-Whitney U test in Table 5, it can be concluded that there is a statistically significant difference between the companies that have and those that have not implemented the ISO 14001 when keeping a record of environmental costs, potential environmental obligations, and product and packaging recycling are concerned. This impact is small when speaking about the environmental costs and the medium for the other two types of records. The identified differences suggest that the implementation of an internationally recognized environmental management system encourages organizations to adopt a more formal and systematic approach to monitoring the environmental aspects of their operations, which is consistent with the findings of I. Gavronski *et al* (2008) and M. S. Ismail *et al* (2014), who indicate that the ISO 14001 serves as an important incentive for the development of the internal accounting practices that incorporate the environmental aspects of business operations. However, the effects are not uniform across all the categories of records, and the research results indicate that no statistically significant differences

Table 5 The impact of the ISO 14001 on the approach the companies use to keep records of activities with an environmental impact

	ISO 14001 was implemented		ISO 14001 was not implemented		U	Z	r
	Obs.	Med.	Obs.	Med.			
Records of waste	33	5	26	5	402.000	-0.735	-
Records of energy consumption	33	5	26	5	398.000	-0.758	-
Records of environmental obligations	33	5	26	5	341.500	-1.626	-
Records of environmental costs	33	5	26	5	303.500	-2.455**	0.09
Records of product and packaging recycling	33	5	26	4	288.000	-2.413**	0.31
Records of potential environmental obligations	33	5	26	4	292.000	-2.323**	0.30
Records of returnable packaging	33	5	26	5	406.000	-0.406	-

Note: Statistically significant at 5% (**)

Source: Authors

Table 6 The impact of including the environmental costs in the cost of goods sold on the approach the companies use to keep records of the activities with an environmental impact

	ECs are included in CCFP		ECs are not included in CCFP		U	Z	r
	Obs.	Med.	Obs.	Med.			
Records of waste	41	5	18	5	367.000	-0.059	-
Records of energy consumption	41	5	18	5	330.000	-1.028	-
Records of environmental obligations	41	5	18	4.5	267.500	-2.034**	0.26
Records of environmental costs	41	5	18	4.5	237.500	-2.773*	0.36
Records of product and packaging recycling	41	5	18	4	266.500	-1.892	-
Records of potential environmental obligations	41	5	18	4.0	241.000	-2.340**	0.31
Records of returnable packaging	41	5	18	5	353.500	-0.295	-

Note: ECs – the environmental costs, statistically significant at 1% (*) and 5% (**).

Source: Authors

were found in the record-keeping related to waste, energy consumption, returnable packaging, and environmental liabilities, which is expected to a certain extent, considering that most companies maintain these types of records regardless of whether they have implemented the ISO 14001 standard or not.

The results of the Mann-Whitney U test presented in Table 6 indicate a statistically significant difference between the companies that include and those that do not include environmental costs in CCFP, particularly in terms of the record-keeping related to environmental costs, potential environmental liabilities (a moderate effect), and actual environmental liabilities (a small effect). Specifically, the companies that integrate environmental costs into the cost calculation appear to be more effective in tracking environmental costs and more cautious in recording actual and potential environmental liabilities. These findings suggest that the inclusion of environmental costs in cost calculations may serve as a signal of a systematic approach to environmental management, in which accounting practices are used as a tool for strategic decision-making. In line with the theoretical framework, this demonstrates that the companies that recognize the financial dimension of environmental issues tend to behave more proactively in recording and planning for the environmental aspects of their operations. However, the observed effects mainly result from legal obligations, while the recording of preventive activities remains neglected. The research did not identify statistically significant differences in the other types of records, such as those related to waste, energy consumption, returnable packaging, and the recycling of products and packaging. Additionally, no statistically significant differences were found in the record-keeping practices of the companies of different sizes.

Overall, the results of the Mann-Whitney U test confirm that standardization through the ISO 14001, and the integration of environmental costs into CCFP have a positive impact on the development of the record-keeping practices pertaining to environmental costs and liabilities. However, the results also indicate that there is room for improvement, particularly in the identification and monitoring of preventive costs and the costs of external impacts, which are important for the implementation of a proactive environmental policy and reduction in the negative effects of companies' business operations on the environment.

CONCLUSION

Although some previous studies have examined companies' practices concerning their environmental accounting and the identification and inclusion of environmental costs in CCFP, the familiarity of

companies with different approaches to calculating environmental costs, and differences in recording the environmental aspects of business, the present study provides three contributions to the literature. First, the study contributes to the literature on the share of environmental costs in total costs, and the approaches to the identification and estimation of environmental costs. Second, the study contributes to the literature on the relative importance of environmental regulation for companies' records of the environmental impact of business activities. Third, the study contributes to the literature on the relationship between the efforts companies make to improve their competitive position and the records they keep on their environmental impact.

Based on the research results, the answers to the posed research questions can be formulated. The findings show that the Serbian companies do not recognize the importance of cost accounting in identifying, measuring, and allocating environmental costs, and their reporting as well. Most companies in Serbia do not record environmental costs as a separate category; instead, these costs are often hidden within general expenses. The sampled companies rely almost exclusively on actual cost accounting or a combination of actual and standard costs, whereas only one company applies the ABC method. Although nearly 70% of the companies that participated in the survey included environmental costs in CCFP, their share in total costs is, in most cases, less than 3%, with only six companies reporting a share higher than 10%. The most frequently recorded costs are internal failure costs, whereas external failure costs and prevention costs are rarely recorded. This indicates that companies generally implement a defensive environmental policy – recording error costs and almost exclusively considering the environmental costs they are legally obligated to report, while preventive activities are minimized in most companies. The results of the Mann-Whitney U test show that the companies applying the ISO 14001 and those including environmental costs in the final product cost calculation significantly more often keep records of environmental costs and potential liabilities, confirming the differences in recording practices depending on these factors. No statistically significant differences were identified in record-keeping related to waste, energy consumption, and returnable packaging.

Given that the cost accounting of the companies included in the sample is underdeveloped and relies on the traditional cost-accounting methods that do not recognize environmental costs as a separate category of costs, most environmental costs are hidden within general costs. It can be assumed that the amount of the environmental costs is higher for the companies included in the sample, given that they are considered major polluters and are legally obligated to submit data on pollution to the NRPS. The study results also show that the ISO 14001 implementation and the decision to include the environmental costs in CCFP significantly affect the records of potential environmental obligations, costs, and product and packaging recycling. No statistically significant differences were identified when keeping records of waste, energy use, and returnable packaging are concerned.

It can be concluded that the companies follow reactive environmental policy and pay little attention to the environmental issues. They mostly keep records of environmental impacts because they are legally obligated to do so, only identify the environmental costs that are clearly environmental and have already occurred, and rarely keep records of preventive costs. Given the amount of the environmental costs identified in the study by the respondents, it is likely that a good part of the environmental costs is unidentified, i.e. hidden in general costs. Companies apply underdeveloped cost accounting and almost solely use traditional cost-accounting methodologies. Possible reasons for the unfavorable situation in the Serbian companies are their voluntarism in the application of EMSs, insufficient incentives and the pressure from the state and the public, the inadequate and weak system of legal sanctions, and the inadequate implementation of the laws in the field of environmental protection.

The study has several practical implications. The review of previous studies provides a good basis for theoreticians and practitioners in their studies and projects related to environmental accounting and, more specifically, to identifying, measuring, and allocating environmental costs. The methodological framework developed in the study provides theoreticians with a useful instrument for their future research, and practitioners with guidelines for analyzing and improving the environmental accounting of individual companies. The results of the study show that policymakers should develop stronger and more focused approaches in order to legally obligate companies to keep records of their environmental impacts. Professional organizations and the public can also play important roles in these efforts by providing guidelines and exerting pressure. Finally, the results of the study are useful for companies to understand the importance of environmental accounting and the factors important for its implementation.

The study has several limitations. The sample size is potentially the most important limitation affecting the choice of the statistical tests and the results. In addition, the sample includes companies from only one country. A larger sample would possibly give different results. The respondents' subjective assessments are also a limitation. It is hard to fully identify and neutralize the answers that, intentionally or unintentionally, do not reflect the respondents' attitudes. Therefore, an effort has been made to obtain more detailed results by using the interview in addition to the questionnaire. Future studies should focus on identifying the specific factors affecting environmental costs and environmental accounting practices in developing economies and include a time dimension to analyze changes in these respects over time. A more advanced statistical methodology can also be used, like the regression analysis of the influence companies' characteristics have on the amount and structure of their environmental costs and the cost-accounting methodologies used.

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MEDIATION MECHANISM OF ORGANIZATIONAL COMMITMENT: UNRAVELING PERCEIVED ORGANIZATIONAL JUSTICE'S IMPACT ON EMPLOYEES' INTENTION TO LEAVE

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Starting from the adage that "individuals' perceptions shape their reality," research in organizational behavior underscores the importance of recognizing employees' subjective experiences of the workplace circumstances. The employees' perception of procedural, distributive, and interactional justice forms a strong predictor of the workforce "steadiness" – organizational justice. The paper aims to investigate the impact of this phenomenon on employees' intention to leave the organization, while concurrently exploring the mediating role of organizational commitment in the mentioned relation. A comprehensive review of the relevant literature, coupled with thematic and desk analysis techniques, laid the foundation for the research. The study's empirical component included 99 individuals (Millennials) employed in the Serbian economy at the outset of 2023. Their views were noted via an electronic, online questionnaire. The data were processed using advanced statistical tools, namely the SmartPLS 4.0 and SPSS 26.0. The findings validated the main research premise proposing that organizational commitment mediates the relationship between perceived organizational justice and millennial employees' intention to leave the organization.

Keywords: perceived organizational justice, organizational commitment, intention to leave, organizational dynamics, PLS-SEM, disjoint two-stage approach

JEL Classification: D23, J63, M12, M54

INTRODUCTION

To untangle the "organizational knot" composed of organizational justice, organizational commitment, and turnover intentions, it is essential for researchers to comprehend that each component involved introduces interconnected socio-economic aspects to the workplace environment, requiring exhaustive individual research investigation. The study recognizes the foundational assumption that "championing" fairness and equality can bring

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the organization a substantial enhancement of its workforce stability and overall financial/innovative performance, as organizational justice (encompassing the procedural, distributive, and interactional dimensions), plays a pivotal role in shaping employee commitment and downgrading turnover intentions. Organizational justice reveals how employees perceive their work environment, encompasses their sense of organizational belonging and emotional investment, thereby becoming a crucial determinant of employee long-term loyalty and a mitigating turnover asset (Imamoglu, Ince, Turkcan, Atakay, 2019; Mengstie, 2020; Budomo, 2023). To date, it is recognized that negative perceptions of organizational justice can erode commitment and escalate turnover rates significantly, whereas positive workplace perceptions of this phenomenon can foster a profound sense of employee loyalty, reducing the likelihood of adverse work-related behaviors. The presented complex relationships have been in the focus of extensive scholarly research (Loi, Hang-Yue & Foley, 2006; Bakri & Ali, 2015; Sökmen & Ekmekçioğlu, 2016; Al-Kilani, 2017; Emeji, 2018; Khalid, Rehman & Muqadas, 2018; Khan, Afsheen, Jan & Tariq, 2018; Ekmekcioglu & Aydogan, 2019; Jang & Hwang, 2019; Kang & Sung, 2019; Mete & Sökmen, 2019; Fatima, Izhar & Kazmi, 2020; Aggarwal, Jaisinghani & Nobi, 2022; Mahfouz, Halim, Bahkia & Alias, 2022; Abdullah & Al-Abrrow, 2023; Budomo, 2023).

Following the intellectual path laid by the mentioned research predecessors, this research draws the basic premise that organizational justice acts as the fundamental employee retention element, since it impacts perceptions and molds attitudes in the workplace, but it is the level of commitment that presents the "it component" that ultimately determines whether employees will decide to leave the organization or stay in it. The subject matter of the study is a profound examination of the (in) direct relationships that may be observed between perceived organizational justice, organizational commitment, and employee intention to leave the organization. The primary objective of the study is to investigate how perceived organizational justice affects an average millennial employee's decision to leave the organization, while simultaneously examining whether the commitment level plays a mediating role in this relationship or not. The initial point of the research is a theoretical overview accompanied by the collection of valuable statistical data necessary in order to understand the empirical connection between organizational justice and organizational commitment, in addition to exploring the prevailing turnover trends among the millennial generation employed in the Serbian corporate setting. The presented research intentions point to the targeted research gap that, to the authors' best knowledge, exists, since no study that combines the three mentioned subject variables has yet been conducted on a sample of the millennial generation, or in the specific context of the national economy.

Taking into account all the above-mentioned, the study is structured in such a way as to include several precisely defined sections. In the first section (the theoretical background) a concise and systematic theoretical explanation of all the variables included in the analysis is given, as well as the overview of their mutual relations already described in the relevant literature so far. In the second section (the research methodology) the overview of the data collection instrument used in the research and the characteristics of the sample are presented, and the statistical tools utilized in order to process and analyze the collected data are described. The third section is dedicated to the research model developed for the needs of the study together with the preliminary analyses. In the fourth section, the key research results and an appropriate critical discussion are presented. In the final, fifth section, concise concluding considerations, the "self-reflection" of the study, and recommendations for future directions of research in the given scientific field are presented.

THEORETICAL BACKGROUND

The *organizational justice* construct comprises employees' subjective perceptions of the fairness of the workplace practices, decisions, activities, and interactions their organization has made, along with the consequent impacts that these views have

on their work-related attitudes and behavior (Kim, Lin & Leung, 2015; Abdullah & Al-Abrrow, 2023). In simple terms, organizational justice is employees' personal assessment of the ethical and moral position of managerial behavior in the organization, i.e. a distinctive measure of how fairly employees believe they are treated in their workplace (Greenberg & Colquitt, 2013). This is a subjective and descriptive concept, since it includes individuals' beliefs (their perception of correctness and compliance with the moral code), rather than an objective reality (Cropanzano, Bowen & Gilliland, 2007). Therefore, organizational justice can be described as the fundamental concept that underscores the necessity of incorporating fairness into the organizational structural and operational "fabric." Rather than being a superficial add-on, justice must be deeply embedded in the organization's functioning (its strategic planning, decision-making processes, and daily operations), ensuring that it influences all employee interactions/relationships. Instilling this fairness throughout the organizational hierarchy can involve various tools and strategies (for example, one idea of creating/ensuring organizational justice proposes that management representatives should take the employees' perspective and invest an effort in understanding/raising awareness of what types of events form employees' subjective sense of organizational justice).

As explained, organizational justice is complex and incorporates multiple dimensions, including distributive justice (the justice that concerns the fairness of outcome distributions, such as rewards and promotions in relation to employees' individual contributions), procedural justice (the justice that involves the fairness of the decision-making processes, focusing on transparency, consistency, and chances for employee input), and interactional justice (the justice that addresses the fairness of interpersonal treatment, evaluating how respectfully, honestly and equally employees are treated by their supervisors, managers and colleagues) (Kim *et al*, 2015; Al-Kilani, 2017; Dasanayake & Dharmasiri, 2020). Previous research (Phayoonpun & Mat, 2014; Bayarçelik & Findikli, 2016; Imamoglu *et al*, 2019; Dasanayake & Dharmasiri, 2020; Jehanzeb & Mohanty, 2020; Mengstie, 2020; Novitasari, Asbari, Wijaya & Yuwono, 2020; Zarish, Zulqarnain & Rehman, 2020; Đorđević, Milanović & Stanković, 2021; Magfuroh & Herminingsih, 2021; Mulang, 2022; Sunaris Wahyoedi & Tecoalu, 2022; Ghaderi, Tabatabaei, Khoshkam & Shahabi Sorman Abadi, 2023; Malla & Malla, 2023; Özkan, 2023; Alyahya Sobaih, Gharbi, Aliane & Bouzguenda, 2024; Moon, Lim & Kim, 2024; Yousaf, Saleem & Ishaq, 2024) found that high perceptions of organizational justice generally led to more positive job attitudes, supportive behaviors, and performance results, whereas perceptions of injustice could result in decreased commitment, dissatisfaction, reduced employee engagement and motivation, with increased turnover rates. Therefore, understanding and addressing these perceptions is vital for organizational effectiveness.

Organizational commitment could be defined as the emotional attachment and allegiance an employee feels about a certain organization (Karem, Jameel & Ahmad, 2019). This phenomenon represents the degree to which an employee identifies themselves with an employing organization and its objectives, expresses concern for the organization's long-term success and well-being, and feels pride in being a member of it, i.e. the degree to which they want to maintain their membership in it (Bakri & Ali, 2015; Bošković, 2021). In other words, organizational commitment represents an employee's psychological bond with the organization, including a sense of emotional attachment, involvement in the job, loyalty, and belief in the organization's values. Prior research (Bibby, 2008; Jang & Hwang, 2019; Fatima *et al*, 2020; Guzeller & Celiker, 2020; Jolović & Berber, 2021; Aggarwal *et al*, 2022; Budomo, 2023; Chang, Kim & Yoo, 2024) found that employees' organizational commitment served as a driver for sustained loyalty, thereby mitigating turnover rates. The employees exhibiting high levels of commitment are more inclined to align with long-term organizational goals, simultaneously contributing to the company's culture and performance outcomes. In this context, organizational commitment emerges as a critical effectiveness factor, emphasizing the importance of fostering devoted and engaged personnel.

Intention to leave the organization, or the likelihood that employees will contemplate leaving their work positions, is closely linked to the previously presented concepts (Loi *et al*, 2006; Bakri & Ali, 2015; Sökmen & Ekmekçioğlu, 2016; Khalid *et al*, 2018; Mete & Sökmen, 2019; Mahfouz *et al*, 2022; Budomo, 2023). The literature indicates that the relationship between organizational justice and intention to leave the organization is explained by three authoritative theories: the Equity Theory, the Person-Organization Fit Theory, the Social Exchange Theory. The Equity Theory posits that employees evaluate fairness by comparing what they contribute to (the input) to what they receive (the output) from the organization (generally questioning whether the distribution of resources is fair or not). If this ratio is balanced, employee turnover intentions are not an issue (Greenberg & Colquitt, 2013; Mulang, 2022). The Person-Organization Fit Theory suggests that employees are more inclined to stay in the organization when their personal values align with the organization's values. The employees who perceive a match between their values – such as fairness and equality – and the organization's culture are more likely to exhibit higher commitment and lower turnover levels (Farooqui & Nagendra, 2014). Conversely, the Social Exchange Theory posits that employees develop a deep sense of loyalty when they perceive a reciprocal relationship with the organization. When employees feel valued and fairly treated, they are more likely to reciprocate with increased commitment and positive behaviors. This bi-directional relationship builds a work environment of trust and obligation, which leads to lower turnover rates (Cropanzano, Anthony, Daniels & Hall, 2017).

Supported by prior research and the interconnections given in detail, the hypotheses on which the examination of the discussed aspects of organizational behavior will rest on were developed. The first hypothesis (H_{01}), derived from the presented theoretical insights, posits that higher levels of organizational justice lead to employees' higher commitment levels, specifically that the perception of organizational justice has a direct statistically significant and positive influence on organizational commitment. The second research hypothesis (H_{02}) asserts that higher levels of organizational commitment are associated with the less frequent formation of turnover intentions, claiming that there is a direct statistically significant and negative influence of organizational commitment on intention to leave the organization. The third hypothesis (H_{03}) assumes that the perception of organizational justice has a direct statistically significant and negative influence on intention to leave the organization and gives direction to the formulation of a mediating research hypothesis for the given relationship. Accordingly, the last research hypothesis (H_{04}) proposes the existence of the mediating effect or role of organizational commitment in the relationship between perceived organizational justice and intention to leave the organization, based on the connections previously examined by the authors N. Bakri and N. Ali (2015), M. H. Al-Kilani (2017), S. Khalid *et al* (2018), E. S. Mete and A. Sökmen (2019) and S. Mahfouz *et al* (2022).

RESEARCH METHODOLOGY

The questionnaire

To obtain primary statistical data, an online questionnaire (targeting millennial employees across the Republic of Serbia during the first trimester of 2023) was designed utilizing the Google Forms platform. The survey comprised a total of 53 questions, of which 11 questions were designed to gather the respondents' demographic information (gender, age bracket, educational attainment, and regional residence) and their employment details (current employment state, contract type, employment form and duration, monthly income, the size of the organization and sector affiliation). A total of 42 additional questions were included to tackle the core research objectives (the constructs perceived organizational justice, organizational commitment, and intention to leave the organization), drawing from the established, validated survey questionnaires developed by B. P. Niehoff and R. H. Moorman (1993), J. P. Meyer, N. J. Allen and C. A. Smith (1993), and E. K. Kelloway, B. H. Gottlieb and L. Barham (1999).

For example, one of the six statements developed by the authors B. P. Niehoff and R. H. Moorman (1993) and utilized to measure procedural justice had the following wording: "All job decisions are applied consistently across all affected employees;" one of the five statements that measured distributive justice read as follows: "I think that my level of pay is fair;" whereas one of the nine statements that was supposed to describe interactional justice contained the following: "When decisions are made about my job, the general manager shows concern for my rights as an employee." One of the 18 statements used to measure organizational commitment read as follows: "I would be very happy to spend the rest of my career with this organization," and was extracted from J. P. Meyer *et al*'s (1993) scale. Finally, one of the four statements developed by E. K. Kelloway *et al* (1999) used to measure intention to leave the organization was formulated as the following statement: "I am planning to look for a new job." A detailed breakdown of the questionnaire structure is presented in Table 1.

A psychometric five-point Likert scale was provided to the participants in order to assess their views on the main research components (the variables), i.e. to help in the assessment of the statements included in the questionnaire. This scale spanned from 1 (signifying absolute disagreement) to 5 (implying full agreement with the presented statements).

The sample

The research sample comprised 99 respondents (all of whom were citizens of the Republic of Serbia), whose eligibility for the survey was confirmed by declaring whether they were employed at the time of the implementation of the survey (the beginning of 2023). The examinees' age was pre-specified – only members of Generation Y (individuals born between 1980 and 2000, commonly referred to as "millennials") were included in the research. For the sake of the quality interpretation of the results, this cohort was further divided into two subgroups – older millennials (born between 1980 and 1990), and younger millennials (born between 1991 and 2000).

A typical respondent in the sample was an employed younger millennial (67.7% of the sample), female (62.6%), who exhibited a high level of educational attainment by holding a Master of Academic Studies degree (43.4%), and currently resided in Southern and Eastern Serbia's region (39.4% of the sample). For a more detailed insight, the demographic profile of the respondents included in the survey is given in Table 2.

From the organizational perspective, the typical respondent in the sample was a full-time employee (75.8% of the sample), hired with a permanent contract (43.4%), who had spent 1 to 5 years in the current organization (49.5%), making EUR 251-500 of monthly income (44.4%). Its current employee organization belonged to the private sector (64.6%) and was micro-sized (31.3% of the sample). For a more detailed

Table 1 The composition of the survey questionnaire

Construct	Total number of questions	Type of variable	Scale	Source
Perceived organizational justice Procedural justice (6) Distributive justice (5) Interactional justice (9)	20	Independent variable	Justice Scale	Niehoff and Moorman (1993)
Organizational commitment	18	Dependent, mediating variable	Organizational Commitment Questionnaire	Meyer *et al* (1993)
Intention to leave the organization	4	Dependent variable	Intention to Quit Scale	Kelloway *et al* (1999)

Source: Authors

Table 2 The demographic profile of the respondents included in the survey

Parameter	Periodicity	Proportion
Gender		
Male	37	37.4
Female	62	62.6
Complete respondent pool	99	100.0
Age bracket		
Born from 1980 to 1990 (older millennials)	32	32.3
Born from 1991 to 2000 (younger millennials)	67	67.7
Complete respondent pool	99	100.0
Educational attainment		
Elementary education	0	0.0
Secondary education	12	12.1
Higher education	2	2.0
Tertiary education (Bachelor)	36	36.4
Tertiary education (Master)	43	43.4
Tertiary education (Ph.D.)	6	6.1
Complete respondent pool	99	100.0
Regional residence within the territory of the Republic of Serbia		
Vojvodina	8	8.1
Belgrade	19	19.2
Southern and Eastern Serbia	39	39.4
Šumadija and Western Serbia	33	33.3
Kosovo and Metohija	0	0.0
Complete respondent pool	99	100.0

Source: Authors

insight, the employment profile of the respondents included in the survey is presented in Table 3.

Data analysis

The central component of the study was a comprehensive review of the relevant literature to uncover the key research connections, the thematic and desk analysis techniques serving as pivotal research instruments to elevate the study's academic rigor. Before engaging in empirical data analysis, the accredited IBM SPSS Statistics 26.0 software (IBM Corporation, 2019) had been employed to define the

Table 3 The employment profile of the respondents included in the survey

Parameter	Periodicity	Proportion
Current employment state		
Employed	99	100.0
Unemployed	0	0.0
Complete respondent pool	99	100.0
Contract form		
Permanent employment	43	43.4
Temporary employment	38	38.4
Work outside formal employment	9	9.1
Work without a contract	9	9.1
Complete respondent pool	99	100.0
Employment form		
Full-time	75	75.8
Part-time	24	24.2
Complete respondent pool	99	100.0
Length of employment		
Shorter than 1 year	22	22.2
1-5	49	49.5
6-10	18	18.2
11-15	8	8.1
16-20	2	2.0
Longer than 20 years	0	0.0
Complete respondent pool	99	100.0
Monthly income		
Up to EUR 250	18	18.2
EUR 251-500	44	44.4
EUR 501-750	20	20.2
EUR 751-1,000	10	10.1
Over EUR 1,000	7	7.1
Complete respondent pool	99	100.0
Sector affiliation		
Public	35	35.4
Private	64	64.6
Complete respondent pool	99	100.0
Organization size		
Micro (1-9 employees)	31	31.3
Small (10-49 employees)	18	18.2
Medium (50-249 employees)	25	25.3
Large (250 employees or more)	25	25.2
Complete respondent pool	99	100.0

Source: Authors

typical respondent's profile by conducting frequency analysis. For the purpose of the validation of the proposed research model, the specialized Partial Least Squares Structural Equation Modeling (PLS-SEM) procedure was performed, leveraging the advanced capabilities of the SmartPLS 4.0 software (Ringle, Wende & Becker, 2022) to rigorously test the proposed research hypotheses.

RESEARCH MODEL AND PRELIMINARY ANALYSES

An increasing trend in the estimation of structural equation models promotes the use of Partial Least Squares Structural Equation Modeling (PLS-SEM), as evidenced by the leading research studies (Wong, 2013; Hair, Sarstedt, Hopkins & Kuppelwieser, 2014; Hair, Risher, Sarstedt & Ringle, 2019; Jolović & Berber, 2021). In addition, recent studies in the social sciences domain have highlighted the considerable popularity of composite-based methods for mapping intricate relationships among observed latent variables (Sarstedt, Hair, Cheah, Becker & Ringle, 2019), extending beyond that traditional construct conceptualizations that generally operate at a single level of abstraction. The utilization of higher-order constructs has become notably prominent, providing a framework for analyzing constructs at both the abstract (higher-order) and more specific (lower-order) levels. As discussed by J. F. Hair Jr. *et al* (2019), researchers have various methodologies at their disposal to identify higher-order constructs, including the Repeated Indicators Approach and the Disjoint Two-Stage Approach. Yet, a literature review by Sarstedt *et al* (2019) reveals that a substantial majority of studies in the social sciences (over 80%) have utilized the Disjoint Two-Stage Approach, as opposed to the Repeated Indicators Approach. Accordingly, this research implements the mentioned predominant approach in its structure.

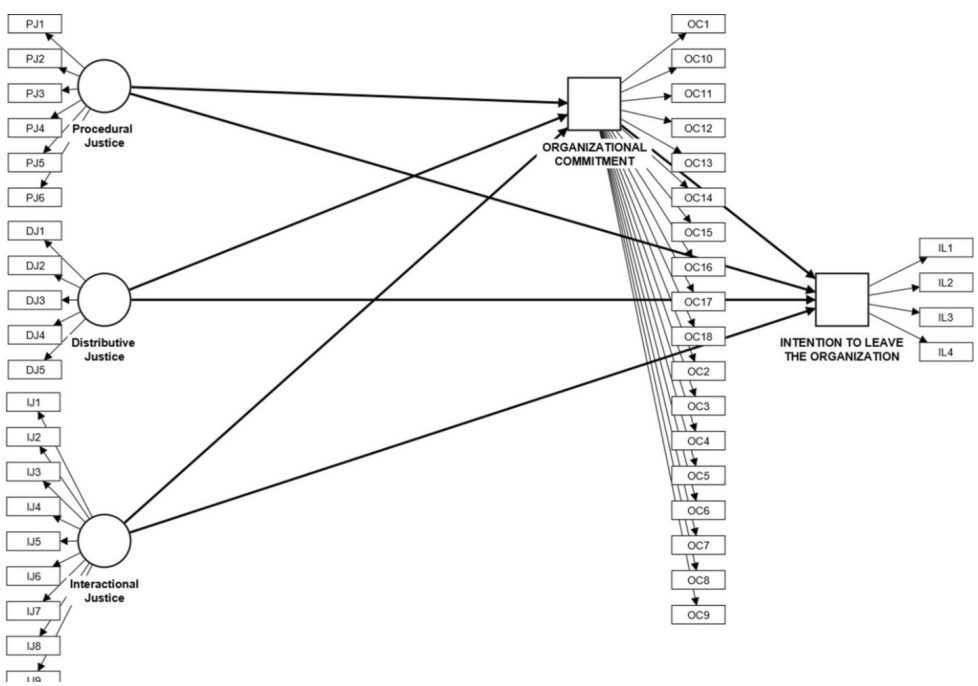

Figure 1 The research model in its preliminary stage

Source: Authors

The research model proposed by the authors is of a reflective-reflective type and integrates the Disjoint Two-Stage Approach (characterized by the distinct preliminary and definitive stages). In the first phase, the model includes 42 indicators, which together form three lower-order constructs (the subdimensions of perceived organizational justice – procedural, distributive, and interactional justice), and two higher-order constructs (organizational commitment and intention to leave the organization), along with their interwoven structural relations. A detailed overview of the preliminary stage of the reflective-reflective research model is given below (Figure 1).

Initially, the reliability assessment of the included reflective indicators identified several indicators (PJ1, OC2, OC3, OC7, OC9, OC10, OC11, OC12, OC14, OC15, OC17) that failed to meet the predetermined reliability threshold of 0.70. This criterion indicates that, when an indicator meets or exceeds the prescribed value, the associated study construct accounts for over 50% of the variance observed in the indicator (Hair *et al*, 2019). These 11 indicators did not reach the specified reliability level, so they were excluded from further analysis. The indicators that met the reliability requirements are presented in Table 4 and illustrated in Figure 2.

To evaluate the measurement model, the preliminary stage constructs underwent a series of rigorous assessments (Hair *et al*, 2019; Jolović & Jolović, 2023), namely:

- internal consistency reliability testing – examined using Cronbach's Alpha, the Composite Reliability (Rho_A) and Composite Reliability (Rho_C) criteria, for all of which constructs must exceed the 0.70 threshold value to be deemed reliable,
- convergent validity testing – examined using the Average Variance Extracted (AVE) metric, with a benchmark of 0.50 or higher, indicating that the constructs can explain at least 50% of the variance of their corresponding items, and
- discriminant validity testing – examined applying the Fornell-Larcker criterion, which ensures that each construct is sufficiently distinct from all the other constructs in the research model by comparing the Average Variance Extracted (AVE) value for each construct with the squared inter-construct correlations.

Based on the evaluation of all five elucidated metrics, the results summarized in Table 5 and Table 6 verify that all the constructs reached the predefined criteria and were eligible for inclusion in the forthcoming

Table 4 The test of the reliability of the indicators

Indicators	Constructs				
	Distributive justice	Interactional justice	Intention to leave the organization	Organizational commitment	Procedural justice
DP1	0.741				
DP2	0.857				
DP3	0.857				
DP4	0.815				
DP5	0.854				
IP1		0.872			
IP2		0.839			
IP3		0.844			
IP4		0.910			
IP5		0.847			
IP6		0.821			
IP7		0.887			
IP8		0.861			
IP9		0.888			
IP1			0.943		
IP2			0.959		
IP3			0.943		
IP4			0.889		
OP1				0.711	
OP13				0.707	
OP16				0.746	
OP18				0.705	
OP4				0.727	
OP5				0.712	
OP6				0.768	
OP8				0.702	
PP2					0.879
PP3					0.853
PP4					0.867
PP5					0.819
PP6					0.836

Source: Authors

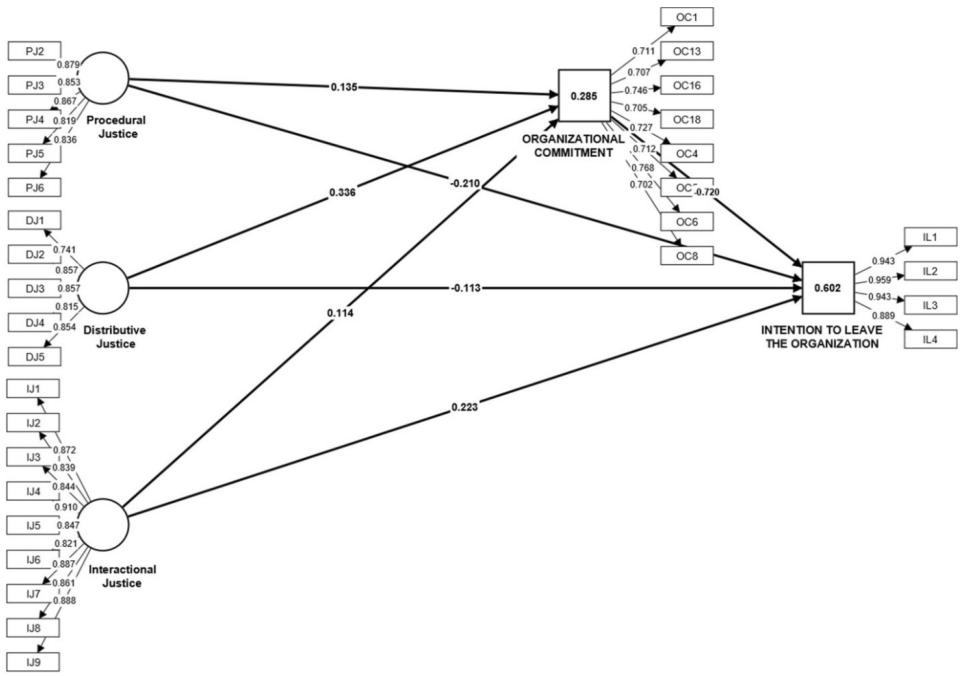

Figure 2 The test results of the reliability of the indicators

Source: Authors

Table 5 Internal consistency reliability and convergent validity testing for the preliminary stage constructs

Constructs	Cronbach's Alpha	Composite Reliability (Rho_A)	Composite Reliability (Rho_C)	Average Variance Extracted (AVE)
Distributive justice	0.883	0.889	0.915	0.682
Interactional justice	0.957	0.961	0.964	0.746
Intention to leave the organization	0.951	0.954	0.964	0.872
Organizational commitment	0.869	0.871	0.897	0.522
Procedural justice	0.905	0.915	0.929	0.724

Source: Authors

Table 6 Discriminant validity testing for the preliminary stage constructs

Fornell-Larcker criterion					
Constructs	Distributive justice	Intention to leave the organization	Interactional justice	Organizational commitment	Procedural justice
Distributive justice	0.826				
Intention to leave the organization	-0.446	0.934			
Interactional justice	0.743	-0.381	0.864		
Organizational commitment	0.507	-0.764	0.477	0.722	
Procedural justice	0.639	-0.414	0.843	0.446	0.851

Source: Authors

calculations, i.e. each construct confirmed its distinctiveness and justified its recognition as an independent entity in the study.

Following the evaluation of the preliminary stage constructs within the framework of the Disjoint Two-Stage Approach, the reflective-reflective measurement model in its definitive stage was formed (Figure 3), now with the focus on the assessment of the higher-order construct that was introduced last.

The estimation of the remaining higher-order construct begins with the assessment of its internal consistency reliability and convergent validity, followed by a discriminant validity test (Hair *et al*, 2019; Jolović & Jolović, 2023). Given the criteria accounted for in the previous section, it can be concluded that perceived organizational justice, as the higher-order construct, also satisfies the required benchmarks for internal consistency reliability (0.896, 0.897, and 0.935, all exceeding 0.70), convergent validity (0.828, surpassing the 0.50 threshold), and discriminant validity (0.934, greater than -0.764 and -0.456; and 0.722, greater than 0.525). Tables 7 and 8 provide a detailed insight into the annotated data.

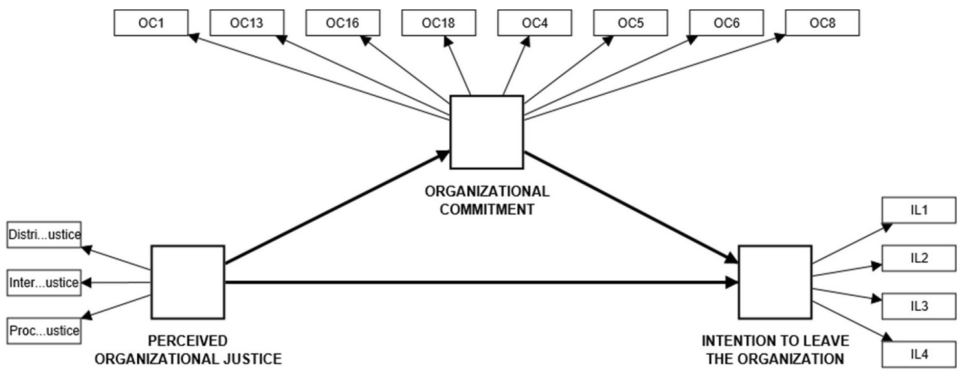

Figure 3 The research model in its definitive stage

Source: Authors

Table 7 Internal consistency reliability and convergent validity testing for the higher-order construct in the definitive stage

Higher-order construct	Cronbach's Alpha	Composite Reliability (Rho_A)	Composite Reliability (Rho_C)	Average Variance Extracted (AVE)
Perceived organizational justice	0.896	0.897	0.935	0.828

Source: Authors

Table 8 Discriminant validity testing for higher-order constructs in the definitive stage

Fornell-Larcker kriterijum			
Higher-order constructs	Intention to leave the organization	Organizational commitment	Perceived organizational justice
Intention to leave the organization	0.934		
Organizational commitment	-0.764	0.722	
Perceived organizational justice	-0.456	0.525	0.910

Source: Authors

RESULTS AND DISCUSSION

Once all foundational calculations have been completed, the evaluation of the structural model's overall adequacy, validity, and robustness can proceed using the coefficients of determination (R^2 and adjusted R^2) for dependent constructs. As expounded by J. F. Hair Jr. *et al* (2019), these coefficients quantify the proportion of the variance explained in each endogenous construct, i.e. they have the ability to quantify the explanatory capacity of the research model. Ranging from 0 to 1, the R^2 value denotes the extent of explanatory power. The approximate value of 0.19 is used to describe a weak explanatory capacity, the value of 0.33 is used to describe a moderate explanatory capacity, and the value of 0.67 is used to describe the significant explanatory capacity of the research model. The coefficients of determination for the constructs organizational commitment and intention to leave the organization were calculated and are given in Table 9. Specifically, the R^2 value for organizational commitment amounts to 0.276, indicating that the utilized research model demonstrates a weak to moderate predictive capability for this dependent variable. Conversely, the R^2 value for intention to leave the organization is 0.588, suggesting that the research model exhibits moderate to high predictive power for this dependent variable.

After establishing the model's capacity to explain the data, the next phase involved the assessment of the significance of the principal structural pathways (the path coefficients) in the research, which was performed using the bootstrapping technique (5,000 iterations employed) and the t-test for the 0.05 significance threshold (corresponding to a 95% confidence interval). As detailed in Table 10, the results confirm the existence of the direct statistically significant and positive influence of perceived organizational justice on organizational commitment ($\beta = 0.525$, $t = 6.945$, $p1 = 0.000$, $p < 0.05$). Additionally, the direct statistically significant and negative influence of organizational commitment on intention to leave the organization was also found ($\beta = -0.724$, $t = 10.899$, $p2 = 0.000$, $p < 0.05$). These findings substantiate the acceptance of the hypotheses H_{01} and H_{02}. Furthermore, contrary to the statement assumed by the hypothesis H_{03}, it was determined that the direct effect of perceived organizational justice on intention to leave the organization had no statistical significance ($\beta = -0.076$, $t = 1.062$, $p3 = 0.288$, $p \not< 0.05$ – therefore, the given hypothesis is rejected).

Since the results presented in Table 10 indicate no direct, statistically significant relationship between perceived organizational justice and intention to leave

Table 9 The testing of the explanatory capacity of the research model

	R-square	R-square adjusted
Intention to leave the organization	0.588	0.579
Organizational commitment	0.276	0.268

Source: Authors

Table 10 The testing of the direct effects of the research model

	Original sample (O)	Sample mean (M)	Standard deviation (STDEV)	T statistics (|O/STDEV|)		P values
Organizational commitment → Intention to leave the organization	-0.724	-0.733	0.066	10.899	p2	0.000
Perceived organizational justice → Intention to leave the organization	-0.076	-0.069	0.071	1.062	p3	0.288
Perceived organizational justice → Organizational commitment	0.525	0.531	0.076	6.945	p1	0.000

Source: Authors

the organization, it is essential to explore any potential mediating variable between these constructs. The testing of the indirect effect within the framework of the proposed research model (see Table 11) shows that organizational commitment acts as a mediating variable in the relationship between perceived organizational justice and employees' intention to leave the organization (β = -0.380, t = 5.717). Furthermore, this mediating effect is found to be statistically significant (p = 0.000, p < 0.05) and allows for the acceptance of the hypothesis H_{04}. Since the p1 (0.525) and p2 (-0.724) values are statistically significant, and the p3 (-0.076) value is not significant, it can be concluded that, in the model used, the mentioned mediation can be described as full mediation (the indirect effect only) (Nitzl, Roldan & Cepeda, 2016). In simple terms, this means that the impact of perceived organizational justice on employee intention to leave the organization is completely transmitted through their organizational commitment.

As the final, yet critical step in evaluating the structural research model, it is imperative to assess the total documented effect. The findings indicate that the total effect of perceived organizational justice on employees' intention to leave the organization is both negative and statistically significant (β = -0.456, t = 5.841, p = 0.000), with the significance level 0.05, even 0.01 (i.e. 95% and 99% confidence intervals, respectively). These results (presented in Table 12) finally confirm that perceived organizational justice has an indirect, statistically significant and negative effect on employees' intention to leave the organization, with organizational commitment as the mediating variable in that relationship.

The obtained results are in accordance with the findings of the previous research conducted by the authors who examined the same relations (with partial disagreement only in the research outcomes regarding the direct influence of the perception of organizational justice on intention to leave the organization) (Loi *et al*, 2006; Bakri & Ali, 2015; Sökmen & Ekmekçioğlu, 2016; Al-Kilani, 2017; Khalid *et al*, 2018; Khan *et al*, 2018; Ekmekcioglu & Aydogan, 2019; Imamoglu *et al*, 2019; Mete & Sökmen, 2019; Jehanzeb & Mohanty, 2020; Zarish *et al*, 2020; Jolović & Berber, 2021; Magfuroh & Herminingsih, 2021; Mahfouz *et al*, 2022; Abdullah & Al-Abrrow, 2023; Moon *et al*, 2024; Chang *et al*, 2024).

For enhanced clarity and transparency, the research findings presented in the preceding tables are also presented visually. Figure 4 provides a detailed overview of the results of the structural research model.

Table 11 The testing of the indirect (mediating) effect of the research model

	Original sample (O)	Sample mean (M)	Standard deviation (STDEV)	T statistic (|O/STDEV|)	P value
Perceived organizational justice → Organizational commitment → Intention to leave the organization	-0.380	-0.389	0.067	5.717	0.000

Source: Authors

Table 12 The testing of the total effect of the research model

	Original sample (O)	Sample mean (M)	Standard deviation (STDEV)	T statistic (|O/STDEV|)	P value
Perceived organizational justice → Intention to leave the organization	-0.456	-0.457	0.078	5.841	0.000

Source: Authors

CONCLUSION

Understanding the complex dynamics of employee retention involves delving into the role of organizational commitment in a broader context of organizational justice. This research addresses the conundrum of the mediating role of organizational commitment in the multifaceted relationship between employees' perceptions of organizational justice and their intention to leave the organization.

The research findings provided compelling empirical evidence confirming the positive and direct correlation between perceived organizational justice and organizational commitment, underscoring the pivotal role of that commitment in fostering a connection with employee intention to leave. Precisely, the detailed empirical research confirmed that organizational justice acted as a significant driver of commitment, enhancing employee devotion and loyalty to the organization, supporting the hypothesis H_{01} (the perception of organizational justice has a direct statistically significant and positive impact on employees' organizational commitment). Table 10 presents these findings (β = 0.525, t = 6.945, p = 0.000). Additionally, the conducted research also substantiated the premise of the hypothesis H_{02} (organizational commitment influences employee intention to leave the organization) (β = -0.724, t = 10.899, p = 0.000; the results are given in Table 10). This relationship is direct, statistically significant and negative. Partially unexpected, it was found that the direct, negative effect in the relationship perceived organizational justice→intention to leave the organization was not characterized by statistical significance (β = -0.076, t = 1.062, p = 0.288; the results are given in Table 10), thereby obstructing the validation of the third research hypothesis (H_{03}). Ultimately, the proven separate connection between organizational commitment and the two main research variables (perceived organizational justice and intention to leave the organization) validated the examination of its mediating role in that relationship. The final calculations provided sufficient evidence to prove the hypothesis H_{04}, i.e. to confirm the existence of the mediating effect (full mediation) of organizational commitment in the relationship between perceived organizational justice and employee intention to leave the organization, as is demonstrated by the following results (β = -0.380, t = 5.717, p = 0.000; the results are given in Table 11). All the presented results (with one single exception) correspond with previous research, which was discussed earlier in the pre-concluding chapter.

The obtained findings indicate that, while organizational justice serves as the foundational pillar that influences perceptions and shapes employed millennials' attitudes in the organizational context, on the one hand, it is the in-depth level of employee commitment that ultimately determines whether engaged individuals will decide to stay or leave, on the other hand. The research confirms the vital importance of fostering a sense of organizational

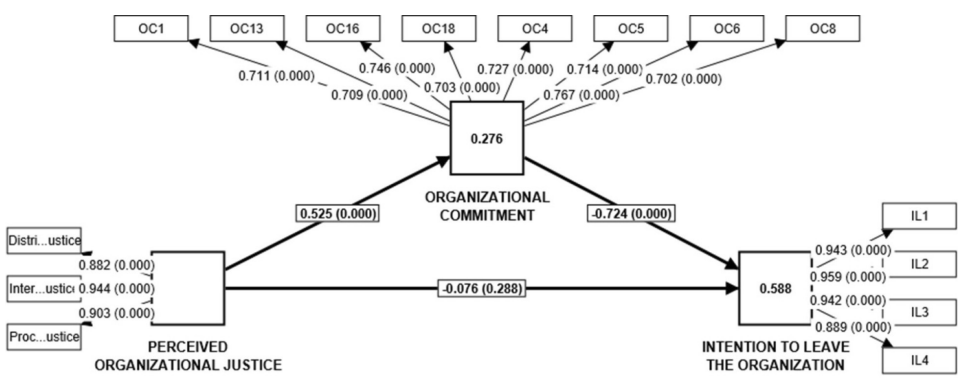

Figure 4 The research model and the results

Source: Authors

commitment among the national workforce, since it acts as a buffer against the negative effects of perceived injustice, and a contributing asset to the mitigation of turnover intentions.

The conducted research makes an original scientific contribution to the scientific field. Nevertheless, it has several notable limitations as well, including a relatively small sample size and its concentrating only on millennial workers from the Republic of Serbia, which may restrict the generalizability of the findings. Yet, since the findings are relevant and greatly beneficial to managerial staff in the national economy that currently primarily employs the age cohort that was examined in this study, and Serbian millennials show many characteristics common with their peers in other countries (Kovačević & Labrović, 2018), the importance of this limitation could be partially mitigated. Even more, the study could be seen as an inspiration and the provider of a valuable foundation for future research as it reviews the behavior of the currently globally predominant workforce demographic. The next constraint refers to the fact that the study partially simplifies the complex concepts related to organizational justice, organizational commitment, and intention to leave the organization, potentially overlooking their multifaceted psychological, economic, and social dimensions. Finally, the research does not address the external factors that could significantly influence employees' perceptions of organizational justice. To overcome these limitations, future research should employ longitudinal, multi-cohort, cross-cultural, and sector-specific approaches, considering external influences and economic challenges to provide a deeper understanding of this issue in organizational research.

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QUALITY DIMENSIONS IN SLOW TOURISM: TRENDS AND PERSPECTIVES FROM A SYSTEMATIC LITERATURE REVIEW

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Tourism faces challenges from today's fast-paced lifestyles, in response to which slow tourism is gaining traction, promoting fewer but richer, more sustainable travel experiences focused on quality over quantity. This study reviews 47 research articles from the Web of Science and Scopus to analyze slow tourism's impact on the sustainability and perceptions of tourism and service quality. It identifies six key quality dimensions: spatial quality, product and service quality, the local quality of life, travel experience quality, perceived service quality, and transport quality. The originality of the study stems from the synthesis of the findings from various sources which enrich the insight into the dynamics and consequences of soft tourism for both travelers and destinations.

Keywords: slow tourism, slow travel, quality, tourist destination, quality dimensions, sustainability

JEL Classification: Q56, Z30, Z32

INTRODUCTION

In recent decades, destinations have faced growing challenges in achieving and sustaining competitive advantage, largely due to rapid technological, social, political, and environmental changes. Today's consumers are better informed, with shifting preferences and heightened demands that reshape market landscapes. Additionally, the growing awareness of environmental protection, sustainable development, and socially responsible behavior has led to a paradigm shift in tourism research. Although sustainable development has long been a focal point, a question arises: Is sustainability truly the future of tourism?

As defined by M. Davenport, M. Delport, J. N. Blignaut, T. Hichert and G. Van der Burgh (2019), sustainable management emphasizes minimizing harm to society and the environment, particularly by conserving non-renewable resources. J. Abbas (2020) extends this by asserting that sustainable management aims to integrate environmental, social, and economic sustainability within organizational decision-making. Rooted in J. Elkington's (1988) framework, social responsibility has the key role

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requiring organizations to assess success not only through financial outcomes but also by considering the wellbeing of people and the planet (Jaccard, 2013). Given the range of environmental and social challenges faced by tourism, sustainable practices are now critical to sector development (Grizane, 2023), requiring a balance between tourism demands and resource use (Nguyen, Kuo, Lu & Nhan, 2024). The rise of soft tourism, which emphasizes community-led development, offers a model for promoting sustainability by involving local stakeholders in tourism planning and decision-making (Walker & Lee, 2021).

Recently, the public awareness of social and environmental issues has spurred demand for tourism products that align with ethical values. Slow tourism is one such approach, encouraging locally sourced consumption, sustainable energy use, local employment, and the quality-of-life improvements for residents. A review of the relevant literature on slow tourism reveals multiple dimensions of quality as crucial responses to the negative impacts of mass tourism in an accelerated world. The existing research gap regarding quality in slow tourism presents a significant challenge, as the lack of comprehensive quality assessment standards could limit the potential for consistent and scalable improvements across destinations. Following the identified research gap, the motivation for this review is methodologically in line with J. Paul, W. M. Lim, A. O'Cass, A. W. Hao and S. Bresciani (2021) and Y. Joshi, W. M. Lim, K. Jagani and S. Kumar (2023) in order to create an updated and more comprehensive literature review that addresses the limitations of earlier studies. Based on that, this paper seeks to fill that gap by systematically analyzing the quality dimensions of slow tourism and highlighting the key authors and journals in the field, thereby contributing to a clearer and more refined direction for future research. The research questions in this study are as follows:

RQ1: How has the concept of slow tourism evolved over time?

RQ2: In what ways does slow tourism differ from conventional tourism models and/or mass tourism?

RQ3: What are the key quality dimensions of slow tourism according to the existing literature?

RQ4: Who are the most influential authors, and which are the leading journals in the field of slow tourism?

RQ5: Where should slow tourism research be heading in the future?

Using a systematic literature review of the research articles indexed by the Web of Science (WoS) and Scopus, this study contributes to a better understanding of slow tourism. The 47 articles were analyzed and summarized so as to provide a comprehensive overview of the existing knowledge and research findings related to quality aspects in slow tourism. The studies reviewed in this paper explore various drivers of slow tourism, examining the factors influencing tourist satisfaction and behavior, with a strong focus on authentic, locally engaging experiences. By synthesizing these insights, this paper provides a comprehensive understanding of quality in slow tourism, offering destination managers, policymakers, and stakeholders valuable guidelines to enhance the quality and experience of slow tourism destinations.

This study begins with an introduction, which is followed by a theoretical overview of slow tourism, explaining the concept and the research methodology. The main section presents the results and discussion, including a summary table of 47 papers with the key findings, quality dimensions, and citations. The paper ends with a conclusion and the references.

THE THEORETICAL DETERMINANTS OF SLOW TOURISM

Slow tourism is a form of niche tourism. P. Bac Dorin (2014) hypothesizes the development of slow tourism through four steps, considering the evolution of the concept and its development, starting with fast food, transitioning to slow food, then slow city or "*Cittaslow*", and finally embracing slow tourism. Originating from the slow food movement that emphasizes local, sustainable food and community engagement (Jung,

Ineson & Miller, 2014), slow tourism opposes mass tourism by focusing on meaningful, immersive experiences (Heitmann, Robinson & Povey, 2011). In this paradigm, tourists become active participants, choosing depth over breadth in their travel activities (Gürsoy, 2021). Slow tourism prioritizes quality over quantity by encouraging fewer, yet richer, activities, fostering a qualitative approach that aligns closely with sustainable and socially responsible practices.

Mass tourism and slow tourism represent two opposing paradigms within the travel industry, each offering travelers different experiences and characteristics. I. M. Petroman, L. Văduva and D. Marin (2021) define mass tourism as quantitative and emphasize large-scale accommodation in high-capacity resorts and hotels, standardized and fast-paced activities, reduced interaction with locals and reliance on air travel and modern communication technologies. In contrast, slow tourism takes a qualitative approach and favors accommodation in guesthouses or smaller units with limited capacity.

A core element that distinguishes slow tourism from mass tourism is its emphasis on quality. The success of slow tourism destinations relies on their ability to deliver high-quality experiences that align with tourists' expectations for authenticity, community engagement, and environmental responsibility (Heitmann *et al*, 2011; UNWTO Think Tank, 2016; Fusté-Forné & Jamal, 2020; Gürsoy, 2021). H. Mustafa, B. Omar and S. N. S. Mukhiar (2020) emphasize that creating and providing perceived value for tourists is essential for the strategic development of destinations. Perceived value is the key factor that gives destinations competitive advantage in meeting customer needs (Lu, Geng & Zhuang, 2017). S. Marković (2004) adds that service quality is categorized as low when expectations are not met, and high when they are exceeded, which shows that service quality is directly linked to customer expectations. In today's dynamic environment, internet technologies have transformed traditional marketing, shifting the focus to modern methods, such as electronic interpersonal communication (Kocić & Radaković, 2019), which in slow tourism shapes travelers' pursuit of meaningful, sustainable experiences. Therefore, slow tourism must consistently meet or exceed expectations in order to provide perceived value.

The Slow City movement emphasizes the authenticity of a location, celebrates local culture and tradition, and enhances spatial quality by retaining distinctive local characteristics of a tourist attraction (Cicek, Ulu & Uslay, 2019). Destination authenticity has a crucial role in the Slow City movement as it contributes to regional economic and cultural development and ultimately improves the quality of life (Chao, 2015). M. Emmendoerfer, T. C. de Almeida, G. Richards and L. Marques (2023) argue that the movement enhances the tourism offer by co-creating local gastronomy, promoting regional identity and encouraging community participation in sustainable tourism. Even in global tourist destinations where they are not the main attraction, agricultural and food products remain essential in enriching the tourism experience (Ristić, Bošković & Despotović, 2019). This is especially true for slow tourism and "green products" (Filipović & Šapić, 2025) which value authentic, local, and sustainable experiences. Increased tourist spending boosts food production, supporting the development of the agricultural sector. Slow tourism creates opportunities for entrepreneurs, especially small producers and service providers, who can innovate and quickly adapt to tourists' specific needs. Entrepreneurship has risen to a pivotal role, becoming essential for market competitiveness and survival (Milohnić & Licul, 2025). Slow tourism crates further possibilities for small businesses to thrive by offering unique, personalized services that align with slow tourism's values compared to mass tourism.

As W. Tu, L. Zhou, B. Y. Haobin and Q. Yan (2022) states, slow tourism destinations emphasize service quality through a blend of local ambience, resource management and cultural integration, which ultimately enhances perceived values and influences tourists' attitudes, emotions and intentions. Based on the previously mentioned literature on slow tourism, quality remains limited, especially in the field of the quality of the products, services, destination, or life of the local people.

METHODOLOGY

The purpose of the previous review was to identify which quality dimensions are most frequently analyzed in connection with slow tourism and where further research is needed. This was done by applying a systematic review of the scientific literature within a specific field essential for identifying relevant research questions and providing a solid foundation for future studies (Swartz, 2011).

To ensure the transparency of the literature review, the SPAR-4-SLR protocol by J. Paul *et al* (2021) and later on Y. Joshi *et al* (2023) was followed. This protocol comprises three main phases: assembling, arranging, and assessing, which are further divided into six substages: identification, acquisition, organization, purification, evaluation, and reporting. This approach closely parallels the method proposed by B. Kitchenham (2004) and later adopted by J. Bacca, S. Baldiris, R. Fabregat, S. Graf and Kinshuk (2014) and P. V. Torres-Carrión, C. S. González-González, S. Aciar and G. Rodríguez-Morales (2018), which also structures the review into three core stages: planning, conducting, and reporting results. Both methodologies emphasize a systematic and rigorous process that guides researchers from the initial literature gathering through critical analysis to the final presentation of the findings, ensuring clarity, replicability, and methodological rigor. Following these defined stages in creating a literature review helps researchers minimize bias, improve reproducibility and clarity of their research, and synthesizes the existing knowledge. The results are presented based on the approach proposed by T. Blommerde (2023), while some sections were further added to reflect the research goals of this paper.

Assembling

The first assembling phase included the articles indexed in the WoS and Scopus bases. In the first phase, the peer-reviewed early access and published research articles indexed in the Web of Science (WoS) and Scopus databases were selected, following the recommendation of B. Mavric, M. Öğretmenoğlu and O. Akova (2021), who had conducted a bibliometric analysis on slow tourism and highlighted the need for further research based on these databases. These databases were selected because, according to S. Kraus, M. Breier, W. M. Lim, M. Dabić, S. Kumar, D. Kanbach, D. Mukherjee, V. Corvello, J. Piñeiro-Chousa, E. Liguori, D. Palacios-Marqués, F. Schiavone, A. Ferraris, C. Fernandes and J. J. Ferreira (2022), they represent the largest repositories of scientific articles. It is only articles that were selected for the analysis, whereas books, book chapters, conference papers, and working papers were not considered, as suggested by T. Blommerde (2023). When examining all the fields in the two databases, the Boolean operators "or" and "and" were used to identify the articles written in English, spanning the period from January 2008 to March 2024. Only articles in the fields of social sciences; economics, management and accounting; econometrics and finance were considered. After a thorough review of the literature, the following terms were used: "slow tourism," "service* quality and slow tourism," "entrepreneurship and slow tourism," "slow tourism and destination*," "slow tourism and quality*," "slow travel," sustainability*." The asterisks (*) denote any character, including the possibility of none.

Arranging

The next phase involves the organization and purification of the synthesized literature (Paul & Rosado-Serrano, 2019; Paul *et al*, 2021; Blommerde, 2023). In the cleaning phase, 34 duplicate articles were discarded, and the remaining 133 articles were screened based on their title, abstract, and full text. Subsequently, 39 articles were excluded because they did not fulfil the research objective. The final analysis resulted in the 47 articles that had met the inclusion criteria, 30 from the WoS and 17 from the Scopus database. In the third, assessing phase, a content analysis was carried out, which included the evaluation and reporting of the articles included in the analysis.

Assessing

In the assessing phase, a content analysis was carried out, which included the evaluation and reporting of the articles included in the analysis. This phase was structured according to the TTCM framework (Kraus *et al*, 2022) so as to structure the assessment and analysis of the themes in the literature. The identification of the research gaps was conducted according to the method of T. Blommerde (2023). The results in this section are presented in Table 1, which lists the journals, the main findings, the quality dimensions, and the number of the citations based on Google Scholar in February 2025.

RESULTS AND DISCUSSION

Through a thorough search of relevant databases, 47 articles were selected, analyzed and summarized to provide a comprehensive overview of existing knowledge and research findings. This approach allows consideration of a wide range of quality dimensions and not limit the authors to those that affect the satisfaction of guests, the local population and the local economy, but to examine quality in a broader context that supports sustainable goals in tourism.

Table 1 The quality dimensions of slow tourism

No.	Authors	Findings	The dominant quality dimension of the study	Citations
1	A. Klarin, E. Park and S. Kim (2024)	Slowness has extended to most dimensions of our everyday life, such as the slow city, slow management, slow fashion, slow philosophy in general, and slow tourism.	The quality of life	19
2	J. Wu, X. Wang and C. Zhang (2024)	Slow tourists' existential journey is fundamentally an emotional quest.	The quality of life	7
3	F. Baghirov, Z. Bozbay and Y. Zhang (2023)	Individual factors, tourist satisfaction, and revisit intentions to develop an extended model for better understanding slow tourists' decision-making.	Perceived quality	13
4	X. Matteucci and T. R. Tiller (2023)	Controlling the pace is essential to being a slow traveler.	Perceived quality	7
5	F. Fusté-Forné (2023)	Slow tourism motivation factors are accentuated when viewed from the perspective of a geo-tourism destination.	The quality of life	15
6	A. Klarin, E. Park, Q. Xiao and S. Kim (2023)	Slow travel aims to promote tourists' consumption-oriented enjoyment of experience through various travel patterns.	Perceived quality	25
7	O. Kosykh, H. Roh and R. Hart (2023)	The Siberian train tourists' experiences of flow, self-realization, authenticity, and enjoyment positively influenced their self-expression and overall life satisfaction.	Spatial quality	5
8	M. Ladu, S. Battino, G. Balletto and A. Amaro García (2023)	The development of the FI (Feasibility Index) to assess the viability of the Stop Places (SPs) project along a horse trail, integrating the current slow mobility methods for bicycles and pedestrians in the bioregion.	The quality of products and services	16
9	M. E. Menconi, R. Abbate, G. Ceccarelli, A. Grassi, and D. Grohmann (2023)	Rural stakeholders see collaborative maps as effective for promoting tourism and fostering respect for rural place identities.	Spatial quality	4
10	A. C. Moreira, Pereira, C. R., Lopes, C. A. R. Calisto and V. T. Vale (2023)	The *Cittaslow* perspective leans towards sustainability over environmentalism.	The quality of products and services	14

11	T. Y. Huang, J. S. Chen and W. D. Ramos (2023)	Authenticity and slowness significantly affect tourists' slow food experience.	The quality of products and services	30
12	M. Darvishmotevali, K. Tajeddini and L. Altinay (2023)	Cultural exploration moderates the relationships among experiential festival attributes, perceived value, and behavioral intentions.	The quality of life	28
13	D. D'Uva and A. Rolando (2022)	Developing a strategy to identify the most suitable routes based on spatial quality and walkability/cyclability.	The quality of life	5
14	W. Tu, L. Zhou, B. Y. Haobin and Q. Yan (2022)	Perceived value positively influences attitude, consumption emotion, and behavioral intentions in slow tourism.	Spatial quality	8
15	D. Krešić and M. Gjurašić (2022)	Research interest in slow tourism is rapidly growing, focusing on slow travel, food, sustainability, and immersive travel experiences.	Spatial quality	16
16	A.Manthiou, P. Klaus and V. H. Luong (2022)	This research highlights the gaps in the concepts and practices of slow tourism.	The quality of products and services	62
17	K. Kostilnikova, K. Matlovicova, M. Demkova, P. Mocak, P. K. Mishra, Z. Bujdoso, R. Matlovic and B. Zawilinska (2022)	From the socio-cultural perspective, slow tourism aims to support local communities, especially vulnerable groups facing poverty.	The quality of products and services	6
18	X. Su and H. Zhang (2022)	Understanding wellbeing in tourism involves the dynamic interplay of tourists, tea, and environments over time and space.	The quality of the transportation mode	62
19	T. Božović, M. D.Vujičić, S. Kovačić, T. Jovanović and T. Pivac (2022)	Leisure and research were identified as the main driving motives for travelers' decisions to engage in slow tourism.	The quality of life	2
20	J. H. Kim, B. E. M. King and S. Kim (2022)	The proposed index serves as a practical guide for local government officials to implement slow city principles and policies.	The quality of the transportation mode	38
21	Y. Kebete (2021)	Slow tourism as a unique approach augments the overall tourism activities, mainly within emerging destinations.	Spatial quality	6
22	T. B. Walker and T. J. Lee (2021)	The quality of life and the value of tourism experience complement the *Cittaslow* approach.	The quality of life	48
23	D. Dimitrovski, S. Starčević and V. Marinković (2021)	The locality, taste and quality of food were found to be the main triggers of visitor satisfaction in slow tourism.	The quality of life	21
24	T. B. Walker, T. J. Lee and X. Li (2021)	The dynamic nature of the tourism industry presents opportunities for promoting sustainability in regions.	The quality of products and services	88
25	L. P. Lin, S. C. Huang and Y. C. Ho (2020)	Virtual reality is a very useful tool for encouraging slow tourism.	Spatial quality	215
26	Z. Serdane (2020)	The implementation of slow tourism relies on individual suppliers without public sector oversight.	The quality of products and services	34
27	F. N. Kucukergin and Y. Ozturk (2020)	The perception of local people related to social change differs according to their gender and duration of stay.	Spatial quality	14
28	S. C. Oliveira (2020)	Slow travel blogs serve as both an informative source and a creator of this travel mode, forming a dialectic process.	Spatial quality	25

29	M. Cicek *et al* (2019)	Slow City membership has a positive effect on perceived entrepreneurial opportunities and economic development.	The quality of travel experience	41
30	H. J. Park and T. J. Lee (2019)	Eliciting positive feelings and brand associations are effective marketing strategies that boost tourist visits.	Spatial quality	70
31	J. H. Han, J. S. Kim, C. K. Lee and N. Kim (2019)	Place attachment significantly influences attitude, subjective norm, and perceived behavioral control, thereby impacting behavioral intention.	The quality of products and services	148
32	M. Ahlawat, P. Sharma and P. K. Gautam (2019)	The study identifies the five key factors for developing slow food tourism: government support, improved infrastructure, inter-industry cooperation, local awareness, and marketing.	Spatial quality	33
33	M. B. Duignan, S. I. Kirby, D. O'Brien and S. Everett (2018)	Event legacies that boost local sustainability foster authentic connections with communities and create a more leisurely visitor experience.	The quality of the travel experience	34
34	I. Sigurardottir (2018)	Integrating slow adventure, wellness, and outdoor recreation in equestrian tourism offers significant support to small entrepreneurs in developing their products.	The quality of products and services	42
35	L. P. Lin (2018)	Onsite tourism program design significantly influenced visitors' intentions for slow travel.	The quality of the travel experience	23
36	A. Brown and B. Jeong (2018)	Specific standards are needed for Slow City branded products, and local residents should receive quality assessment training.	The quality of the travel experience	13
37	Y. Y. Sun and Z. W. Lin (2018)	The "slowness" at the destination enhances valuable experiences and memories through engaging with people.	The quality of life	73
38	C. Foley (2017)	Friendship and community flourish more easily in environments where people prioritize genuine connections over the pursuit of the status and saving time.	The quality of the travel experience	42
39	L. P. Lin (2017)	To promote a meaningful slow pace and enhance the happiness of potential slow travelers, dynamic partnerships should be established between tour operators and destination managers.	Service quality	76
40	H. Oh, A. G. Assaf and S. Baloglu (2016)	This study contributes to a new understanding of speed, mobility, temporality, pace, tourists' time practices, and the influences of fast and slow travel modes on the literature.	The quality of the travel experience	350
41	R. F. Chao (2015)	Slow tourism promotes sustainable development through tourism campaigns.	The quality of life	10
42	B. Hatipoglu (2015)	The residents are supportive of the initiatives and are becoming more involved in the *Cittaslow* activities.	The quality of the travel experience	115
43	A. Presenza, T. Abbate and R. Micera (2015)	The impact of *Cittaslow* certifications on the destination policy, planning, and management.	The quality of the travel experience	112
44	J. E. Dickinson, L. M. Lumsdon and D. Robbins (2011)	Slow travel involves the holiday style and travel mode choices, with walking, cycling, buses, coaches, and trains supporting slow travel, unlike air and car travel.	The quality of the travel experience	464
45	L. M. Lumsdon and P. McGrath (2011)	Slow travel is viewed as a travel mindset rather than a tangible product, focusing on reduced speed rather than slowness itself.	Spatial quality	438
46	D. Conway and B. F. Timms (2010)	Slow tourism complements various alternative tourism types, such as sports tourism, heritage tourism, agrotourism, and ecotourism derivatives.	The quality of products and services	262
47	J. G. Molz (2009)	Paying attention to pace and the way pace is socially encoded in media contexts reveals a more complicated narrative of mobility and modernity.	The quality of the travel experience	239

Source: Authors

Results

Based on the analysis of 47 studies in the systematic literature review, it was found that 12 of them employed a quantitative methodology and conducted empirical research. Additionally, 11 studies applied a qualitative methodology, while 10 studies employed a mixed-methods approach, combining both qualitative and quantitative methodologies. Finally, eight of the analyzed studies used a literature review approach to investigate the research topic. The studies were carried out in the context of slow tourism, Slow Tourists' experiences and motivations, Slow Food experiences and festivals, the Slow City movement and its influence on the environment, and Slow Travel and its influence on the future.

The systematic literature analysis identified several significant quality criteria that are commonly examined in the slow tourism domain. The literature emphasizes the dominant dimensions of quality: spatial quality (11 articles), product and service quality (10 articles), the quality of life of the locals (10 articles), the quality of the travel experience (10 articles), perceived service quality (4 articles) and the quality of transport (2 articles).

Discussion

This research has shown that the body of the literature on slow tourism is experiencing significant growth, which is in line with the findings of B. Mavric *et al* (2021). The research highlights the beneficial effects of slow tourism on the quality of life for both visitors and local populations (Walker & Lee, 2021; Su & Zhang, 2022; Huang *et al*, 2023). Slow tourism fosters social ties, sustainable tourism development, provider satisfaction, and emotional enrichment by emphasizing authentic tourist experiences (Park & Lee, 2019; Kucukergin & Ozturk, 2020). Moreover, studies indicate that slow tourism enhances life happiness and fosters interaction with the locals and cultural involvement (Hatipoglu, 2015; Presenza *et al*, 2015; Foley, 2017; Klarin *et al*, 2023).

The quality dimension of perceived quality in slow tourism primarily refers to the fulfilment of tourists' expectations of quality experiences in all dimensions of the value chain in a destination (Baghirov *et al*, 2023; Wu *et al*, 2024). The research shows that slow tourism's focus on the authenticity of a destination may significantly influence tourist satisfaction, which ultimately increases perceived value and strengthens return intentions and recommendations (Darvishmotevali *et al*, 2023; Wu *et al*, 2024).

The quality of products and services in slow tourism focuses on an offer that emphasizes the products and services offered at the quality level that guests expect and are willing to pay for, while being sustainable and authentic (Lin *et al*, 2020; Dimitrovski *et al*, 2021). Products and services should fulfil, and even exceed, guests' needs, simultaneously also supporting the local community (Conway & Timms, 2010; Ahlawat *et al*, 2019; Klarin *et al*, 2023).

The quality of travel experiences in slow tourism focuses on promoting meaningful and comprehensive interactions with the local culture, environment and people (Božović *et al*, 2022; Kosykh *et al*, 2023). According to H. J. Park and T. J. Lee (2019) and H. Oh *et al* (2016), it is important to achieve an emotional connection with a tourist destination, as that will encourage repeat visits and recommendations by the guest, which in turn contributes to the success of the destination itself (Oh *et al*, 2016; Park & Lee, 2019).

The final quality factor of transport is essential to slow tourism, emphasizing the sustainable and leisurely travel methods that enhance tourists' wellbeing, environmental consciousness, and the sustainable advancement of tourism (Kucukergin & Ozturk, 2020; Su & Zhang, 2022). Transport modes such as bicycles, walking trails and public transport are in line with the values of slow tourism and support the environmentally friendly travel that enriches the travel experience and enables a more responsible approach to mobility (Kim *et al*, 2022; D'Uva & Rolando, 2022).

In contrast, in the study by B. Mavric *et al* (2021), the concepts of tourist experience and connection to a place were identified as the most frequently studied themes in slow tourism from 2018 to 2020. In addition, the findings of D. Krešić and M. Gjurašić (2022) indicate

an increasing focus on slow food, sustainability and immersive travel experiences in slow tourism. By expanding on these underrepresented areas, this study contributes to the understanding of the quality dimensions in slow tourism and supports future research and development in this area.

The annual scientific production shows that the most productive year was 2023, in which 10 articles were published, followed by 2022, in which 8 articles were published, showing an increasing interest in the quality dimensions of slow tourism in the literature. The most frequently cited articles in the analysis are J. G. Molz (2009) (239 citations), D. Conway and B. F. Timms (2010) (262 citations), J. E. Dickinson *et al* (2011) (464 citations), L. M. Lumsdon and P. McGrath (2011) (438 citations) and H. Oh *et al* (2016) (350 citations). The articles with more than 200 citations were published at least seven years ago.

The analysis of all the authors shows that only two authors contributed a total of three articles on the topic of slow traffic. The authors H. J. Park and T. J. Lee (2019) were cited 194 times, mainly dealing with sustainable tourism and the quality of life in relation to non-motorized transport. The author L. P. Lin (2018) collected 258 citations focusing on service quality, transport quality and the quality of life. Apart from Lumsdon and Walker, who published two articles each, all the other authors contributed only one article. Among the journals, the *Journal of Sustainable Tourism* stands out as the most cited, with more than six articles published on this topic. The journal *Sustainability* follows closely behind with four articles, while *Tourism Planning and Development* ranks third three published articles.

CONCLUSION

Research into slow tourism as a form of alternative travelling is a current topic in tourism research. The results show that this type of tourism needs to be researched further. This review consists of an analysis of 47 relevant scientific articles published in the period from 2008 to 2024 that deal with the topic of "slow tourism," focusing on various quality dimensions researched in this area. The systematic SPAR-4-SLR protocol was used to analyze the articles and summarize the results, allowing the identification of critical categories in the research to date.

Based on the comprehensive review, it was determined that a significant research gap exists, which forms the basis for actionable recommendations for future research in the field of slow tourism. Previous research has not adequately considered important quality dimensions, such as the quality of space, the quality of products and services, the quality of life of local communities, the quality of the travel experience, the perceived quality of service and the quality of transport. This omission points to the gap between the conceptual framework and the practical reality of slow tourism, where these dimensions have an important role in shaping both visitor satisfaction and destination sustainability. Among the analyzed studies, spatial quality appears as the most frequently addressed dimension, featuring in 11 papers. This highlights the centrality of physical setting, accessibility, and the character of a place in shaping slow tourism experiences and distinguishing destinations that support such forms of travel. By contrast, service quality is notably underrepresented, suggesting that future research should more closely examine the experiential and operational aspects of service delivery in slow tourism contexts. As academic and practitioner interest in slow tourism continues to grow, the development of more robust frameworks for assessing quality across multiple dimensions, such as guest satisfaction and community impact, is becoming increasingly important. Notably, service quality remains an underexplored area, indicating a clear opportunity for further investigation.

The studies reviewed offer a range of practical insights for tourism stakeholders, emphasizing that slow tourism enhances the travel experience by fostering meaningful connections with local communities, promoting sustainable practices and increasing holistic wellbeing. The increasing academic focus on this topic reflects growing public and institutional

awareness and suggests that destinations should proactively adapt to this emerging market segment.

Tourist boards and local governments are encouraged to promote slow travel experiences, such as longer stays, immersive cultural experiences and ecofriendly practices as distinctive assets in an increasingly competitive tourism landscape. Incorporating local produce and traditions into tourism offerings can be a timely response to the fast pace of modern life. Slow tourism offers a counterbalance and invites travelers to connect with a place, time and culture in a more conscious and enriching way.

Destination management organizations should therefore prioritize the development of locally rooted, sustainable tourism experiences in their strategic planning. Not only does this reflect travelers' changing preferences but also promotes more resilient and community-oriented tourism models.

In addition, soft tourism's thematic focus on spatial quality, product and service quality, the quality of life for the locals and the overall experience of the trip emphasizes its potential to deliver emotionally engaging and high-quality visitor experiences. Destinations can capitalize on these attributes by offering authentic experiences rooted in the community that strengthen attachment to a place and contribute to both visitor satisfaction and the wellbeing of the locals.

Although this review offers a comprehensive overview of the quality dimensions explored in the literature on slow tourism, several limitations should be acknowledged. First, the study is limited to the publications indexed in the selected academic databases, which may have excluded the relevant grey literature or industry reports that provide practical insights into the implementation of slow tourism principles. Second, the interpretation of the dominant quality dimensions remains partly subjective, particularly in cases where multiple themes were present within a single study.

Furthermore, future research should examine how spatial quality and perceived quality influence the success of slow tourism destinations. A deeper understanding of the factors that shape traveler perceptions and satisfaction could support more effective destination management and enable local stakeholders to refine and strengthen their tourism offerings. In addition, future research should examine how distinctive products and services developed in slow tourism contexts (often deeply embedded in local culture and sustainable practices) could be selectively adapted and offered in other destinations. This raises the following question of how to engage tourists that do not initially self-identify as slow travelers. Building on the recommendations of the previous studies analyzed in this paper, which are largely focused on the further development of slow tourism destinations, research should explore the potential of these offerings to attract a broader visitor base. It should also examine the possible deterrents that might prevent such travelers from choosing slow tourism destinations.

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Conference Announcement

CONTEMPORARY ISSUES IN ECONOMICS, BUSINESS AND MANAGEMENT - EBM 2026

December 16-17, 2026, Faculty of Economics, University of Kragujevac

Jelena Erić Nielsen*

The International Scientific Conference *Contemporary Issues in Economics, Business and Management – EBM 2026* will be held on 16th and 17th December, 2026, at the Faculty of Economics of the University of Kragujevac. Since 2010, the Conference has been held biannually, and this year marks its ninth edition, bringing together researchers from the region and European higher education institutions to analyze and exchange insights on current issues and challenges in the fields of economics, business and management.

Contemporary trends in the global environment are characterized by an unprecedented pace of change, generating challenges that call for a re-examination of key assumptions and a transformation of existing research directions, alongside the redefinition of fundamental economic paradigms. EBM 2026 Conference covers a broad range of thematic areas, enabling interdisciplinary and creative debate among researchers from various economic disciplines. In recognition of the significance of the identified challenges in economics, business, and management, and with the aim of indicating directions for further development and problem-solving, the Conference will feature research presentations within the following four thematic areas:

- Globalization and regionalization,
- The key issues and challenges in management and marketing,
- Accounting and business finance, and
- Applied informatics and quantitative methods in economics and management.

The thematic areas are defined comprehensively and encompass numerous and diverse subtopics, allowing researchers to present a wide spectrum of research achievements and findings. The first day of the Conference is dedicated to the plenary session and the four parallel sessions, while the second day is intended for the continuation of discussions, synthesis and critical reflection on the achieved results, as well as the identification of future research directions.

A distinctive feature of EBM 2026 Conference is a special session dedicated to a decade-long collaboration within the framework of an international four-party agreement between the Faculty of Economics, University of Kragujevac, and

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partner universities in Poland (Cracow University of Economics), Italy (University of Messina), and Ukraine (Kyiv National University of Trade and Economics).

The plenary session on the first day of the Conference will be opened by keynote speakers, distinguished researchers from European universities:

- ***Jörn Kleinert***, Karl-Franzens-Universität Graz, Austria; and
- ***Viktorija Skvarciany***, Vilnius Gediminas Technical University, Lithuania.

We invite participants to contribute to the Conference by submitting original, unpublished theoretical and empirical research conducted in the recent period. All submissions will undergo a double-blind peer review process, and accepted papers will be published in the Conference Proceedings. On the day of the Conference, all participants will receive the Book of Abstracts, as well as certificates of participation. Authors of selected papers distinguished by their originality and quality will be given the opportunity, following the standard double-blind review procedure, to publish their research in the following reputable journals:

Economic Horizons – the journal published by the Faculty of Economics, University of Kragujevac, indexed in several relevant databases, including SCOPUS (Q3), ProQuest/ABI/INFORM, Cabell's Directories, Index Copernicus Journals Master List, EconLit, EBSCO, and Ulrich's Web.

Naše gospodarstvo/Our Economy – the journal published by the Faculty of Economics and Business, University of Maribor, indexed, among others, in DOAJ, ERIH Plus, Dimensions, EBSCO, ECONIS, and EconLit.

The following important dates should be noted by participants:

- 15th September 2026 – the abstract submission deadline
- 1st October 2026 – the notification of the acceptance of the abstract
- 15th October 2026 – early registration deadline
- 31st October 2026 – full paper submission deadline
- 15th November 2026 – the notification of the paper acceptance.

Information in detail about the Conference can also be found on the official website of the EBM 2026 Conference: https://ebm.ekf.rs/.

At the Conference, researchers will have the opportunity not only to present the results of their work, but also to engage in open dialogue with other participants, overcome methodological challenges, clarify research dilemmas, and acquire new knowledge.

As the President of the Program Board, I anticipate a significant number of high-quality contributions from participants both from the country and abroad, presenting ideas and offering partial solutions to some of the key challenges in contemporary economics and business management. The purpose and objective of the Conference is to strengthen communication among participants in the region and across Europe, thereby creating a platform for new forms of collaboration within future scientific research projects and initiatives.

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