



9th International Scientific Conference, July, 5 -8, 2024, Portorož, Grand Hotel

Bernardin

*Economics, Management, Finance and Social Attributes of Economic System
(EMFSA 2024)*

Proceedings



BCSS



2024

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9th International Scientific Conference, July, 5-8, 2024, Portorož, Grand Hotel

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***Economics, Management, Finance and Social Attributes of Economic System
(EMFSA 2024)***

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EMFSA 2023 is organized by the Centre of Sociological Research and BCSS in cooperation with European Center for Economic and Social Research, Juraj Dobrila University of Pula, Faculty of economics and Tourism “Dr. Mijo Mirković”, and Alexander Dubcek University of Trencin.

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Conference program

Friday, 5.7.2024

16:00 – 19:50

Plenary Session, Grand Hotel Bernardín, Adria conference room

Saturday, 6.7.2024

10:00 – 15:00

Section: *Economics and Finance*, Adria conference room

16:00 – 19:00

Section: *Environment, energy, and Society for the twenty-first century*

Sunday, 7.7.2024

10:00 – 15:30

Section: *Management and Marketing*, Adria conference room

Monday, 8.7.2024

10:00 – 14:30

Special section: *Doctoral students and young researcher*

5.7.2024: **PLENARY SESSION: 16.00 – 19.50, Adria conference room in Grand Hotel Bernardin**

16:00 – 16:20	Jaroslav Belás Yuriy Bilan	<i>Opening of the conference</i>
16:20 – 16:40	Andrea Bencsik <i>University of Pannonia</i> <i>Hungary</i>	Characteristics of Sustainable Leadership in International Comparison
16:40 – 17:00	František Pollák <i>Institute of Technology and Business in České Budějovice</i> <i>Czech Republic</i> <i>University of Economics in Bratislava</i> <i>Slovak Republic</i>	Problems and Barriers to E-commerce in Slovakia in the light of accelerated digitization and post-covid recovery of the economy
17:00 – 17:20	Sandor Kovács <i>University of Debrecen</i> <i>Hungary</i>	Factors Influencing Internationalisation of Micro- and SMEs in Central Europe
17:20 – 17:40	Jan Dvorsky <i>University of Zilina</i> <i>Slovakia</i>	Selected factors influencing the social and environmental aspects of sustainability of SMEs
17:40 – 18:30	Coffee break	
18:30 – 18:50	Enikő Korcsmáros <i>J. Selye University</i> <i>Slovakia</i>	The importance of technological developments in various sectors of small and medium-sized enterprises
18:50 – 19:10	Nerijus Černiauskas <i>Vilnius university</i> <i>Lithuania</i>	Digital platform workers: Should I stay or should I go?
19:10 – 19:30	Martin Šrámka <i>A.D. University in Trenčín</i> <i>Slovakia</i>	The impact of selected CSR factors on the ability to invest financial resources in qualification within the SMEs segment. Empirical research in the Visegrad Group countries
19:30 – 19:50	Final discussion	

6.7.2024: **ECONOMICS and FINANCE**: 10:00 – 15:00, *Adria conference room in Grand Hotel Bernardin*
 (presentation may last up to 20 minutes)
 Chief of the Section: *prof. Ing. Jaroslav Belás, PhD.*

No.	Time	Last name, name	Topic of the article
1.	10:00 – 10:20	<i>Jaroslava Rajchlová et al.</i>	Employee Performance in Selected Sectors of V4 Countries as a Sign of Strategic Competitiveness
2.	10:20 – 10:40	<i>Simona Bartosova et al.</i>	Consumers' preferences for clothing purchases in the context of the circular economy principles
3.	10:40 – 11:00	<i>Juraj Cug et al.</i>	Attitudes of SMEs towards HRM in the most important business sectors in the V4 countries
4.	11:00 – 11:20	<i>Marek Potkany et al.</i>	Circular Economy Efficiency in the Context of Waste Management in the Selected Central and Eastern European Countries – Evidence from DEA and Fractional Regression Analysis
5.	11:20 – 11:40	<i>Janka Grofčíková et al.</i>	Determinants of Financial Performance of Waste Management Companies
6.	11:40 – 12:00	<i>Annamária Zsigmondová et al.</i>	Analysis of Idiosyncratic Risks of Listed Companies in the V4 Countries in years 2010-2020
7.	12:00 – 12:20	<i>Marcel Kordoš</i>	Labor migration Trends between Slovak Republic and the UK in terms of Brexit and Agenda 2030
	12:20 – 12:50	Coffee break	
8.	12:50 – 13:10	<i>Hussam Musa et al.</i>	Stock Price and Leverage – the Verification of Capital Structure Theories Under the Changed Main Aim of a Firm
9.	13:10 – 13:30	<i>Hussam Musa et al.</i>	Building a Stable Ex-Ante Bankruptcy Prediction Model for Visegrad Group Companies: A Multi-Year Approach
10.	13:30 – 13:50	<i>Ivan Hroma, Katarzyna Widera</i>	The Ukrainian agricultural sector and its role in enhancing food security
11.	13:50 – 14:10	<i>Jan Kubalek et al.</i>	The Impact of the ESG Environmental Pillar on the Firm's Sustainability. Empirical Research in the V4 Countries
12.	14:10 – 14:30	<i>Maksym Huzenko, Tomas Pisula</i>	Sustainable development of the Ukrainian agricultural sector
13.	14:30 – 14:50	<i>Yaroslav Reshetniak, Elżbieta Szczygieł</i>	Analyzing regional corruption risks in Ukraine: using Kohonen's self-organizing maps
	14:50 – 15:00	<i>Final discussion</i>	

6.7.2024: ENVIRONMENT, ENERGY, AND SOCIETY FOR THE TWENTY-FIRST CENTURY IN FRAME OF THE PROGRAM "HORIZON-MSCA-2022-SE-01":

project titled "Cluster for innovative energy"

16:00 – 19:00, On-line session

Chief of the Session: prof. dr hab. Yuriy Bilan

No.	Time	Last name, name	Topic of the article
1.	16:00 – 16:20	<i>Beata Szetela</i>	The Role of Clusters in the Sustainable Development of the Energy Sector in Poland
2.	16:20 – 16:40	<i>Ganna Kharlamova, Svitlana Bilan</i>	The eco-energy cluster in Ukraine: needs, attempts, forecasts
3.	16:40 – 17:00	<i>Michał Basta, Grzegorz Mentel</i>	Cluster-Based Approach to Estimate Demand in the Polish Power System Using Commercial Customers' Data
4.	17:00 – 17:20	<i>Marcin Rabe, Yuriy Bilan</i>	Sustainable Energy Management in Ecological Investments
5.	17:20 – 17:40	<i>Halynskyi Dmytro, Jaroslaw Korpysa</i>	Renewable energy sources as the factors of energy security in Ukraine
6.	17:40 – 18:00	<i>Podosynnikov Serhiy, Rafal Kasperowicz</i>	Development of the smart grid and decentralized energy sources in Ukraine
7.	18:00 – 18:20	<i>Halyna Mishchuk, Yuriy Bilan</i>	Imagining the EU Labour Market from Outside: Migration Aspirations of Ukrainian Youth and Demand Peculiarities
8.	18:20 – 18:40	<i>Natalia Samoliuk, Anetta Zielińska</i>	Possibilities of statistical analysis of internally displaced persons' social integration
	18:40 – 19:00	<i>Final discussion</i>	

7.7.2024: **MANAGEMENT AND MARKETING: 10:00 – 15:30**, *Adria conference room in Grand Hotel Bernardin*
Chief of the Section: assoc. prof. Ing. Jaroslav Belás, PhD.

No.	Time	Author	Topic of the article
1.	10:00 – 10:20	<i>Peter Gallo et al.</i>	Analyzing the Causal Relations between the Creation of Strategies and the HR Scorecard in context of Industry 4.0
2.	10:20 – 10:40	<i>Viktoriia Mishchuk et al.</i>	Corporate Social Responsibility Development Trends and Problems in War Conditions in Ukraine
3.	10:40 – 11:00	<i>Adriana Grenčíková, Kristína Kozová, Jozef Habánik</i>	Building a Sustainable Future: Gender, Education & Workforce Needs of Gen Z
4.	11:00 – 11:20	<i>Adriana Grenčíková et al.</i>	The impact of the intelligent industry in the form of implementing generative artificial intelligence on the growth of labor productivity in the context of population aging in the conditions of the Slovak Republic
	11:20 – 12:00	<i>Coffee break</i>	
5.	12:00 – 12:20	<i>Silvia Lorincová et al.</i>	Corporate Culture as a Concept Focused on the Circular Model of the Economy
6.	12:20 – 12:40	<i>Renata Machova et al.</i>	The impact of selected HRM factors on company's survival in the segment of SMEs: Empirical research in V4 countries
7.	12:40 – 13:00	<i>Jaroslav Belas, Jr. et al.</i>	The influence of selected CSR factors on the implementation of participative management style in the SMEs segment. Empirical research in the Visegrad Group countries
8.	13:00 – 13:20	<i>Katarina Zvarikova, Martina Jakubcinova</i>	Are there differences in business ethics within SMEs' most important business sectors in the V4 countries? Empirical research.
9.	13:20 – 13:40	<i>Tímea Juhász</i>	Basic food purchasing habits of Hungarian economics students in the dimension of price inflation
10.	13:40 – 14:00	<i>Jiri Klecka et al.</i>	Economic Impacts of Technique Substitution in Chemistry due to Industry 4.0
11.	14:00 – 14:20	<i>Dominika Gajdosikova et al.</i>	Predicting bankruptcy and ensuring financial sustainability: A focus on Visegrad economies
12.	14:20 – 14:40	<i>Nadiia Artyukhova et al.</i>	Reforming of higher education system in Ukraine: main trends and challenges
13.	14:40 – 15:00	<i>Andriy Zozulinskyy, Tomasz Pudło</i>	Socio-economic transformations of Ukraine in post-war period
	15:00 – 15:30	<i>Final discussion</i>	

8.7.2024: **SPECIAL SECTION: Doctoral students and young researcher: 10:00 – 14:30**,
Adria conference room in Grand Hotel Bernardin
Chief of the Section: prof. Ing. Jaroslav Belás, PhD.

No.	Time	Author	Topic of the article
1.	10:00 – 10:20	<i>Matej Huzevka et al.</i>	Security threats in the university environment: the view of Slovak university students
2.	10:20 – 10:40	<i>Eleonora Casandra Dobre</i>	The impact of demographic changes on HR processes. A highlight on workplace learning, upskill and reskill in the context of the future or work
3.	10:40 – 11:00	<i>Denis Juracka</i>	Innovations in V4 countries: Development of innovation potential
4.	11:00 – 11:20	<i>Vivien Vagner</i>	What impact does the use of large language models have on organisational knowledge sustainability?
	11:20 – 12:00	<i>Coffee break</i>	
5.	12:00 – 12:20	<i>Simona Vojteková, Pavol Ďurana</i>	The impact of the COVID-19 pandemic on the division: Food and beverage service activities
6.	12:20 – 12:40	<i>Kristina Kozova et al.</i>	Generational Conflict in the Labor Market and its Challenges for Strategic Human Resource Management
7.	12:40 – 13:00	<i>Veronika László</i>	Exploring local food perceptions. Insights from consumers, farmers, and literature
8.	13:00 – 13:20	<i>Richard Rigó</i>	Generational Differences of Employees in a Manufacturing Company in the Context of Employer Selection Motives
9.	13:20 – 13:40	<i>Gabriela Michalec, Andrea Bencsik</i>	Satisfaction and commitment among Hungarian and Slovak employees
10.	13:40 – 14:00	<i>Klara Branicka</i>	The Use of Time Planners for Improving Students' Time Management in Slovakia and the Czech Republic
11.	14:00 – 14:20	<i>Zdenko Metzker</i>	The Impact of Demographic Factors on CSR Perceptions in Czech and Slovak SMEs
	14:20 – 14:30	<i>Final discussion</i>	

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Reforming of higher education system in Ukraine: main trends and challenges

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Abstract. The higher education system in Ukraine has undergone significant reforms over the past decade, driven by the need to align with European standards, enhance academic quality, and address socio-economic challenges. Key trends in these reforms include the adoption of the Bologna Process principles, Additionally, digital transformation and the introduction of modern educational technologies have become focal points to improve accessibility and efficiency in education. Despite these advancements, the Ukrainian higher education system faces numerous challenges. The persistent issues of inadequate funding, outdated infrastructure, and bureaucratic hurdles impede the pace of reform. Furthermore, the political instability and ongoing war with Russia have exacerbated the difficulties in ensuring equitable access to quality education across the country. Brain drain remains a significant concern as talented students and academics seek better opportunities abroad, leading to a loss of intellectual capital. Addressing these challenges requires a multi-faceted approach that includes increased investment in education, fostering public-private partnerships, and continued alignment with international standards. Strengthening quality assurance mechanisms and promoting research and innovation are also critical for sustaining the momentum of reform. The future of Ukraine's higher education depends on the successful navigation of these obstacles and the commitment to ongoing improvement and adaptation in a rapidly changing global educational landscape. Main Directions for Reforming the Higher Education System in Ukraine are: Enhancing University Autonomy; Curriculum and Pedagogical Reforms; Quality Assurance and Accreditation; Digital Transformation; Research and Innovation; Promoting Research Excellence; Addressing Regional Disparities; Governance and Policy Frameworks; Combating Brain Drain. The reform of the higher education system in Ukraine is a complex and multifaceted process that requires sustained effort and commitment. By focusing on these main directions, Ukraine can enhance the quality, accessibility, and international competitiveness of its higher education institutions, ultimately contributing to the country's socio-economic development and integration into the global knowledge economy.

Keywords: higher education reforms, quality assurance, infrastructure, digital transformation

Consumers' preferences for clothing purchases in the context of the circular economy principles

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Abstract. The paper aims to investigate the interests, attitudes, and behaviour of consumers in the purchase of (sustainable) clothing in the context of the circular economy principles. The secondary data analysis and the primary quantitative survey of consumers have been used to achieve this aim. The questionnaire was completed by 743 respondents. The research data were evaluated using selected statistical tests (Pearson Chi-Square, Spearman's rho correlation). The dependencies between selected demographic factors (gender, age, household income) and selected purchase behaviour aspects (such as willingness to buy a sustainable product, actual purchase, or willingness to pay extra for the sustainable product) were examined. Consumers who are interested in various environmental issues are more likely to be actively involved in various eco-friendly activities and are more likely to buy products that are "green" or made from recycled materials. They are more likely to pay extra for the eco-friendly products. No relationship was found between household income and the purchase of sustainable clothing/clothing with a specific sustainable label/certificate. There are clear signs that consumers are looking to reduce waste and extend their garments' life. Only 24.5 % of respondents throw their clothes directly into the bin. Over 65% of respondents give their clothes to siblings or friends, and more than 62% donate them to charity.

Keywords: responsible consumer behaviour, sustainable clothing industry, clothing purchases, circular economy, Slovakia

The impact of selected financial factors on business ethics in the SMEs segment in the V4 countries.

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Abstract. The aim of this paper was to quantify the impact of selected financial management factors on business ethics in the segment of small and medium-sized enterprises (SMEs) in the Visegrad Four countries (Czech Republic, Slovakia, Poland, and Hungary). The empirical research, which was aimed at ascertaining the attitudes of SMEs, was conducted in June 2022 in the Visegrad Four countries. The selection of respondents was carried out by random sampling using the CAWI method. In the Czech Republic, the total number of respondents was 347, in the Slovak Republic the total number of respondents was 322, in Poland the total number of respondents was 381 and in Hungary the total number of respondents was 348. The scientific hypotheses were verified through regression and correlation analysis. The results showed that the selected factors in the financial management of SMEs have a significant impact on the formation of entrepreneurs' attitudes in the field of business ethics. Other financial factors, namely entrepreneurs' belief that they can appropriately manage financial risks in the firm, a correct understanding of financial risk, and belief in the firm's survival in the medium term, have also shown a significant impact on business ethics. A surprising finding was that a positive assessment of a firm's current financial performance does not have any impact on the formation of attitudes towards business ethics. The representation and intensity of the effect of financial management factors on business ethics varies across the V4 countries. While the attitudes of SMEs in the Czech Republic, Slovakia and Poland have similar characteristics, Hungarian SMEs differ significantly from them.

Keywords: small and medium-sized enterprises, financial factors, business ethics, V4 countries

The influence of selected CSR factors on the implementation of participative management style in the SMEs segment. Empirical research in the Visegrad Group countries

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Abstract. The aim of the research was to define significant CSR factors that determine the utilization of participative management style in the SMEs segment and quantify this influence. Within the empirical research, a questionnaire survey was conducted on a sample of 1,398 SMEs in individual V4 countries. Data collection was carried out by the reputable external firm MNFORCE using Computer Assisted Web Interviewing according to the questionnaire created by the research team. The empirical research took place in June 2022. Basic relationships and connections between CSR and the application of participative leadership style were verified through regression analysis. The results of the empirical research demonstrated that a portion of these CSR factors significantly determines the application of participative leadership style in the SMEs segment. The strongest impact on the implementation of participative leadership style is held by entrepreneurs' belief that CSR has the ability to acquire satisfied, loyal, and motivated employees. The second most significant factor determining the application of participative leadership style was factor X3 (the average value of the correlation coefficient was 0.208). The potential opportunity to gain competitive advantages through the implementation of the CSR concept motivates entrepreneurs to apply participative leadership style in SMEs. As the third most significant factor in the empirical research, factor X8 had an average value of the correlation coefficient of 0.199. The results should motivate managers to implement essential attributes of the CSR concept, especially concerning their own employees. Managers should also recognize the importance of assessing and implementing appropriate HRM policies regarding skills, motivation, and opportunities for their employees to enhance business performance.

Keywords: Corporate Social Responsibility, participative managerial style, SMEs

The impact of selected CSR factors on the ability to invest financial resources in qualification within the SMEs segment. Empirical research in the Visegrad Group countries

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Abstract. The aim of the research was to define significant CSR factors that determine investments in employee qualification within the SMEs segment and to quantify this impact. Within the empirical research, a questionnaire was conducted on a sample of 1,398 SMEs in the V4 countries. Data collection was carried out by the reputable external firm MNFORCE using Computer Assisted Web Interviewing based on the questionnaire developed by the research team. This empirical research took place in June 2022. Significant CSR factors were defined within the research that may determine potential investments in employee qualification in this segment. Basic relationships and correlations between CSR and the ability to invest financial resources in employee qualification were verified through regression analysis. The results of the empirical research demonstrated that CSR factors have a significant impact on entrepreneurs' decisions to invest in the development of their employees' qualifications. It was found that there are different emphatic CSR factors in the V4 countries influencing this stance. Knowledge of the Corporate Social Responsibility (CSR) concept has a significant impact on the decision to invest in human capital development. Implementing CSR with a focus on gaining competitive advantages is another important factor that entrepreneurs take into account. Perceptions of acquiring new customers through CSR and achieving satisfaction, loyalty, and motivation among employees are also key aspects influencing their attitude towards investments in employee qualification. These findings indicate that CSR has a significant impact on business decisions and is an important factor in shaping human resource development investment strategies.

Keywords: Corporate Social Responsibility, Human Resource Management, SMEs

Characteristics of Sustainable Leadership in International Comparison

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Abstract. One of the most important requirements for the operation of organisations is the need for sustainability. There is a wealth of research on the subject, but few studies have addressed the requirements of sustainability management. This study fills this gap. It aims to examine the practices of SME managers in three nations to assess their preparedness concerning sustainability leadership expectations. In-depth interviews with Hungarian (36), Polish (32) and Slovakian (30) SME managers were conducted using the Voyant Tools method. Among the web-based statistical analysis and visualisation software tools, Document Terms, Word Clouds, WordTree, Trends, Context, StreamGraph, ScatterPlot (t-SNE analysis, Correspondence Analysis), Correlations, and Significance were used. Ethical style, long-term planning, and elements of culture (trust, knowledge sharing, teamwork) that best qualify sustainability leadership were examined. The results show that SME managers still conduct their leadership in the spirit of traditional thinking, in a democratic style according to their assessment. Although they think in the long term, they lack vision. Building trust is difficult, a prerequisite for knowledge sharing and teamwork. Overall, the requirements of sustainable leadership are applied at different levels but are not yet common practice in any nation.

Keywords: trust, teamwork, knowledge sharing, vision, leadership style

Attitudes of SMEs towards HRM in the most important business sectors in the V4 countries

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Abstract. The aim of this paper was to define the significant factors of HRM in the SME segment and to compare these factors across the three most important business sectors in the V4 countries. Data collection was carried out by the external agency MNFORCE using the "Computer Assisted Web Interviewing" in June 2022. The statistical hypotheses were tested using descriptive statistics and Z-scores at a significance level of $\alpha = 5\%$. According to our findings, SMEs in the V4 countries consider people in the firm as the most important asset, and statistically significant differences were found within the sample set. SMEs confirmed that they consider HRM as the most important area of corporate management. The empirical research showed the existence of statistically significant differences between the assessed sectors. In view of the previous results, the approach to staff performance appraisal and motivation can be considered appropriate. No statistically significant differences within the sample were found. The manufacturing sector demonstrated the best approach to each HRM claim in the V4 countries, followed by the trade and service sectors.

Keywords: small and medium-sized enterprises, human capital, human resource management, business sectors

Renewable energy sources as the factors of energy security in Ukraine

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Abstract: Ukraine's energy security has been a critical issue, especially given its historical reliance on Russian energy supplies. The war has caused extensive damage to Ukraine's energy infrastructure. According to reports from the Ukrainian government and international organizations, significant portions of Ukraine's energy infrastructure have been destroyed or severely damaged due to the ongoing conflict. The IEA's assessments indicate that the ongoing hostilities have not only disrupted current energy supplies but also impaired the ability to restore and maintain the energy infrastructure, leading to long-term challenges in energy distribution and stability. Ukraine has significant potential for diversifying its energy mix through renewable sources such as wind, solar, and biomass. Ukraine has substantial natural resources suitable for solar and wind energy production. According to a report by the International Renewable Energy Agency, Ukraine's technical potential for solar power is estimated to be around 4.5 GW, while wind power potential is estimated to be over 30 GW. Ukraine has also considerable biomass resources that can be utilized for energy production. This potential is particularly relevant given Ukraine's extensive agricultural sector, which produces large quantities of organic waste suitable for biomass energy. According to a report by the International Finance Corporation, Ukraine's renewable energy sector represents a significant investment opportunity, with an estimated potential of over \$73 billion by 2030. This potential includes investments in wind, solar, biomass, and small hydropower projects. The IFC highlights those favourable policies and regulatory frameworks, coupled with Ukraine's substantial natural resources, create an attractive environment for investors looking to finance renewable energy projects. EBRD has been actively investing in Ukraine's renewable energy sector, demonstrating the substantial opportunities available and committed over €1 billion to various renewable energy projects in Ukraine, including large-scale solar and wind farms. This study investigates the capacity of the energy system to consistently, economically, reliably, and environmentally safely meet the needs of energy consumers, focusing on the level of energy security of Ukraine. Determining the overall level of energy security is essential because it encapsulates multiple facets of energy development. This measure enables a thorough evaluation of the energy system's ability to reliably, economically, and environmentally safely meet present and future energy demands, ensuring a sufficient supply to support both economic growth and defence needs.

Keywords: renewable energy, energy security, energy consumption, greenhouse gas emissions, carbon intensity, electricity production

The research leading to these results has received funding from the project titled "Cluster for innovative energy" in the frame of the program "HORIZON-MSCA-2022-SE-01" under the Grant agreement number 101129820.

Selected factors influencing the social and environmental aspects of sustainability of SMEs

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Abstrakt. The research analyses the impact of three important areas which are HRM, CSR and financial management of SMEs. The empirical research to support the research objective was conducted in June 2022 through a questionnaire survey in Visegrad Four countries (V4 countries). SMEs were selected by random sampling method. Data collection was provided by an external agency using the Computer Assisted Web Interviewing (CAWI) method. The total number of respondents in this research was 1,398. The financial performance of the firm has the greatest influence on the formation of positive attitudes of SMEs towards social and environmental responsibility. This factor clearly dominated the attitudes of SMEs. The second most frequent factor was the knowledge of the most important aspects of a firm's financial management which also significantly shapes SMEs' social and environmental responsibility. Other factor that significantly shape SMEs' attitudes towards social and environmental responsibility are the application of CSR in the firm's activities and its perception as a tool for gaining competitive advantages in the market and SMEs' belief that they can appropriately manage financial risks in the firm. The third group of factors can be classified as X2 and X6. Caring for employees and motivating them to innovate working practices and the belief that CSR enables the company to win new customers also shape SMEs' responsible approach to social and environmental responsibility. Interestingly, the correct perception of human capital in a firm has minimal influence on shaping these attitudes. SMEs in the V4 countries also confirmed that investment in improving the skills of employees is a rare phenomenon.

Keywords: small and medium-sized enterprises, HRM, CSR, business sectors

Problems and Barriers to E-commerce in Slovakia in the light of accelerated digitization and post-covid recovery of the economy

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Abstract. E-commerce is a sector that has undergone considerable changes due to the coronavirus pandemic. This study aims to analyze the problems and barriers that customers in Slovakia face when purchasing goods and services online. It is crucial for e-commerce platforms to understand the problems customers face when purchasing online to be able to take measures to ensure long term customer satisfaction. The research method involves collection and analysis of data available at Eurostat. The findings enabled the identification of problems encountered by individuals ordering goods or services via internet; moreover, the most significant year-on-year increase has been recorded in fraud-related problems. Furthermore, in terms of barriers associated with internet purchases, payment security was examined as one of the issues that experienced an increase since the outbreak of the COVID-19 pandemic. As a result, it can be assumed that companies should implement effective techniques that prevent fraud and promote customer payment security to increase customer satisfaction, thereby ensuring continuous growth.

Keywords: e-commerce, internet purchases, COVID-19 pandemic

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Predicting bankruptcy and ensuring financial sustainability: A focus on Visegrad economies

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Abstract. Bankruptcy prediction lies in the need for financial institutions, investors, and stakeholders to assess the financial health and solvency of companies. Bankruptcy prediction models aim to forecast the likelihood of a business facing financial distress or going bankrupt in the future. The main aim of the paper is to build a bankruptcy prediction model utilizing financial information from 12,816 business entities in the Visegrad Group countries. Because multiple discriminant analysis provides important insights into corporate financial health, it is possible to develop individual prediction models for each Visegrad Group country as well as a comprehensive model for the entire group. Relevant debt ratios are crucial components of bankruptcy prediction models. The development of bankruptcy prediction models significantly enriches the theory and practice of corporate finance by offering valuable insights, improving decision-making processes, and enhancing risk management and it also provides insightful information on how different crises affect prediction models, especially when comparing the COVID-19 crisis model to previous models developed in a comparable way.

Keywords: bankruptcy prediction, corporate performance, COVID-19, Visegrad countries

Analyzing the Causal Relations between the Creation of Strategies and the HR Scorecard in context of Industry 4.0

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Abstract. The paper analyses the issue based on a sample of large enterprises with more than two hundred and fifty employees active in the manufacturing sector, specifically linked to Industry 4.0. Through the research, the authors wish to contribute to the presentation of HR Scorecard, as a tool that, in conjunction with the Balanced Scorecard method, helps to increase business performance in the manufacturing and industry 4.0, sustainable development, bringing the benefits both to the shareholders and to all other interest stakeholders. Research presents the results based on evidence and specified hypotheses. This study collected data by using questionnaire method. Relations are tested using the Chi-square test method. The analysis confirms the existence of a statistically significant relationship between the variables of the research. This study supposes that implementing the Balanced Scorecard in the enterprises together with the HR Scorecard significantly improves the enterprise strategy. Therefore, the verification of the relations between the strategy of the enterprises and the HR Scorecard is carried out. The research also focuses on using HR Scorecard in the manufacturing enterprises, based on another hypothesis. Such a hypothesis was not confirmed by statistical verification; less than a quarter of the respondents use the HR Scorecard in manufacturing enterprises. HR Scorecard in connection with the use of the Balanced Scorecard concept is not used much in Slovak enterprises; however, the opposite is true abroad, where the method is used much more often. The authors consider the research to be a practical guide for the entrepreneurs who are considering the use of the HR Scorecard in connection with pointing out the factors enabling the effective implementation of the method.

Keywords: HR Scorecard; Balanced Scorecard; strategy; sustainability; industry 4.0

Building a Sustainable Future: Gender, Education & Workforce Needs of Gen Z

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Abstract. This scientific article explores gender-related disparities in the perceptions of educational delivery and the significance of higher education for Generation Z students in Slovakia, considering their alignment with broader environmental, social, and governance (ESG) principles. The study employs a mixed-methods approach, utilizing correlation analysis to investigate the relationship between public expenditure on education and labor productivity in Slovakia and Finland, focusing on sustainable and impactful investments in education that contribute to both economic growth and societal well-being. The findings reveal a robust positive correlation, emphasizing the pivotal role of investment in education. Furthermore, the study utilizes the chi-squared test to verify hypotheses derived from a survey. The results highlight significant gender-specific variations in the perception of educational delivery and the importance of higher education for future prospects. The research underscores the necessity for tailored strategies that address the relevance of educational methodologies within diverse student populations, fostering inclusive and environmentally responsible learning environments. Insights from the study have implications for educational institutions and policymakers, emphasizing the need for inclusive, responsive, and environmentally sustainable approaches to education that meet the unique needs of Generation Z students. Additionally, the study encourages further exploration into teaching methodologies, curriculum design, and teacher training to enhance the efficiency, effectiveness, and social responsibility of educational programs, preparing students for the challenges of the modern workforce while prioritizing long-term sustainability and societal well-being.

Keywords: Generation Z, gender disparities, higher education importance, ESG

The impact of the intelligent industry in the form of implementing generative artificial intelligence on the growth of labor productivity in the context of population aging in the conditions of the Slovak Republic

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Abstract. The aging of the population affects the labor force supply and brings along numerous economic and social challenges. From the labor market perspective, it involves an increasing number of people in retirement age and a decreasing workforce. The aim of the presented study is to determine the impact of introducing intelligent industry on the labor market in the context of labor supply and demand in the Slovak Republic, based on the analysis of available statistical data. The study utilizes available statistical data and forecasts from organizations such as the OECD and reputable institutions like McKinsey and PWC. It analyzes various scenarios of labor market development depending on the level and intensity of introducing intelligent industry and the growth of labor productivity, in combination with the evolution of the number of workers, retirees, and vacant job positions until 2040. In this context, the implementation of intelligent industry and the increase in labor productivity appear as a partial solution to the labor shortage. Considering the current trends in job development, labor productivity, and demographic changes in employment, the labor market in the Slovak Republic is projected to lack approximately 400 thousand workers by 2040. The study results suggest that by introducing intelligent industry, transforming job positions, and associated productivity increase by the estimated 6 percent, it could cover around 90 thousand job positions, preserving the current economic growth. The findings contribute to a comprehensive understanding of the impacts of population aging on the labor market and offer proposals for partially addressing the issue, effectively managing or alleviating the demographic shift and its consequences.

Keywords: labor market, workforce, automation, population aging

Determinants of Financial Performance of Waste Management Companies

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Abstract. The linear economic model is unsustainable in the long term, so the transition to a circular economy seems inevitable. By adopting the Action Plan, the EU develops concrete steps in this direction and determines indicators for measuring the progress achieved. In this context, companies operating in the waste management industry are among the key entities that help to fulfill the goals of policies in the area of CE. The aim of this study is to identify and compare the determinants of the financial performance of companies in the NACE 38 industry, to quantify their impact on ROA and ROS in 2019 and 2022. Pearson's R is used to select indicators that we examine using principal component analysis, as one of the methods used in exploratory factor analysis. The linear regression analysis method is used to explain the influence of the extracted factors on changes in ROA and ROS. In 2019, we extracted 5 factors (capital structure, business policy, current assets' efficiency, operational activity, working capital management), which explain 79.2% of variability. In 2022, we extracted 6 factors (liquidity management, current assets' efficiency, asset structure, volume of available resources, capital structure and operational activity), which explain 84.17% of the variability of the variables. By comparing the findings, we concluded that while in the pre-crisis period operational indicators appeared to be key for achieving corporate financial performance, in the post-crisis period the factor of liquidity and available resources also gained importance.

Keywords: determinants of financial performance, exploratory factor analysis, regression analysis, waste industry, Slovakia

The Ukrainian agricultural sector and its role in enhancing food security

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Abstract. Ukraine's agricultural sector plays a critical role in ensuring food security by producing a wide range of staple crops, including grains (such as wheat, barley, and corn), vegetables, fruits, and livestock products. Ukraine is one of the world's largest producers of grains, particularly wheat and corn. For example, in recent years, Ukraine has been a major exporter of wheat, contributing significantly to global food supply stability. Ukraine's diverse Agri-climatic zones support the cultivation of a wide variety of vegetables and fruits. The diversity in agricultural production contributes to Ukraine's ability to meet domestic demand and export surplus to international markets. Ukraine has a substantial livestock sector, which includes cattle, pigs, poultry, and sheep. Livestock farming provides a significant source of meat, dairy products, and eggs for both domestic consumption and export. The availability of livestock products contributes to protein intake and nutritional security for the Ukrainian population. Ukraine is also known for its dairy industry, with dairy products such as milk, cheese, and butter being important components of the national diet. The dairy sector supports rural livelihoods and contributes to food security by providing essential nutrients to the population. Meeting domestic demand for food staples is crucial for maintaining stability in food prices and ensuring access to nutritious food for the population. When domestic production meets or exceeds demand, it reduces reliance on imported food and stabilizes prices in local markets. This stability is crucial for ensuring affordability and accessibility of food for consumers, particularly during economic fluctuations or external supply disruptions. Observational data from Ukrainian markets and consumer price indices show that fluctuations in food availability due to variations in domestic production impact food prices significantly. Ensuring adequate domestic production helps mitigate these price fluctuations and maintains stable food access for the population. Meeting domestic demand for food staples is essential for ensuring access to nutritious food for the population. Studies by the World Food Programme and national health surveys highlight the direct correlation between food availability and nutritional security. When domestic production of staple foods meets nutritional requirements, it ensures a diverse and balanced diet for the population, reducing the risk of malnutrition and related health issues. Evidence from public health studies in Ukraine emphasizes the importance of sufficient domestic production in addressing food insecurity and promoting public health. Research gaps exist in understanding the resilience of food supply chains in Ukraine, particularly in times of crisis or disruptions. This study investigates the vulnerabilities of supply chains to shocks such as conflicts, economic instability, and global pandemics, and propose strategies to strengthen local and regional food systems.

Keywords: agricultural sector, food supply chain, disruption, food security

Sustainable development of the Ukrainian agricultural sector

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Abstract. The stability and growth of Ukraine's agricultural sector are critical for overall economic stability and development, especially given the country's historical reliance on agricultural exports. Agriculture is a major employer in Ukraine, providing livelihoods for a significant portion of the population. According to official statistics and reports from the Food and Agriculture Organization (FAO), agriculture employs approximately 16% of Ukraine's workforce. This includes farmers, agricultural laborers, agribusiness professionals, and related support industries. The sector's role in employment is crucial, particularly in rural areas where agriculture remains a primary source of income and livelihood. According to studies conducted by the Food and Agriculture Organization (FAO) and various agricultural research institutions, adopting sustainable practices can lead to higher yields per hectare, reduced input costs (such as fertilizers and pesticides), and improved soil health. In Ukraine, where agriculture plays a significant role in the economy, these improvements translate into higher incomes for farmers and increased profitability for agricultural enterprises. There is growing consumer demand globally for sustainably produced agricultural products. This can lead to higher prices for their produce, enhancing farm incomes and overall economic stability in rural areas. Sustainable agricultural practices help conserve natural resources such as soil, water, and biodiversity. In Ukraine, where soil degradation is a significant concern, sustainable practices can prevent further loss of fertile soil and contribute to long-term agricultural viability. This environmental stewardship not only supports agricultural productivity but also mitigates the environmental costs associated with intensive farming practices. Sustainable agriculture promotes resilience among rural communities by diversifying income sources and enhancing food security. By reducing dependency on external inputs and fostering local ecosystems, sustainable practices ensure more stable livelihoods for farmers and agricultural workers. There is a gap in research assessing the effectiveness of existing policies and institutional frameworks supporting sustainable agriculture in Ukraine. This study focusing on policy coherence, regulatory barriers, and incentives for sustainable practices are needed to identify gaps and propose policy reforms that can accelerate the adoption of sustainable agriculture of Ukraine. Sustainable development of the Ukrainian agricultural sector is highly relevant due to its implications for economic growth, environmental sustainability, food security, technological advancement, social development, policy alignment, global contribution, and post-conflict recovery. This research can provide valuable insights and recommendations to support the sustainable transformation of Ukraine's agricultural sector.

Keywords: sustainable agriculture, regulatory barriers, environmental sustainability, food security

Basic food purchasing habits of Hungarian economics students in the dimension of price inflation

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Abstract. Over the past two years, the Hungarian economy has been exposed to a number of factors that have resulted in very high inflationary pressures for consumers, similar to other EU countries. The situation in Hungary was above average compared to other countries in the region and the EU, requiring immediate and rapid decisions from market participants. It is no coincidence that the government has used a number of instruments to curb the rate of inflation and keep it at an appropriate level. The article presents some results of a study carried out last year. The aim of the research was to find out how a very high food price inflationary situation affects the food purchases of a particular group of people and how the respondents evaluate the government measures. The research was carried out with the help of students at Hungary's largest business university, who took part in a questionnaire survey. Around 380 students answered the questions. The questionnaires were analysed using SPSS-29. The results show that in the economic situation under study, students' basic food purchasing habits were affected by high inflation, even reducing the amount of products they purchased. Furthermore, government instruments are more or less known and used by future economists, but the respondents' opinions on their effectiveness are divided.

Keywords: shopping, staple food, inflation, price cap, compulsory action, online price monitoring systém

The eco-energy cluster in Ukraine: needs, attempts, forecasts

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Abstract. For the past decade, European countries have prioritized the transition to green energy, a process significantly accelerated by the war in Ukraine. Post-2022, countries like Germany have ceased reliance on Russian gas, boosting investments in alternative energy sources and technologies such as hydrogen. Ukraine, however, faces a severe energy crisis. The country lost over 50% of its generating capacity during 2022-23, and subsequent Russian attacks on thermal and hydroelectric plants in April-May 2024 obliterated 90% of its maneuvering capacities. By May-June 2024, rolling blackouts plagued all Ukrainian regions. Ukrainian energy systems has to mobilize energy clusters to address these challenges, partnering with local communities to ensure energy security and access. However, the process faces internal challenges due to the inexperience and limited capacities of its relatively young clusters in Ukraine. This should be align with war and post-war recovery efforts and the EU's Green Deal, promoting energy resilience, sustainability, and economic revitalization. The cluster methodology is grounded in decentralization, local governance, community engagement, and innovative energy management principles. The eco-cluster creation seems to be proceeded through several major stages: assessing the needs of regions in Ukraine, creating and building the capacity of meta-clusters, extending the network to include European clusters and developing a portfolio of joint projects and programs, integrating into major European energy transition initiatives and programs. The goal is to position clusters as strategic partners in the energy transition for regional communities, enhancing energy security in Ukraine and the EU. It will improve energy access and equity, create a strong energy sector meta-cluster, strengthen local institutional capacities, develop models for future projects, and improve relevant policies.

Keywords: energy, clusters, sustainable, model

Acknowledgement. The research leading to these results has received funding from the project titled "Cluster for innovative energy" in the frame of the program "HORIZON-MSCA-2022-SE-01" under the Grant agreement number 101129820.

Economic Impacts of Technique Substitution in Chemistry due to Industry 4.0

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Abstract. The paper analyzes corporate economic effects caused by the substitution of labour by a technique. This kind of substitution is the main phenomenon of Industry 4.0. First, methodological approach based on the analytical apparatus using traditional business financial data is explained. Second, this apparatus is applied to Czech companies belonging to chemistry industry (CZ-NACE 20-22). Data sample was extracted from the corporate database Albertina and its size is 564 units after data cleaning. The computed cost structure and development were summarized and evaluated by descriptive statistics and the effects of substitution were visualized. The paper proves if the initiative Industry 4.0 has positive impacts on corporate performance and if the opposite substitution (increasing importance of labor) does not lead to negative consequences on business results. The development of chemical companies is compared with the companies belonging to the sector of Logistics (CZ-NACE H). The logistics companies present more significant effect of coming Industry 4.0 on the corporate performance than the chemical companies. The general development of chemical industry was opposite and increasing importance of labor led to the lower level of performance in many cases. Such results could implicate the warnings of late implementation of Industry 4.0 in companies.

Keywords: operational costs, cost structure, substitution of labour by a technique, Industry 4.0, chemistry industry, business performance, Czech Republic

The importance of technological developments in various sectors of small and medium-sized enterprises

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Abstract. Small and medium-sized enterprises are an indispensable part of the business sector worldwide and play a key role in the development of the economy. However, technological developments are often a challenge for them, as they find it difficult to keep up with technological changes due to a lack of resources and expertise. The purpose of the study is to reveal the importance of technological developments in the various sectors of small and medium-sized enterprises, with particular regard to the effect of various parameters influencing technological developments - such as company size, sales revenue, operational area, location. In our study, the corporate characteristics present in the activities of small and medium-sized enterprises, which determine technological developments, and their relationship with the operations and development practice of the companies are presented. The results of the international studies and investigations are supported by our finding based on the analysis of the results obtained during the research, that in the case of the investigated population, the size of the company has an influence on the technological developments implemented in the company. This is also proven by the fact that, thanks to the simplicity and flexibility of various technological devices, as well as their lower cost, technological solutions that were previously only the privilege of large companies are now available to small and medium-sized enterprises. Regarding the development of the introduced technology, it can be stated that in the case of the companies in the examined sample, as the company size increases, it is more typical of the companies to introduce a completely new technological solution than to innovate or expand the existing technology to a lesser extent.

Keywords: small and medium-sized enterprises, technological development, company size, sales revenues

Labor migration Trends between Slovak Republic and the UK in terms of Brexit and Agenda 2030

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Abstract. This research paper is devoted to analysis of the circumstances how Brexit will affect the motivation of Slovak workers to work in the UK after Brexit is in force and to what extent the UK labor market would suffer from the outflow of EU workforce being implicated on Slovak case. The main objective of the research is to estimate the impact of Brexit on labor migration from Slovak Republic to the United Kingdom (UK) and whether and how the Brexit would affect the inflow of Slovak labor force to the UK in terms of the Agenda 2030 elements. The estimation is based on the questionnaire survey assessment approach. The main method used for the hypothesis verification is the Chi-square test along with graphical explanation. The results have indicated that to some extent Brexit will also affect the labor market in Slovakia, as some Slovaks working in the UK intend to return to Slovakia after Brexit comes into force, however a larger part of Slovak workers currently working in the UK will not feel affected by Brexit facing increased bureaucracy or differential treatment.

Keywords: labor force migration, labor market issues, job requirements, skilled workforce, human resources development sustainability

Factors Influencing Internationalisation of Micro- and SMEs in Central Europe

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Abstract. Internationalising a company is a challenge, particularly for Micro- and SMEs, who often have limited resources to manage strategic activities. This paper aimed to create a model of the factors that influence the internationalisation process of Micro- and SMEs from Central Europe. The study employed principal component analysis to create latent components for the model, including innovation, strategic management (SM), and barriers. The factors and their relations were analysed using Logit regression and ANOVA. Additionally, the influence of two control variables on the selected factors and barriers to internationalization was examined. The findings indicated that the most significant barrier to internationalization is the difference in tax policies. Furthermore, a significant correlation existed between innovation and social media barriers. The strategies for innovation depend on the size and age of the company.

Keywords: strategic management, internationalisation, innovation, SMEs

The Impact of the ESG Environmental Pillar on the Firm's Sustainability. Empirical Research in the V4 Countries

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Abstract. The research aimed to define the impact of ESG environmental pillar attributes on the sustainability of firms in the V4 region and quantify the impact of selected factors on the perception of sustainability of firms. 2) Methods: The questionnaire survey on the attitudes of managers and business owners was conducted in February 2024 in the Czech Republic, Slovakia, Poland and Hungary. Data were collected using the Computer Assisted Web Interviewing (CAWI Research Method). The distribution of respondents by country was as follows: there were 338 respondents from the Czech Republic, 349 from Poland, 312 from Slovakia and 321 from Hungary. Correlation analysis and linear regression analysis were used to test the scientific hypotheses. 3) Results: The results suggest that firms that focus on the environmental education of employees use green practices, provide truthful information about environmental impacts, and spend adequate costs on environmental protection are more likely to achieve sustainable growth. On the other hand, however, corporate sustainability is not affected by managing the company in accordance with specific regulations, minimising the environmental impacts of business activities, intensively addressing the energy efficiency of company buildings and using renewable energy sources. 4) Conclusions: Firms in the V4 countries focus on aspects of Pillar E affecting sustainable growth that do not significantly increase costs or increase the overall complexity of processes.

Keywords: ESG, environmental pillar, firm's sustainability, V4

Corporate Culture as a Concept Focused on the Circular Model of the Economy

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Abstract. Current trends in the business environment are creating a new dimension of competitive behavior. In order to succeed, companies must implement concepts focused on the circular model of the economy as part of their strategy. In this context, employees play an important role. They are a source of new and often innovative solutions, and creators of the corporate culture that influences the success of the company. The aim of the research is to identify the desired level of corporate culture and determine whether there are changes in employee preferences. Despite confirming the existence of year-to-year changes in employee preferences, respondents requested the implementation of a clan corporate culture in the next 5-10 years. This type of culture is characterized by a high degree of value and goal sharing, creating a team-oriented and familial spirit. Based on the results, it is recommended that companies focus on employee development, teamwork, cohesion, morale, and the involvement of all employees in decision-making. Such a trend creates the potential for success in a competitive environment, while the impact of corporate culture on how a company approaches issues of efficient use of resources in the form of a circular economy and sustainability is great.

Keywords: corporate culture, circular economy, private sector, Slovakia, OCAI

**The impact of selected HRM factors on company's survival in the segment of SMEs:
Empirical research in V4 countries**

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Abstract. The aim of this paper was to present and quantify the impact of significant HRM factors on the survival of SMEs in the V4 countries. The empirical research, which was aimed at identifying the attitudes of SMEs, was conducted in June 2022 in the Visegrad Four countries using a random sampling method on a sample of 1,398 respondents. The established scientific hypothesis was verified using the linear regression modelling at a significance level of $\alpha = 5\%$. The results of the research showed that there is a relationship between the company's survival of SMEs in the medium term and the defined HRM factors. The intensity of this dependence varies across the V4 countries. Czech respondents emphasized the importance of investing in improving the qualification of their employees in the context of firm sustainability, while Slovak SMEs drew attention to the importance of the existing incentive system for employees. SMEs in Poland strongly and positively perceived the importance of human capital in the company and regular evaluation of employee performance in their attitudes. A rather surprising finding is the fact that in Hungary, the individual HRM factors were not statistically significant. The aggregate model for all V4 countries showed the highest intensity of dependence between the defined variables.

Keywords: small and medium-sized enterprises, Human Resource Management, factors of HRM, company's survival

Imagining the EU Labour Market from Outside: Migration Aspirations of Ukrainian Youth and Demand Peculiarities

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Abstract. The migration of Ukrainian youth under the war circumstances became one of the most apparent demographic trends influencing the Ukrainian and EU labour market. In Ukraine, this causes threats to post-war recovery if the losses of the youth remain. Instead, the EU labor demand changed significantly due to the steep migration of Ukrainian refugees and connected changes in wages, benefits and compensations. In this regard, the peculiarities of demand for skilled youth need special attention. In many cases, there are significant inconsistencies in youth expectations and actual requirements for job seekers. Youth involved in tertiary education are one of the groups of intellectual migrants according to the OECD classification. Therefore, in our research, we hypothesize that youth expect to find a job according to the education level and occupation field chosen before migration decision. To evaluate their prospects in the EU labour market, we compared the demand for employees in some occupations and the most desirable countries for migration. The analysis is performed on examples of professions typically linked with higher education according to Ukrainian practice as these specialties are popular in Ukrainian universities (HR-manager, Marketer, Architect, IT specialist). Currently, Poland and Germany are the most typical countries for youth migration from Ukraine. Therefore, these countries were selected for analysis of EVPs. According to the study of the job sites in these countries, there are some unexpected results. Higher education is not always required in vacancy descriptions in Poland; however, in Germany, these requirements are more typical. Currently, a great share of employers' requirements relates to digital skills, particularly the ability to work with special software. Among other usual requirements for the graduates are language skills and law literacy (linked with the occupation). Demands for all analyzed professions relate to soft skills, like teamwork, organizational abilities, and communications.

Keywords: digital skills, digital labour platforms, employment, IT

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Corporate Social Responsibility Development Trends and Problems in War Conditions in Ukraine

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Abstract. Corporate social responsibility (CSR) has become one of the key trends in organisations' development, providing them with economic advantages and sustainable competitiveness. In Ukraine, opportunities to introduce tax benefits, reduce administrative pressure, participate in regional development programs, and spread knowledge and culture of CSR were considered incentives for the development of CSR in the pre-war period. The war changed the economic behaviour of enterprises and their stakeholders. To find out the current directions and manifestations of CSR, an own study was conducted in one of the regions of Ukraine (Rivne region) in 2023. The study revealed a stark contrast in CSR practices. Enterprises with low CSR were found to be resorting to measures such as forcing employees to work overtime and sending them on unpaid leave. The period from October 2022 to February 2023 was a time of immense challenges for the people and businesses of Ukraine. Russia's massive shelling of Ukraine's critical infrastructure and mass blackouts of light and electricity significantly disrupted daily life. However, despite these adversities, 71.7% of respondents reported receiving support from their employer by providing workplaces with electricity and generators (40%) and introducing a more flexible work schedule depending on the electricity supply (28.3%). Regarding external CSR, almost half of the companies in the Rivne region where the respondents work, allocate money to charity and support corporate volunteering. More than 10% of companies help landscape the territory, support small businesses, and sponsor various sports and cultural events. Nowadays, internal and external stakeholders prefer cooperation and communication with businesses that practice and develop CSR. At the same time, social responsibility is one of the main factors of business competitiveness, as it has a positive effect on the HR-brand, promotes the attraction and retention of talents, increases labour productivity, and forms the company's investment attractiveness. It establishes a balance between meeting existing social needs and protecting the interests of future generations, in particular regarding a safe environment. The development and implementation of CSR are complex and long-term processes that can become a factor in the recovery and development of the national economy and increase Ukraine's social welfare level during the war and post-war periods.

Keywords: corporate social responsibility, HR-brand, entrepreneurship

Stock Price and Leverage – the Verification of Capital Structure Theories Under the Changed Main Aim of a Firm

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Abstract. Several capital structure theories - which usually consider the value of firm maximization to be the main aim of a firm - have been developed. In this paper we addressed two specific issues. Firstly, we set the changed main aim of a firm, which is stock yield maximization. Secondly, we applied the adjusted leverage measurement tools to address the issue of negative correlation between profitability and leverage (which can be caused by a standard calculation of leverage) since this can analogically influence the relationship between stock yield and leverage. Thus, this paper focuses on verification of the validity of capital structure theories with this change in the main aim of a firm, which will be done through the analysis of the relationship between stock yield and leverage (both standard and adjusted). Taking the European listed non-financial firms into account, it is obvious that there is a negative correlation between stock yield (both capital and overall) and leverage when the standard measures are used, which is not in line with any capital structure theories. On the other hand, the capital structure irrelevancy in case of the changed main aim of a firm is confirmed when the adjusted leverage measures are applied and as such, they support the classical theory and the key idea of the original MM model. With regard to these results, the exception is represented by dividend yield, which is positively correlated with leverage. This confirms the higher expectations of equity investors to their yield in the case of more leveraged firms, which is in accordance with several theories.

Keywords: stock price, leverage, capital structure, firm value, the main aim of a firm

Building a Stable Ex-Ante Bankruptcy Prediction Model for Visegrad Group Companies: A Multi-Year Approach

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Abstract. Corporate bankruptcies pose significant challenges, impacting a wide range of stakeholders. While valuable, existing research on bankruptcy prediction primarily focuses on ex-post analysis, identifying financial indicators associated with past failures. This study addresses this critical gap by developing ex-ante bankruptcy prediction models for the Visegrad Group countries. Employing Multiple Discriminant Analysis, these models aim to identify companies at risk of bankruptcy up to five years prior to the event. A multi-model approach is utilized, constructing a comprehensive V4 model encompassing all four nations alongside individual models for each member country. Data from a sample of 38,251 companies incorporates 18 key financial ratios and 2 non-financial variables. The chosen financial ratios demonstrated statistically significant differences between bankrupt and healthy companies, validating their effectiveness as predictors. Notably, all models achieved consistently high accuracy in classifying companies as bankrupt or healthy 1, 2, 3, 4, and 5 years prior to bankruptcy. The V4 model performed well, suggesting a high degree of homogeneity in financial characteristics across the region. Furthermore, Net Income/Total Assets (X04) and Profit Before Tax/Total Assets (X15) emerged as consistently strong predictors across all models.

Keywords: bankruptcy, ex-ante prediction model, multiple discriminant analysis, Visegrad group countries

Socio-economic determinants of the choice of tourism organizers by senior tourists

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Abstract. The article gives the definitions of seniors, presents the changes on the senior tourism market and the choices made by seniors in the context of organizers of tourist events, with particular emphasis on socio-economic determinants such as gender, age, level of education, financial situation, etc. The aim of the research is to determine which socioeconomic determinants influence the choice of tourism organizers made by seniors. The study distinguished five basic types of tourism organizers: local travel agencies, senior clubs, parishes, nationwide travel agencies and foreign travel agencies. In order to answer the question what is the impact of selected socioeconomic factors on seniors' choice a survey among 1000 people of at least 55 years was conducted. However, from that sample only those who declared travelling with organized tours were taken into consideration what has resulted of final sample of 787 observations. Results show that main factors affecting choice of organizers of tourism are income, education, age, professional status and family situation.

Keywords: senior tourism, senior tourism organizers, determinants of senior tourism choice

Development of the smart grid and decentralized energy sources in Ukraine

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Abstract. Ukraine's ongoing conflict with Russia and its historical dependence on Russian energy supplies underscore the urgent need for energy security and independence. Developing smart and decentralized energy sources can reduce reliance on centralized, vulnerable energy infrastructure and enhance national energy security. The expansion of domestic renewable energy projects, such as solar and wind farms, can decrease the need for imported fossil fuels. For example, in 2019, Ukraine was able to reduce its natural gas imports by 32.7% due to increased domestic energy production from renewables. This shift not only enhances energy security but also shields Ukraine from geopolitical risks associated with energy dependence on a single country. The International Renewable Energy Agency reports that decentralized energy systems, including community-based solar and wind projects, can provide reliable and resilient energy supply at the local level. In Ukraine, pilot projects in regions like Zhytomyr and Kherson have demonstrated the effectiveness of decentralized renewable energy installations in providing continuous power to local communities. These projects reduce the vulnerability associated with centralized energy infrastructure, which can be easily disrupted by geopolitical conflicts or physical attacks. Decentralized energy systems, which include localized generation through renewable sources such as solar, wind, and biomass, can make Ukraine's energy infrastructure more resilient to disruptions caused by geopolitical tensions or physical attacks. A study published by the IEEE explores the impact of IoT and AI on smart grid management. The integration of IoT sensors and AI algorithms enables real-time monitoring and analysis of energy consumption and generation patterns. This allows for predictive maintenance, demand response, and efficient load balancing. For instance, in Germany, the integration of IoT and AI in decentralized energy systems has led to a 20% reduction in energy losses and a 15% improvement in grid reliability. The purpose of this study is to determine the potential of introducing decentralized sources of electricity and smart grids in different regions of Ukraine, taking into account the geographical, economic, social and regulatory features of each area of Ukraine. Development of smart and decentralized energy sources in Ukraine" is highly relevant due to its implications for energy security, economic recovery, environmental sustainability, technological innovation, socio-political dynamics, global leadership, and local community resilience. This research can significantly contribute to shaping Ukraine's energy future and its role in the global transition towards sustainable and resilient energy systems.

Keywords: smart grid, decentralized energy sources, renewable energy, regional development

The research leading to these results has received funding from the project titled "Cluster for innovative energy" in the frame of the program "HORIZON-MSCA-2022-SE-01" under the Grant agreement number 101129820.

Circular Economy Efficiency in the Context of Waste Management in the Selected Central and Eastern European Countries – Evidence from DEA and Fractional Regression Analysis

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Abstract. Currently, there is a significant trend in many research studies towards sustainability and exploring possibilities for optimizing the efficiency of waste management through the framework of a circular economy. The main objectives of these initiatives are to increase attention to environmental protection and create a positive legacy for future generations. The primary goal of this study is to evaluate the level of circular economy efficiency in the context of waste management in selected Central and East European countries. To achieve this, the study applies methodological procedures such as Data Envelopment Analysis (DEA) and Fractional Regression Analysis. DEA approach includes the classic model Slack-Based Measurement, which estimates the efficiency scores without using the origin of the coordinate system, but the inefficient DMU itself. Variables including GDP per capita, GDP growth rate, and selected circular economy indicators are analysed and compared using data from the Eurostat database for the currently available data of 2010-2020, at the time of conceptual creation of this study. The study results highlight differential potential for improving hazardous and non-hazardous waste efficiency management in the investigated countries through the application of the DEA model. Additionally, differences in the mutual influence of selected variable indicators on waste efficiency are identified across the analysed countries with using Fractional Regression Analysis. The role of waste management is key in achieving the goals in the circular economy policies.

Keywords: circular economy, waste management, Data Envelopment Analysis, efficiency score, Fractional Regression Analysis

Sustainable Energy Management in Ecological Investments

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Abstract: The pursuit of sustainable development and environmental protection has become a primary goal for numerous countries, including those within the European Union (EU). The European Commission has set forth an ambitious target for member states to achieve climate neutrality by 2050, as detailed in the European Green Deal. To facilitate this, the EU has introduced the "Fit for 55" package of initiatives, designed to guide the Union toward climate neutrality by 2050. Additionally, the geopolitical landscape in Europe and the challenges arising from the Covid-19 pandemic have led to the formulation of a new strategic policy within the EU, known as the Industrial Plan of the Green Deal. This plan seeks to bolster industrial competitiveness through investments in low-emission technologies, reindustrialization, and enhanced raw material security. The aim of this study was to create a model for the management and financing of local energy resources, particularly electrical energy, by leveraging local production capabilities, energy storage potential, and the ability to balance the energy system through active supply and demand management mechanisms. Current models for managing and financing local energy resources are inadequate in light of the EU's new strategic plans. This study is innovative as it aligns with the European Union's contemporary developmental priorities and the need to adapt local energy management models accordingly. This research enhances the body of knowledge in the field of electrical energy management, which is crucial for the advancement of various disciplines including engineering, social sciences, management and quality sciences, economics and finance, security sciences, political and administrative sciences, environmental engineering, mining and energy, automation, electronics and electrical engineering, construction, and transport. Diverse research methodologies were employed in this study, enabling a thorough understanding and analysis of the issues related to the management and financing of local energy resources within the context of the European Union's priorities. At present, there is no global energy management model that considers such an extensive socio-economic and environmental context. This positions the developed solution as pioneering and potentially instrumental in developing new methods for optimizing energy consumption.

Keywords: sustainability, green economy, fit for 55, energy management model

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Employee Performance in Selected Sectors of V4 Countries as a Sign of Strategic Competitiveness

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Abstract. The impetus for the research was the finding of the absence of a research dedicated to the area of employee performance in connection with the return on equity, as strategic indicators of competitiveness. The aim of the research is to evaluate the economic situation of the V4 countries in selected sectors at four levels: 1) Assess the financial indicators of employee performance and ROE of the V4 countries in selected sectors; 2) Map the relationship of both indicators to the size of the company; 3) Evaluate strategic competitiveness in relation to employee performance; 4) To map the position of individual countries within the V4 group. Data from the years 2012 - 2019 were used for the research. The research was solved using the method of quantitative research and the logical inductions and deductions. The panel data was used to reach to research goals. The results did not confirm that the hypothesis of large enterprises has higher values of the ROE indicator than SMEs in the V4 countries. It was further confirmed that the change in the employee performance indicator will affect the ROE indicator in the conditions of the V4 countries and it was not confirmed that the Czech Republic dominates in the V4 countries in the monitored indicators. On the contrary, Poland dominates.

Keywords: Visegrad countries, employee performance, ROE, labour productivity, SMEs

Digital Platform Workers: Should I Stay or Should I Go?

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Abstract. The paper analyses the dynamics and reasons of the transition of working age individuals in 14 European countries to and from digital platform work in 2017 and 2018. In doing so, it seeks to understand why do around half of individuals continue working via platforms despite platforms often being seen as inferior to regular employment. Regression results suggests that those who preferred location flexibility or greater client access were likely to remain platform workers. Similarly, the better educated and foreigners also tended to remain in platform work. However, individuals are more likely to leave platforms (work and became employed) than employees are to become platform workers, suggesting that platforms are temporary solution to regular employment for many, especially for those who with family commitments or a preference for flexible working time. In addition, some joined platforms because they found it challenging to become employees, suggesting a lack of outside options. Regression analysis also shows that migration between platform work and regular employment often resulted in higher incomes and greater productivity, suggesting that it is important to have the possibility to stay and leave platform work.

Keywords: digital platforms, digital platform workers, gig economy, crowd workers

Analyzing regional corruption risks in Ukraine: using Kohonen's self-organizing maps

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Abstract. The conditions of war create a unique environment in which corruption can spread rapidly and exacerbate existing problems. Therefore, the study of this phenomenon in Ukraine is important, as it will reveal the mechanisms of its action and spread and identify the main causes of its occurrence and impact on various spheres of life. Such an analysis is necessary to develop effective strategies for preventing and combating corruption. At the same time, the study of the level of corruption risks in the regions of Ukraine is a priority, as the regional level of governance is key to ensuring the effective implementation of public policy. Since the regions of Ukraine have different levels of socioeconomic development and unique challenges, the study of corruption risks at the regional level allows for taking into account these specific conditions and developing more targeted and effective anti-corruption strategies. Therefore, the purpose of this study is to develop a scientific and methodological approach to modeling, analyzing, and visualizing regional corruption risks using self-organizing neural networks (Kohonen maps). For this purpose, two groups of indicators were selected: corruption risk indices and development indices. The dataset was formed for all regions of Ukraine over the past few years. To bring the data to comparable values, nonlinear normalization was performed. Using the KNIME analytical platform, the data was checked for quality, outliers, duplicates, and contradictions. The corrected data were used to build Kohonen maps. This resulted in 7 clusters of regions: cluster 0 and cluster 1 include regions with the highest development indicators and minimal corruption risks; cluster 2 – regions with above-average indicators; cluster 3 – regions with an average level of development and corruption risks; cluster 4 – regions with a below-average level; cluster 5 – regions with a low level of development and high corruption risks; cluster 6 – regions with a very low level of development and the greatest corruption threats. The research resulted in an interactive map of Ukraine that shows the level of corruption risks by region. The map is a useful tool for government agencies, anti-corruption organizations, and researchers. It allows quickly identifying regions with high corruption risks and focusing efforts on the most problematic areas. In addition, the results of the study can be used to further improve anti-corruption strategies and policies.

Keywords: corruption risks, cluster analysis, regional analysis, national security, self-organizing map

Possibilities of statistical analysis of internally displaced persons' social integration

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Abstract. Ukraine ranks first in Europe and is among the world's leading countries in terms of the number of internally displaced persons (IDPs). According to the data provided by the Ministry of Social Policy, more than 4.67 million IDPs are officially registered in Ukraine (June 2024), and according to international estimates, the number of IDPs exceeds 7 million people. At the same time, the continuation of military aggression against Ukraine leads to new destruction (housing, infrastructure, enterprises) in the temporarily occupied territories and in the frontline areas, which significantly reduces the probability of IDPs returning home even after the liberation of the occupied territories. According to the IOM survey, only 29% of IDPs consider the possibility of further relocation (within Ukraine or abroad); the rest plan to stay at their current place of residence. All this actualises the issue of social integration of IDPs in their new place of residence and their full inclusion in the life of host communities. However, a unified methodology for comprehensive assessment of the IDPs' social integration, including the evaluation of the socio-economic efficiency of existing social support tools for IDPs, has not yet been created. Research in this area is mainly limited to either subjective assessments of the feeling of integration into local communities or to objective indicators of compliance with specific integration criteria, which are more similar to quality of life criteria. For example, the criteria for assessing the integration of IDPs into the host territorial communities, developed by the Ministry of Reintegration and the Interdepartmental Committee for Finding Long-Term Solutions in the Interests of IDPs, concerning the access of IDPs to certain services (housing, employment, education, medicine, administrative services, social and pension payments, justice, etc.) exclusively. Therefore, a system of subjective and objective indicators for assessing the socio-economic efficiency of the existing social support tools for IDPs is worth developing. In our opinion, such a system should be based on key performance indicators (KPI), namely: resource (input); resulting (output); performance indicators (reflect the relationship between resource and result indicators); indicators of the mechanism (reflect administrative costs to achieve the result); indicators of control (reflect the compliance of the result with costs/defined goals); time indicators. Monitoring the developed KPIs will allow the creation of an analytical basis for evaluating the effectiveness of decisions made on the social integration of IDPs.

Keywords: internally displaced persons, local communities, social integration

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The Role of Clusters in the Sustainable Development of the Energy Sector in Poland

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Abstract. The paper takes place in the research field of the European project “Cluster for innovative energy - CLUSTER-INN“ (Horizon 2022) focusing on the innovation and technology in the sustainable development area. The purpose of the study is the assessment of the role, production, use and trade of the green energy within energy clusters in Poland. In the current geopolitical, economic, and financial situation in which Europe, and consequently Poland, finds itself, energy security has become the highest priority. Creating conditions for the sustainable and stable development of the energy sector, which will simultaneously contribute to the development of the national economy, thereby ensuring the country's energy security and meeting the energy needs of businesses and households, is the paramount goal of every government. Therefore, independence from external energy supplies and the diversification of energy sources are of utmost importance. One of the manifestations of a country's energy security is the development of energy clusters, which in many cases represent a local dimension of energy security. Energy clusters enable the utilization of local resources and the potential of the national energy sector. The key to the effective operation of a cluster is to define its operational framework, including the area it will cover and the structure of its participants, in such a way that energy balancing is based on the production and consumption profiles of individual members. In recent years, Poland has seen growth in the energy cluster sector, with about 66 clusters operating in 2021 (Micek et al., 2021), which remains insufficient nationwide. Consequently, a 2024 amendment to the Renewable Energy Sources Act was introduced, reorganizing and redefining the legal aspects of energy clusters. This amendment implements EU Council Regulation 2024/223 of December 22, 2023, which establishes a framework to accelerate the adoption of renewable energy solutions (RED III). As indicated by the President of the Energy Regulatory Office in the Activity Report for 2023, published in April 2024, the cluster model has not been popular so far. However, due to regulatory changes, an increase in interest in this form of cooperation aimed at improving energy efficiency should be anticipated, especially at the local level. This is particularly true since Poland reached its highest level of electricity from renewable sources, accounting for 40% of total energy production in June 2023, which still offers potential for further development and optimization.

Keywords: energy, clusters, sustainable development, green transformation, renewable energy

Socio-economic transformations of Ukraine in post-war period

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Abstract. The ongoing conflict has severely disrupted Ukraine's economy. The Ukrainian economy has experienced a significant contraction due to the conflict. According to the World Bank, Ukraine's GDP shrank by about 30.2% in 2022, marking one of the deepest recessions in the country's history. This drastic decline is attributed to the extensive damage to infrastructure, disruptions in industrial and agricultural production, and the loss of consumer and investor confidence. The war has led to widespread unemployment and the closure of many businesses. The war has led to a massive displacement of people, both internally and externally, creating a significant humanitarian crisis. The United Nations Office for the Coordination of Humanitarian Affairs reports that as of early 2023, over 5.4 million people have been internally displaced within Ukraine due to the ongoing conflict. This massive internal displacement has strained local resources, housing, and social services, leading to a significant humanitarian crisis where many individuals lack access to basic level necessities such as food, shelter, and medical care. The destruction of infrastructure, including transportation, energy, and housing, has long-term economic implications. According to a report by the Kyiv School of Economics, as of late 2022, the damage to Ukraine's transportation infrastructure, including roads, bridges, and railways, was estimated at around \$35.3 billion. The destruction of these critical transportation networks has severely hindered the movement of goods and people, disrupted supply chains, and increased the cost of logistics, thereby impeding economic activities and recovery efforts. Long-term, this damage will require substantial investment and time to repair, affecting economic growth and regional connectivity. The study proposed a methodological toolkit for integral determination and forecasting of the level of stability of socioeconomic relationships in the economy of Ukraine, which differs from the existing ones by using the centre of mass method and allows establishing the degree of balance of such factors as (1) the infrastructural potential of the state (the presence of the required level of energy potential, innovativeness of production, its diversification, etc.); (2) labour and social potential (availability of labour resources, level of their professional training, level of migration, level of competition for labour resources, social infrastructure in the state, etc.); and (3) economic potential (level of the favourable business environment, level of economic, investment, financial freedom, etc.). Socio-economic transformations of Ukraine in war and post-war times is highly relevant due to the immediate and long-term impacts of the conflict. It encompasses a wide range of issues, from economic and social policies to governance, international relations, and sustainable development, making it a comprehensive and crucial area of study.

Keywords: socio-economic transformations, labour potential, infrastructural potential, economic potential.

Analysis of Idiosyncratic Risks of Listed Companies in the V4 Countries in years 2010-2020

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Abstract. The aim of the paper is to examine and thereby understand the development of idiosyncratic risks through economic analyses. The study focuses on assessing idiosyncratic risks using financial ratios. In order to achieve this, the research would like to explain the company-specific risks defined in the classic equilibrium model with the help of indicators calculated on the basis of the company's balance sheet and profit and loss statements. No previous research aimed to discover such connections. The objects of this empirical research are the listed companies of the Visegrád countries. Data was gathered with the help of Orbis database. The total number of companies included in the analysis was 35, and data from years 2010-2020 were analysed. Thereby, the significant effects of Covid-19 and the Russo-Ukrainian war were excluded. Multivariate regression analysis and panel analysis (fixed and random effects) were used in the evaluation. According to the results the market risk of equities is influenced by capital structure ratios. It has also been proven that: individual risks are explained by financial ratios.

Keywords: idiosyncratic risks, listed companies, V4 countries

Are there differences in business ethics within SMEs' most important business sectors in the V4 countries? Empirical research.

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Abstract. Business ethics represents an important aspect that influences each country's socio-economic system and is important to society, environment, and economy. This article aimed to define significant attributes of business ethics in the segment of small and medium-sized enterprises (SMEs) and compare their attitudes within the three most significant business sectors in the Visegrad Group countries (V4 countries: Czech Republic, Slovak Republic, Poland, and Hungary). An empirical study, focusing on the attitudes of small and medium-sized firms, was conducted in June 2022 in Visegrad Group countries through the reputable hired company MNFORCE, using the Computer Assisted Web Interviewing research method. The total number of respondents in the Visegrad Group countries was 1,398. Statistical hypotheses were tested using descriptive statistics, chi-square, and Z-score at a significance level of $\alpha = 5\%$. The most important conclusion of this research is that there are no significant differences in the approach of SMEs to business ethics based on the sector in which the companies operate. Some notable differences in attitudes among SMEs in Slovakia and the Czech Republic were identified, but these were marginal. Therefore, differences in the transformation process within selected economic sectors do not impact the formation of attitudes of small and medium-sized companies in business ethics. It is evident that business ethics is significantly determined primarily by the personal characteristics of the owner/manager of the company, and the specificities of individual sectors do not influence this field.

Keywords: small and medium-sized companies, business ethics, economic sectors, trade, services, production, tourism

Articles by doctoral student and young researcher

The Use of Time Planners for Improving Students' Time Management in Slovakia and the Czech Republic

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Abstract: This paper aims to investigate the attitudes towards the use of paper planners by students in the Czech and Slovak Republics in the context of age, gender, and status, as well as to define the essential content components of a planner. The questionnaire research was conducted between March and April 2024, and 200 respondents participated. Regression and correlation analysis methods are applied to detect statistically significant differences in the influence of independent factors on dependent variables. The study results showed that 52.5% of the respondents regularly use paper time planners, whereas more than 31% consider paper time planners unnecessary. It was found that there is a very weak relationship between the non-use of time planners and the factors of age, status and gender. In contrast, these factors do not significantly affect the attitudes towards non-use of time planning tools. Preferences for the content of the planners are also very weakly dependent on these factors, with students most preferring the challenge and inspiration sections. There is a weak dependence on age, status and gender for the preferred aspect of planners, with respondents preferring planners' functionality, practicality and aesthetics. The results can serve as a basis for further research on time management in the student sector and be useful for programme designers, coaches, mentors or academic advisors.

Keywords: paper planners, students, Czech Republic, Slovakia

Introduction

In management theory, planning is considered to be one of the first functions without which other managerial activities could not function. Unless an organisation or an individual has a clear plan, it performs its activities ineffectively. As reported by Workstatus (2023), 82% of individuals struggle to manage their time effectively without tools or techniques. Therefore, it is essential to address this topic, as in today's fast-paced times, it is essential to have a well-structured time for work, family, responsibilities, hobbies, etc. People nowadays use various tools to plan and record their activities, such as paper diaries and planners, digital calendars, to-do lists, Kanban spreadsheets and various other applications to store their ideas, notes or thoughts. Planning is an aspect of our daily lives and a critical aspect of performance in several challenging tasks (Mumford et al., 2001).

We can plan through a variety of tools. Studies show that although mobile calendars are popular and have advantages, the truth is that planning in this way can lead to less effective plans and a lower likelihood of meeting them than paper-based calendars (Huang et al., 2023).

According to research, time management improves well-being and overall life satisfaction, thus enhancing quality of life (Aeon et al., 2021). Time management also plays an important role in career life because how we organise our time also affects the people around us and their mindset about us. Good time management also brings a positive impact on colleagues or management.

Time management concepts and models have been designed to focus on essential activities and disengage from activities that are neither important nor urgent for the participant (Jinalee et al., 2018).

Time management is a crucial element not only for managers but also in the context of students and high school or university (Macan et al., 1990; Nasrullah & Khan, 2015). A significant positive correlation occurs between students' time management behaviour and their academic performance. These findings suggest that a student's ability to manage time effectively significantly impacts success in an educational setting (Bolango et al., 2018). Aisy et al. (2023) found that students will also be able to make independent, critical decisions based on their circumstances, which will help them become more disciplined in general and in particular when it comes to finishing assignments that teachers assign at school or other tasks, allowing them to take responsibility for the work that is assigned to them. Time management, according to Febriyani et al. (2019), is a daily activity that is helpful for scheduling, creating a to-do list, assigning tasks, and other systems that can help to utilise time efficiently.

Experts advise that students should use a diary to achieve better time management, especially to define goals and determine the exact time needed to complete the assigned work, as this simplifies decision-making when prioritising and thus increases their time use efficiency (Alvarez Sainz et al., 2019). If designed correctly, time management models should improve management skills and reduce psychological stress (Jinalee et al., 2018).

This paper aims to investigate the attitudes of students from Slovakia and the Czech Republic towards the use of a time planner - diary and their needs and requirements for the content of the planner. The originality and uniqueness of the research lie in the fact that to achieve the paper's main objective, the results of a unique empirical research conducted by the author from March to April 2024 for the bachelor thesis purpose are used.

The structure of the paper is as follows. In the first part, the basic theoretical knowledge in the field of time management in the selected target group is analysed. The following section defines the research objective, methodology and data used. This is followed by the results of the empirical study and a brief discussion. Finally, the main findings of the research are formulated.

1. Theoretical part

Time management is crucial for students as it allows them to effectively schedule and use their time for studying, working on projects, and preparing for exams while also finding time for relaxation and social activities, leading to better academic performance and reduced stress (Goodson et al., 2016). When students can plan and organise their time correctly, they can set realistic goals and achieve them gradually, contributing to a sense of achievement and self-confidence (Burrus et al., 2013). Good time management helps them identify priority tasks that require immediate attention, thus preventing procrastination that can lead to work backlogs and stressful situations before deadlines.

Collectively, efforts to achieve good outcomes demonstrate that time management is an essential self-regulatory process. Students actively manage when and for how long they engage in the necessary activities to achieve their learning goals (Wolters & Brady, 2021). A study by Ahmad Uzir et al. (2020) showed that time management tactics had significant associations with learning outcomes and were related to various personalised feedback interventions.

Students who are proficient in time management are better able to balance between academic responsibilities and leisure activities (Goodson et al., 2015). According to their findings, students who perceived control over their time reported significantly better evaluations of their performance, greater job and life satisfaction, less task ambiguity, less task overload, and less work-induced and somatic tension. This means that they can find time for hobbies, sports, and

socialising with friends and family, which contributes to their overall mental health and well-being.

Indeed, numerous studies of university students (Ahmad Uzir et al., 2020; Bolango et al., 2018; Burrus et al., 2013; Goodson et al., 2016; Wolters & Brady, 2021) have shown a direct link between time management skills and academic performance. By creating a regular schedule, students can avoid the overload and burnout often accompanying intensive studying (MacCann et al., 2012).

Time management also allows students to use every moment efficiently, which is especially important during busy periods such as exam periods (Adams & Blair, 2019). With good planning, they can better divide their time between studying, resting and other responsibilities, which improves their ability to focus and stay motivated. In addition, when students see that their efforts produce tangible results, it increases their motivation to continue planning effectively (Alsalem et al., 2017).

Students make the most use of and find useful several time management tools to help them organise their time and responsibilities effectively (Alsalem et al., 2017; Burrus et al., 2013). Among the most popular is the planning calendar, a physical diary or a digital application (Bolango et al., 2018). A planning calendar allows students to keep track of important deadlines such as exams, project submissions, and other academic obligations, helping them to stay on track and avoid unnecessary stress from being late. To-do lists are another frequently used tool (Huang et al., 2023). Students can create a list of tasks they must complete each day or week and then gradually check them off. This system helps students focus on specific tasks and gives them a sense of satisfaction when they see that they are completing their responsibilities.

Several studies confirm (Egenasi et al., 2022; Orhani et al., 2022) that students use electronic diaries more than print versions due to the unlimited physical space requirements compared to paper diaries (Lev-On & Lowenstein-Barkai, 2019). On the other hand e.g., Huang et al. (2023) cite an unsurpassed advantage of paper diaries and time planners - the 'browseability' of the diary, in which existing - written events can be viewed quickly when planning new events. Therefore, they hypothesise that paper diaries more effectively help users see the big picture of their scheduled events compared to mobile diaries.

Using paper diaries also has other advantages, such as tangibility and physical contact with the entries, which can improve recall of information (Tungare et al., 2008) and provide creative options such as drawings and notes in the margin. However, the drawbacks are limited flexibility and the inability to easily update or sync with digital devices, which is a significant disadvantage in this day and age when the vast majority of students use smartphones (Lev-On & Lowenstein-Barkai, 2019).

Students who use a paper-based diary can benefit from many unique advantages that electronic diaries may not offer to the same extent (Müller et al., 2011). First and foremost, the tangibility and physical contact with a paper diary can contribute to better retention of information. Handwriting activates different areas of the brain associated with learning and memory, which can help students better remember important dates and tasks (Tomitsch et al., 2006). In addition, paper diaries provide a space for creative expression. Students can add drawings, diagrams, colour codes, and other visual elements to make their planning more enjoyable and lively (Blandford & Green, 2001). This personal and creative approach can motivate and help students maintain a positive attitude toward time management (Chen et al., 2021). Paper planners also allow students to work without the need for digital devices and the internet, which can be beneficial for those trying to minimise screen time and prevent digital fatigue. This independence from technology can help students focus better and avoid the distractions that often come with using electronic devices.

In addition to the practical benefits, paper diaries can serve as valuable personal records and journals that students can scroll through to see their progress, accomplishments, and memories. This historical aspect of paper diaries adds value to them and may be necessary for students who value physical records of their academic and personal growth (Broderick & Stone, 2006). Ultimately, paper diaries offer students a unique combination of physical contact, creative possibilities, independence from technology, and permanent personal records, making them an attractive alternative to electronic diaries despite some practical limitations.

2. Aim, methodology, and data

This paper aims to investigate students' attitudes towards the use of paper planners in the Czech and Slovak Republics and to define the essential content components of a planner that students use or require.

The data were collected through questionnaire research, which was carried out from March to April 2024. 200 respondents - males and females in different age categories from both Slovak and Czech regions, participated in the questionnaire survey. 81.5 % were women, showing a significant predominance of the female population dealing with diaries and time planners. A large part of the respondents, namely 76%, stated that they belong to the age group of 21-25 years, which is also related to the question of the current primary working status - 75.5% of the respondents answered that they are students at university. A total of 59% were Slovak and 38% Czech. The remaining 3% of respondents live in other countries.

Descriptive statistical analysis is used to analyse the characteristics of the variables, which shows the profile of the respondents in terms of frequency distribution. To detect statistically significant differences in the influence of the independent factors [x] on the dependent variables [y], regression (LRM) and correlation analysis methods are applied. To use the linear regression analysis method, the assumptions for the independent variables must be met, which must demonstrate the assumptions of a linear and normal distribution. Verifying these assumptions is the basis for the predictive value of the regression model coefficients. To illustrate the significance of the regression coefficients of the independent variables, a t-test is used to determine the statistical significance of the regression coefficient if the p-value of the t-test is less than the significance level, which is $\alpha = 0.05$.

In the research, the following questions were set:

- Q1: Do more than half of the respondents actively and regularly use a time planning tool - a diary?
- Q2: Is there a correlation between age/gender/status and the reason for not using a time planning tool?
- Q3: Is there a dependency between age/gender/status and the preferred content of time planners?
- Q4: Is there a dependency between age/gender/status and the preferred aspect of time planning?

Based on the research questions, three hypotheses were defined:

- H1: Age/status/gender significantly influences the reasons for not using time planners.
- H2: Age/status/gender significantly influences the content requirements of time planners.
- H3: Age/status/gender significantly influences the preference for aspects of time planner.

3. Results and discussion

Table 1 shows the replotted distribution of respondents' answers to why they do not use time planners/diaries.

Table 1: Respondent's aggregate answers

Reasons for not using the time planner / diary	%
I don't use paper diaries, I prefer digital calendars and notes	3.00%
I don't use any diaries or planners, I remember everything I need without them	4.00%
I can't plan things in advance - I do what I think is necessary at the time	7.50%
I don't have enough motivation to use diaries and write things down	1.50%
I find it useless	31.50%
I regularly use time planners / diaries	52.50%

Source: own research

Based on the results in Table 1, 52.5% of respondents regularly use a paper time planner (55.5% of respondents overall use some form of time planner). However, it is noteworthy that more than 31% of the respondents consider using time planners unnecessary. However, only 3% of respondents do not use paper time planners because they use digital calendars and planners. Our findings are inconsistent with the results of several studies (Egenasi et al., 2022; Lev-On & Lowenstein-Barkai, 2019; Orhani et al., 2022), which have shown that students use electronic planners to a greater extent than print versions.

Research question 1 is answered - more than 50% of respondents use a time planner / diary.

Correlation and regression analyses were used to identify statistically significant differences between age/status and gender as independent variables concerning the non-use of time planning tools (dependent variable). The results are shown in Table 2. To calculate the results for H1, the total number of respondents was adjusted to 95 respondents, which corresponds to 47.5% of respondents not using scheduling tools.

Table 2: Results for H1

Descriptive	Non-use	Gender	Age	Status
Mean	4.1684	1.7789	3.0000	2.2316
Standard Error	0.1369	0.0428	0.0833	0.0770
Standard Deviation	1.3341	0.4172	0.8121	0.7502
Sample Variance	1.7798	0.1740	0.6596	0.5628
Kurtosis	-0.0155	-0.1370	13.2189	17.3091
Skewness	-1.1395	-1.3661	2.7996	3.2960
Count	95	95	95	95

Correlation					
Non-use	1				
Gender	-0.0089	1			
Age	0.0098	0	1		
Status	0.0669	-0.0047	0.6286	1	
Regression analysis					
Multiple R	R Square	Adjusted R Square	Standard Error	Observations	
	0.0792	0.0063	-0.0265	1.3517	95
<i>Anova</i>	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	
Regression	3	1.0482	0.3494		0.1912
Residual	91	166.2571	1.8270	p-value	
Total	94	167.3053			0.9021
	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>	
Intercept	4.0804	0.8077	5.0516	0.0000	
Gender	-0.0268	0.3342	-0.0803	0.9362	
Age	-0.0875	0.2207	-0.3963	0.6928	
Status	0.1784	0.2389	0.7468	0.4571	

Source: own research.

The results of the correlation analysis showed at the significance level $\alpha = 0.05$ that there is a very weak relationship between the barrier of not using a diary and age/status/gender. This dependence is positive for age and status and negative for gender ($c = -0.0089 - 0.0669$). The LRM results showed that the model is statistically insignificant ($p\text{-value} = 0.9020$) and attitudes towards non-use of time planning tools are not statistically significantly influenced by gender, age or status of the respondent.

H1 is rejected.

To evaluate H2, respondents' attitudes on the content of the time planner were asked on the following statements: The time planner/diary should include:

- [1]: the motivational part
- [2] the inspirational part
- [3] the part on challenges
- [4] the creative part
- [5] more free space for notes

Correlation and regression analyses were used to identify statistically significant differences between age/status and gender as independent variables concerning preference for the content of the time planner (dependent variable). The results are shown in Table 3.

Table 3: Results for H2

<i>Descriptive</i>	<i>Content</i>	<i>Gender</i>	<i>Age</i>	<i>Status</i>
Mean	2.995	1.815	3.1	2.25
Standard Error	0.0901	0.0275	0.0669	0.0566
Standard Deviation	1.2740	0.3893	0.9458	0.8004
Sample Variance	1.6231	0.1515	0.8945	0.6407
Kurtosis	-0.9939	0.6791	9.2293	12.7264
Skewness	0.0978	-1.6348	2.7145	2.9024
Count	200	200	200	200
<i>Correlation</i>	<i>Content</i>	<i>Gender</i>	<i>Age</i>	<i>Status</i>
Content	1			
Gender	0.0184	1		
Age	0.1089	-0.0450	1	
Status	0.0801	-0.0766	0.5310	1
Regression				
Multiple R	R Square	Adjusted R Square	Standard Error	Observations
0.1147	0.0132	-0.0019	1.2752	200
<i>Anova</i>	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>
Regression	3	4.2521	1.4174	0.8716
Residual	196	318.7429	1.6262	p-value
Total	199	322.9950		0.4568
	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>
Intercept	2.3420	0.5527	4.2376	0.0000
Gender	0.0821	0.2329	0.3524	0.7250
Age	0.1246	0.1128	1.1050	0.2705
Status	0.0523	0.1335	0.3916	0.6958

Source: own research

The results of the correlation analysis showed at the significance level $\alpha = 0.05$ that there is a very weak positive relationship between the content preference of the time planner and the factors of age, status and gender. This dependence is positive for age and status and negative for gender ($c = 0.0184 - 0.1089$). The LRM results showed that the model is statistically insignificant ($p\text{-value} = 0.4568$) and attitudes towards content preferences are not statistically significantly influenced by gender, age or status of the respondent.

H2 is rejected.

Table 4: Diary's content preferences of students aged 16-25.

Content	Age 16–25 years
1	12.80%
2	25.20%
3	30.71%
4	17.13%
5	14.17%
Total	100.00%

Source: own research

Respondents aged 16-25 mostly prefer the content part focusing on challenges [3] and the inspirational part [2]. These findings correspond with the results of several studies, e.g. (Blandford & Green, 2001; Müller et al., 2011; Tungare et al., 2008).

To evaluate H3, respondents' attitudes on the preference of the time planner aspect on the following statements: The most essential aspect of the time planner/diary for me is:

- [1] aesthetics and appearance of the time planner / diary
- [2] functionality and practicality
- [3] content (added information, educational texts or ideas)

Correlation and regression analyses were used to identify statistically significant differences between age/status and gender as independent variables concerning the preferred aspect of the time planner (dependent variable). The results are shown in Table 5.

Table 5: LRM pre H3

<i>Descriptive</i>	<i>Aspect</i>	<i>Gender</i>	<i>Age</i>	<i>Status</i>
Mean	1.915	1.815	3.1	2.25
Standard Error	0.0338	0.0275	0.0669	0.0566
Standard Deviation	0.4785	0.3893	0.9458	0.8004
Sample Variance	0.2289	0.1515	0.8945	0.6407
Kurtosis	1.2261	0.6791	9.2293	12.7264
Skewness	-0.2438	-1.6348	2.7145	2.9024
Count	200	200	200	200
<i>Correlation</i>	<i>Aspect</i>	<i>Gender</i>	<i>Age</i>	<i>Status</i>
Aspect	1			
Gender	-0.1658	1		

Age	0.1299	-0.0450	1	
Status	-0.0230	-0.0766	0.5310	1
Regression				
Multiple R	R Square	Adjusted R Square	Standard Error	Observations
	0.2379	0.0566	0.0422	0.4683
	200			
<i>Anova</i>	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>
Regression	3	2.5789	0.8596	3.9205
Residual	196	42.9761	0.2193	p-value
Total	199	45.555		0.0095
	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>
Intercept	2.1690	0.2029	10.6884	0.0000
Gender	-0.2061	0.0855	-2.4098	0.0169
Age	0.0996	0.0414	2.4051	0.0171
Status	-0.0839	0.0490	-1.7112	0.0886

Source: own research.

The results of the correlation analysis show at the significance level $\alpha = 0.05$ that there is a very weak relationship between the preferred aspect of the time planner and the factors age, status and gender. This dependence is negative for gender and age and positive for status ($c = -0.1658 - 0.1299$). The LRM results showed that the model is statistically significant ($p\text{-value} = 0.0095$) and attitudes towards preferred aspects of time planner are affected 4% ($\text{Adj. R sq.} = 0.0422$) by gender ($\text{coef.} = -0.2061$) and age of respondent ($\text{coef.} = 0.0996$).

Table 6: Student preferences towards the aspect of time planners among 16-25 year olds and other respondents.

Aspect	Age 16–25	Age from 26
1	9.50%	0%
2	78.93%	86.36%
3	11.57%	13.64%
Total	100.00%	100.00%

Source: own research.

Respondents in both age categories prefer functionality and practicality. On the other hand, we can see that students are not indifferent to the aesthetics and appearance of the planner, which, for example, respondents over 26 years of age do not consider the most essential aspect. These results support the study of Broderick & Stone (2006) or Chen et al. (2021).

Hypothesis H3 is accepted - age and gender significantly affect preference for aspects of the time planner.

Based on the study's results, 52.5% of respondents regularly use a paper time planner, while 55.5% overall use some form of planner; however, 31% of respondents find planners unnecessary and only 3% use digital planners, which is contrary to previous studies. Correlation analysis showed very weak, statistically insignificant relationships between not using a planner and the factors of age, status, and gender, as well as between preferences for planner content and these factors, with younger respondents preferring the inspirational and challenging sections. Only preferences for the functionality and aesthetics of the planner are partially influenced by gender and age, supporting the acceptance of hypothesis H3.

Conclusion

The article aimed to define attitudes towards the use of paper planners by students in the Czech and Slovak Republics and to define the essential content components of a planner that students use or require.

The study results indicate that up to 52.5% of respondents regularly use a paper time planner (55.5% of respondents overall use some form of time planner). However, more than 31% of respondents consider the use of time planners to be unnecessary. We find a very weak relationship between the barrier of not using a time planner and age/status/gender, and respondents' attitudes towards not using time planning tools are not statistically significantly influenced by gender, age, or status of the respondent. Further, we find that the content preferences of time planners are very weakly dependent on age/status or gender. In this context, students in Slovakia and the Czech Republic prefer the challenge-focused content part and the inspirational part of the planner/diary. Regarding the primary aspect of paper time planners, there is a very weak dependency between the factors of age, status and gender, and the perception of the preferred aspect is influenced by the gender and age of the student. Respondents in both age categories prefer functionality and practicality the most. On the other hand, we see that students are not indifferent to the aesthetics and appearance of the planner.

This research has a regional limitation, as it examines the situation in the Czech Republic and Slovakia, and at the same time, it was primarily aimed at students. In the future, we expect to validate the research results in others in a broader regional setting and with a wider respondent base (not only students but also other age groups across the status spectrum).

The research findings may provide an inspiring basis for further scholarly research in the time management segment of the student sector. These results may stimulate programme designers who focus on time management by students, coaches, mentors, or academic advisors.

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The impact of demographic changes on HR processes. A highlight on workplace learning, upskill and reskill in the context of the future or work

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Abstract. Demography plays a fundamental role in shaping the landscape of human resources. The interdependent relationship between these two fields is observable in the workforce composition, labor market trends, talent management strategies and also on learning. Changes perceived in demographic changes are shaping and transforming human resources management. In an era marked by demographic shifts, technological advancements, and evolving work preferences, organizations are facing the need to understand and adapt to the changing demographics to effectively manage their human resources. This article explores how demography influences HR and offers insights into how organizations can navigate this dynamic landscape with a highlight on learning related processes. The aim is to contribute to human resources specialists as practitioners and academic experts to be able to observe the impact of demographic changes on human resources management. Observations are obtained in a global perspective.

Keywords: demography, workforce, labor market, workplacelearning, upskill, reskill

1. Methodology

In the present paper, a semi-systematic approach was used, as fit for topics that have been conceptualized differently and studied by various groups of researchers within diverse disciplines. The analysis process aimed to obtain relevant information from a selected field that has progressed over time also observing how the topic has developed across research. As a method of analysis, a qualitative one was used, and however this type of review is usually followed by a qualitative analysis, in this case it was not applicable. The potential contribution of the paper is the ability to map a field of research, synthesize the state of knowledge, and create an agenda for further research.

Related to conducting it, the plan of selecting the articles was based on the principle to find both, academical and business – workplace related contents as well. Related to the business content category, the aim was to assess business reviews and publications, and those but academic papers too, to filter through the personal professional expertise, as a practitioner. Among the articles found, it was a finding itself that reports, and analysis do exist especially on behalf of consultancy companies. Aiming to highlight learning topics in both types of contents is abundant, but tackling the shift proposed in the hypothesis that L&D (learning and development) is going through a change of positioning, was more found in business articles. The selection of the articles was based on their core relevancy on the topic and moreover, on their potential contribution of bringing better, modern and actual practices on what means learning in the workplace these days. The structuring and writing of the paper aimed to offer a

basis to analyze whether the idea that the transformation of learning at the workplace is at least a real one.

2. Introduction

Many companies do not realize that the demographic changes in the workforce require new Human Resource Management strategies. The obviously rising average age of employees may not seem to be worrisome, as long as there is no effect on day-to-day business. Still, the employees and their knowledge will leave the firms; on the other hand, the recruitment of a qualified workforce in the external labour market might be hampered by skill shortages in some regions (Verworn et al., 2009). One of the most significant demographic shifts occurring in many parts of the world is the aging population. As people live longer and healthier lives, organizations are faced with a workforce that spans multiple generations. The traditional model of a predominantly young workforce is evolving into a multi-generational one, with Baby Boomers, Generation X, Millennials, and Generation Z working side by side. Each generation brings its unique set of skills, values, and expectations to the table, making it crucial for HR professionals to tailor their strategies accordingly. Mobility also plays a significant role in shaping HR processes. The digital age has brought in a new era of work characterized by unprecedented flexibility and mobility. Digital nomads, individuals who work remotely while traveling and often rely on technology to connect with their employers, have emerged as a prominent symbol of this transformation. As the ranks of digital nomads grow, their impact on human resources is becoming increasingly significant.

3. The demographic shifts

“Demographic shifts are fundamentally altering the composition of the labor force, requiring human resource professionals to develop strategies that attract, engage, and retain a diverse and multi-generational workforce.” (Cascio & Boudreau, 2011). These changes are experienced by companies in various ways. These shifts are driven by factors such as aging populations, changes in birth rates, increasing life expectancy, and the entry of new generations into the workforce. Some of the main areas where companies are being affected by these demographic changes are various.

Demographic shifts are driving a greater focus on diversity and inclusion in the workplace. Companies are recognizing the benefits of a diverse workforce, including improved creativity, decision-making, and innovation. HR departments are implementing policies and initiatives to foster diversity and create inclusive environments. Also demographic changes are not limited to one region or country. Globalization has made it easier for companies to tap into international talent pools. This requires HR to navigate the complexities of hiring and managing a global workforce, including understanding cultural differences and legal requirements in different countries.

As the workforce composition changes, so do employee benefit needs. Older employees may prioritize retirement benefits and healthcare, while younger workers may value student loan assistance and professional development opportunities. Companies must adjust their benefits packages to meet the diverse needs of their employees. With younger generations entering the workforce, there is a natural inclination toward technology adoption. Companies are leveraging this trend by integrating technology into their operations and HR processes, including recruitment, onboarding, and employee engagement.

Demographics significantly impact talent acquisition and retention strategies. For instance, in regions experiencing a labor shortage due to declining birth rates, competition for talent can be fierce. HR departments need to develop creative recruitment methods, tap into non-traditional labor pools, and establish enticing employee value propositions to attract the best talent. Furthermore, understanding generational differences is essential when crafting retention strategies. Baby Boomers may prioritize job security and retirement benefits, while Millennials may value work-life balance and professional development opportunities. A nuanced approach to employee engagement and benefits can help organizations retain a diverse workforce.

3.1. Managing multiple generations

Companies are now managing a workforce that spans multiple generations, including Baby Boomers, Generation X, Millennials, and Generation Z. “In today’s workplace, the multi-generational workforce is not merely a diversity concern but a strategic imperative. The interplay of Baby Boomers, Generation X, Millennials, and Generation Z brings a wealth of skills, experiences, and perspectives to organizations, offering a unique opportunity for innovation and collaboration.” (Lamb, 2019). Each generation brings its own set of values, work preferences, and expectations to the workplace. HR departments must adapt their strategies to accommodate these differences, ensuring that the work environment is inclusive and conducive to collaboration among generations. There is a need “to create a harmonious multigenerational workplace, organizations must implement flexible policies, provide continuous learning opportunities, and foster a culture of mentorship and knowledge sharing.” (PwC, 2011).

3.2. The ageing workforce

Many regions are witnessing the aging of their workforce as Baby Boomers reach retirement age. This has implications for succession planning and knowledge transfer. Companies need to identify and develop younger talent to fill leadership roles and ensure that valuable institutional knowledge is not lost with the departure of experienced employees. The share of people aged 55 years or more in the total number of persons employed in the EU-27 increased from 12 % to 20 % between 2004 and 2019. In 2019, 48 % of all working men aged 65 years or more in the EU-27 were employed on a part-time basis compared with 60 % of women aged 65 years or more. Agriculture, forestry and fishing was the largest employer of people aged 65 years or more in the EU-27, employing 14.9 % of the workforce for this age group in 2019. Some older people face a balancing act between their work and family commitments, while financial considerations and health status often play a role when older people consider the optimal date for their retirement. Many of the EU Member States are increasing their state pension age, with the goal of keeping older people in the workforce for longer and thereby moderating the growth in the overall financial burden of state pensions. The success of such attempts depends, to some degree, on having an appropriate supply of jobs. This may partly help offset the impact of population ageing, while improving the financial well-being of some older people who might not otherwise have an adequate income for their retirement (Eurostat, 2020).

It seems that developed societies enter an unexpected slow-down in their economic dynamism that is, at least partly, related to ageing. They tend to become less dynamic and innovative, and more conservative and routine-prone than younger societies with youthful and expanding labour forces. That poses a number of problems, especially in the context of competitive globalization.

Finally, one should mention the sociocultural changes that accompany ageing. While it is fashionable to stress the advantages and benefits of ageing—declining criminality and violence, peaceful conservatism, etc.—the problems associated with those very tendencies should also be kept in mind. Ageing societies turn more conservative and more crime/violence fearing. This may reduce aggressive behavior, but also increases the irrational fear of crime—and makes pressures for (inevitably expensive and often socially divisive) security measures, such as gated communities, harder to resist. Conservatism of age typically aids conservative parties, and spawns conservative policies that cement the status quo and reduce the pressures for early, costly, but necessary reforms. Yet such reforms are essential for effective social and political adjustment (Pakulski, 2016).

3.3.Remote and flexible work

Demography and remote/flexible work are interconnected in several ways, as demographic factors can influence the adoption and impact of remote and flexible work arrangements. As more women and older workers remain in or re-enter the workforce, there is a growing demand for flexible work arrangements. Companies are increasingly offering options such as remote work, part-time roles, and flexible hours to attract and retain these workers and also they may recognize the value of retaining experienced talent by offering such arrangements. Also different generations within the workforce have varying preferences regarding work arrangements. Millennials and Generation Z, for instance, often prioritize work-life balance and may seek remote or flexible work options. Understanding these generational preferences is crucial for organizations looking to attract and retain talent across age groups.

Demographic shifts related to urbanization and population density can impact commuting patterns too. High traffic congestion and long commutes in densely populated areas may motivate both employees and employers to explore remote work options as a means of reducing commuting-related stress and improving productivity.

Also due to demographic changes, such as declining birth rates in some regions, which can lead to labor shortages, companies may turn to remote work to tap into a broader talent pool, including individuals in other geographic areas or those who prefer remote employment. More than this, younger workers enter the workforce, they may drive the demand for technology-enabled flexible work options. Family and caregiving responsibilities can also impact, such employees with caregiving responsibilities may benefit from flexible schedules or remote work to better balance their work and personal lives. Some older workers may prefer to age in place, staying in their homes and communities as they get older. Remote work can support this preference, allowing older employees to continue working while avoiding the need for a lengthy commute or relocation.

Demography and remote/flexible work are closely linked because demographic factors, such as age, generation, family structure, and technology adoption, influence both the supply and demand for these work arrangements. Organizations that recognize and adapt to these demographic shifts can better tailor their remote and flexible work policies to meet the needs and preferences of their diverse workforce.

3.4.The shortage of skills

Some industries and regions are experiencing skill shortages due to demographic changes. For example, in fields like healthcare and technology, there may be a shortage of skilled workers, leading to increased competition for talent. Companies are *forced* to invest in training and

development programs to bridge these skill gaps and remain competitive. This is producing a growing recognition of the need for continuous learning and upskilling in today's fast-paced, knowledge-based economy. As a result, many companies are shifting from traditional, one-time training events to ongoing learning and development initiatives. This evolution often entails a more consistent allocation of resources to training throughout the year. Companies are placing a greater emphasis also on skills that are relevant to the future of work, such as digital literacy, data analytics, and soft skills like adaptability and creativity. Training budgets are being reallocated to prioritize these skills in response to evolving industry demands.

Not only in corporate strategies, but also at governmental level, for example at EU level, the Council in February 2021 outlined the following five strategic priorities for the period 2021-2030: improving quality, equity, inclusion and success for all in education and training; making lifelong learning and mobility a reality for all; enhancing competences and motivation in the education profession; reinforcing European higher education; and supporting the green and digital transitions in and through education and training (Eurostat, 2018). All these, both sided efforts are leading to a new systemic approach when it comes to learning in companies, as processes led by HR.

Learning at work can be a motivational factor for employees. However, the main direct factors of motivation are more linked to leadership and management style, organizational climate, way of work and the reward system, learning is gaining a new positioning amongst the top ones. Learning at work is more than a benefit, impacting many motivator factors and it is also one of the keys for many challenges in management of human resources (HR), including strategically planned upskill and reskill actions. In this review, the major focus was to search relevant literature on the topic of learning in business environment. The filtering and choosing of articles were screened by two perspectives: the scientific perspective and second the practitioner's perspective of having experience in learning activities within the business environment and considering existing research content on it. I've chosen to assess articles from a scientific perspective implying a critical and analytical approach to understanding the content of the article, such, evaluating the quality and reliability of the research methods and data presented in the article, assessing the validity of the author's arguments, and considering the broader context and implications of the findings. The aim of approaching this exercise from a scientific perspective, was to develop a deeper understanding of the research and its implications, and to be able to make better decisions about how to apply the findings in work or practice. The conclusions obtained as per this endeavor was that offering learning in companies is not a benefit anymore, but a core business need and a basic need of employees.

L&D professionals have the opportunity but also need to handle the business request of creating cultures of permanent learning, due to more than motivational reasons, such as equitability but also for innovation driven reasons (Benson, 2022). Analyzing the learning topic based on major HR processes, the relevance and need of it, offering learning seems not to be a perk anymore, but more a necessity expected by employees, future, or existing ones. As the entire process related to human resources within a company, starting with recruitment, it all starts with skills. Finding, growing, adding, enriching skills become the red line of the employee's life cycle within the company. The core relevance of learning is emphasized also from the leadership and management perspective, as it is a core need to build skill of the teams, so as to inspire and co-create a continuous learning culture (Russo, 2020).

Balancing challenges of talent pool, considering global context, solving skill gaps in house, within the company by up- and reskilling programs is sometimes a necessity, or at least, it is triggered by real business needs. Same process, in a customized way can be applicable to grow

seniority or even to handle internship programs. On the job training, such as an apprenticeship, will enable an employee to develop the key attributes needed to succeed in their place of work, putting what they learn straight into practice. Establishing a culture of learning within a company is essential to upskilling teams and giving the tools and skills to boost productivity and innovation within their roles. Companies that give their staff the latitude to learn job-specific skills—and the time to test and expand those learnings—see benefits like revenue growth, better talent acquisition and retention rates, and increased productivity. A recent global survey revealed that 77% of workers want to upskill, and they're hungry for a workplace culture that will support their learning journey (PWC, 2021).

3.5.The impact of upskill and reskill

“Though upskilling and reskilling take employee learning and development into two different directions, both are great for helping talent grow.” Jason Wiggins, Business Advisor. Reskilling allows employees to gain new skills in a different direction from their current career path, exploring different areas of interest and broadening their skillsets. This might include lateral skills training across various departments or trying out a new job role that better fits the company (IDC Research, 2021). Upskilling is more linear. It focuses on developing an employee's existing skills to progress in their current role. Upskilling means improving employees' existing skills to bridge the gaps in your business. Upskilling encompasses both hard skills and soft skills. Hard skills are job-specific skills (including technical skills) typically learned through training or education. Whereas soft skills refer to interpersonal traits and competencies such as problem-solving, teamwork, and communication (Kaikhosroshvili, 2020).

Upskilling seems to be an important dimension of the strong cultures, and 72% of global business leaders believe that culture helps successful change initiatives happen. That includes upskilling. With more than a third of jobseekers willing to sacrifice salary for the chance to learn new skills, employers should focus their efforts on retaining their workers. Investing in solid upskilling programs that show that the business is betting on their people's future success—as well as their own—is a good place to start. Creating a skilled workforce that's well-rounded and cross-trained can help increase an organization's overall effectiveness. Fostering a culture of learning means adopting the attitude—from the top—that failures are learning opportunities that lead to breakthroughs and can increase your speed to insight and lead to innovation. Failing forward is about understanding that learning is a process and skills application isn't usually perfect out of the gate. Accepting mistakes as a cost of innovation also breeds transparency, trust and collaboration (PVC, 2020).

It is a collateral effect of the pandemic which has accelerated the pace of change in the way work gets done and the need for new skills to use evolving technology to work more efficiently. Collaboration tools for remote work, and automation and artificial intelligence models that can perform manual tasks and process data quickly, are driving the need for personalized, in-depth training. And businesses are realizing it's easier—and more cost effective—to build their own bench of talent than it is to build a team through hiring. These upskilling efforts should meet employees where they are in terms of role, industry and knowledge base (World Economic Forum, 2021).

Workers want to reskill:

- 40% of workers successfully improved their digital skills during the pandemic.

- 77% are ready to learn new skills or completely retrain.
- 74% see training as a matter of personal responsibility.
- 80% are confident they can adapt to new technologies entering their workplace, with a large majority of people in India (69%) and in South Africa (66%) saying they are very confident, but only 5% in Japan say they are very confident.
- 46% of people with postgraduate degrees say their employer gives them opportunities to improve their digital skills, but just 28% of people with school-leaver qualifications say the same. Industries like retail or transport, which are most at risk of disruption, score just 25% and 20% respectively; banking scores 42%. Younger people are twice as likely as older people to get opportunities to improve skills, and people in cities are 1.5 times as likely as people in towns (PWC, 2021).

Before creating an upskilling strategy, a diagnostic phase is recommended to see what skills will be needed from the employee base down the road. The goal is to be proactive and stay ahead of industry's future demands to get an edge on your competitors. Would be desirable to make training and development opportunities readily available and affordable for everyone. Of course, there might be employees, the ones with high productivity and great morale, you'll want to focus on more. Second, would be needed to accommodate different learning styles. Third action is to empower employees to choose their path. A fourth one is to reward employees for their upskilling efforts. And finally, engaging employees in upskilling can be valuable (ITA Group, 2020).

Another approach in implementing upskilling and reskilling is considered by Sammi Pun. She presents the following actions: give admins more time back: in times like these, where it is needed that workforce to quickly onboard and enroll into new roles internally, take out as much of the admin work as possible. Automate your enrolment process for learners so they can hop in courses that will quickly get them suited up for their new job without a hassle. Second: share ideas. Collaborative learning is more important than ever now that we have fewer people. Sharing best practices are essential during times of layoffs, freezes, and furloughs because you only want to replicate success. Collaborative learning environments enable upskilling and reskilling that's seamless and intuitive to learners by allowing peers to educate each other. Third: embrace mobile learning: Remote learning isn't just for our kids right now. Mobile learning is a way to guarantee that the workforce remains engaged and armored with the tools they need, whether on the go or from home, to help your company continue to succeed (Sammi, 2021).

Having in mind a supposed gap of understanding of the positioning of learning topics in companies, many offering it only or mostly as a benefit, the research on literature offered insights on the contrary, in a slightly unexpected way. The articles preponderantly sustain the more expanded value of it, beyond the business need, as a predictable and normal expectation on behalf of the candidate, employees. From the candidate's point of view, learning is seen as a differentiator, so a company having a learning map actually is part of the reputation and employer branding of the company. Also, the way of offering learning in companies is seen as a core engagement, satisfaction and retention criteria. The mapped literature searched on the topics of re- and upskill is large, complex and with direct utility in business cases within companies.

The focus many companies place on seeking young talent, which for a long time was believed to lead to greater innovation, agility, flexibility in the workplace and, to a greater extent, performance, is increasingly subject to question. Many companies have since shifted their focus. The focus on young employees has been replaced by the acknowledgment that a company is better positioned if it has a “healthy” balance between younger and older employees. As a consequence, companies will need to create an environment that provides the same opportunities to older as to younger employees.

Companies will now need to consider what changes they must introduce as the result of having a more diversified workforce, in terms of age or in terms of employment relationship. This requires a higher awareness of the needs of the different stakeholder groups and the competence to resolve potential conflicts through innovative solutions. In addition, companies need to consider the requirements imposed by nontraditional employment relationships. Nontraditional employment relationships are those that deviate from common practice (e.g., careers with fluctuating part-time schedules, lateral careers, employees joining the company later in their careers, phased-in retirement concepts, and contracts with interim project managers). As a first step, companies should review their HR strategies in light of the changed framework in terms of demographics, longer life expectancies, new working-time rules. Companies that see their opportunities in diversifying their workforce will offer an extended career in accordance with the new retirement ages. This will enable them to better cope with a high demand for qualified personnel, which may not be satisfied in the future solely by relying on the domestic labor market. Often the employment relationship during the two additional years prior to retirement will be structured differently from the rest of the earlier career. It is quite likely that employees may wish to begin with a phased-in retirement, such as part-time or project-based employment. For other companies (e.g., production, but also certain field service activities), an extended career may not be an option for either the company or the employee. Solutions should be explored that allow the employees to retire, from a financial perspective, at the current retirement age despite the decrease in pensions as a result of the “early” retirement. Employers also need to keep in mind that such employees will no longer be able to reap the benefits of being statutory senior part-time employees. Special attention should be given to the retirement age as defined in the company pension plan. The retirement age determines not only the date as of which a pension is paid, but also the amount of the pension, meaning company pensions can be used as a strategic HR tool to influence an employee’s retirement behavior. Of course, age is an important element that can significantly impact pension costs and risks. As a consequence, many company pension plans exclude certain employee groups based on age-related criteria. This may now conflict with the new HR strategy that is designed for a more diversified workforce, including more senior employees (Day, 2007).

4. Results and conclusions

Demography and human resources are intertwined in a complex relationship that shapes the workforce of today and tomorrow. Organizations that understand and adapt to demographic shifts will be better equipped to attract, retain, and develop a diverse and talented workforce. By staying attuned to population trends and tailoring HR strategies accordingly, businesses can navigate the ever-changing landscape of human resources successfully. Demography isn’t just about numbers; it’s about the people who make up the workforce, and understanding them is the key to HR excellence in the modern era.

The results of the review revealed that the relevancy and actuality of the hypothesis, such that L&D’s positioning is changing, not being only a benefit, but transforming into a motivational

factor, one important in attracting talent, retention of it, being an element of engagement is sustained by analyzed articles.

Technology continues to rapidly change the way most organizations operate. In response, companies and their employees must consistently add to their technical knowledge and skill sets. As job requirements change and new skills are required, companies are forced to either find new talent or fill the gap through upskilling. Through upskilling, companies can save money by increasing the abilities of their current employees, instead of spending time and budget on hiring new workers. In addition, the current workforce is expecting more from their job than guaranteed pay and a comfortable workplace environment. Employees now anticipate perks such as paid holidays, affordable healthcare and professional training. By providing employees with upskill training opportunities, organizations can make workers feel that they are valued and have a dedicated future within the company. Additionally, companies that choose to upskill rather than fill skill gaps with outside talent save money and time by reducing the need for hiring, onboarding and training processes (World Economic Forum, 2022).

While businesses cannot protect every job, they have a responsibility to help their people remain employable. Businesses need to articulate and communicate the business case for upskilling (win-win scenarios) and make upskilling part of their firm's purpose. A way of making the "upskilling purpose" a new normal is the development of measurement systems where companies disclose upskilling performance along with profits, financial metrics and other corporate social responsibility metrics. The most pertinent type of upskilling will vary from business to business, but firms can adopt core upskilling principles and strategies (World Economic Forum, 2021).

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Security threats in the university environment: the view of Slovak university students

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Abstract: The tragic incident that occurred at the end of 2023 at Charles University in Prague attracted significant public and expert attention to the long-marginalised issue of university security. The nature and functioning of today's society create conditions that are conducive to the emergence and development of numerous security threats. Even the environment of universities is not immune to this risk. It therefore becomes very important to constantly monitor the security situation and evaluate potential risks and threats. The present pilot study can contribute to meeting these needs. The aim of this study is to identify the prevailing perception of potential threats in the university environment from the perspective of university students. The primary source of data is the authors' microsurvey questionnaire, which is subsequently processed in the form of contingency tables and basic descriptive mathematical-statistical methods. Despite the fact that more than three-quarters of the respondents have no personal experience of a crisis event, the incident in Prague has had a negative effect on the view of school safety of up to two-thirds of them. However, students do not consider terrorism or a mass shooting as the most likely crisis event, but the occurrence of a technical accident or fire. The fear associated with these threats is most often manifested by fears for life and health, with other fears being secondary. The negative impact of potential threats on feelings of safety at university is experienced by almost one in four students.

Introduction

In an ever-changing global environment and the increasing complexity of various threats and crises, universities are becoming key institutions that need to be prepared for a wide range of challenges. These institutions face a wide range of threats and crises such as natural disasters, cyber-attacks, pandemics, social and political instability, cultural clashes, workforce capacity crisis, terrorist threats and economic instability. Today's dynamic developments require universities not only to respond to immediate crises, but also to anticipate long-term threats and

unexpected crises that may affect their students, staff and infrastructure. In this era of demanding challenges, crisis management issues are becoming a key element that shapes the resilience of universities to many risks and crisis situations.

Today, where education plays a key role in shaping the future, universities are becoming important centres of intellectual development and innovation. Despite their important role in the context of preparing young people for professional life, universities face many challenges that also affect their security environment.

Today's dynamic world is faced with significant social, technological and environmental factors that fundamentally change the behaviour of individuals not only in the higher education environment but also in the whole society. Since the tragedy that occurred in December 2023 at Charles University in Prague, the safety of higher education institutions has been discussed very intensively, not only in the Czech Republic, but also in many other European countries, including Slovakia. Another indication of a security incident was the event at the beginning of 2024 at Comenius University in Bratislava, which, however, was without negative consequences. However, security risks can also be discussed in the context of cyber security. The incident at Matej Bel University in Banská Bystrica in June 2023, when information systems were attacked by hackers. Natural disasters are also a difficult risk to predict and can equally threaten the safety of both students and staff in higher education institutions.

Despite the many threats, it is wrong to spread unnecessary panic and fear, but it is important to pay attention to preventive measures that can help prevent or at least mitigate the negative consequences of security incidents.

In the field of crisis management at universities, the role of HR management is also very important. In addition to providing a swift response to events, it is also tasked with identifying and mitigating risks. This involves working closely with other departments to forecast potential threats and create crisis management plans. HR also oversees staff and students training as well, ensuring that they are prepared for such events and that effective communication is maintained both internally and externally. By taking these measures, universities can enhance their resilience to various crises and respond effectively when needed.

This paper explores the perspectives and perceptions of students of Alexander Dubcek University of Trenčín on potential threats that could arise in the university environment. The data were collected through a pilot online questionnaire survey.

1. Theoretical part

In today's rapidly changing and unpredictable landscape, effective crisis management is crucial for institutions to ensure their stability and resilience, even in the face of the most challenging situations. Crisis management is a form of management that is applied in situations of extreme stress, or crises, which threaten the values and assets of an organisation, requiring preparation and process definition for proper response in case of crisis activation (Myslín et al. 2023). Crisis management preparedness is commonly comprised of three elements: crisis planning, which involves the anticipated definition of an organisation, exercises to train personnel and test that organisation, and the anticipation of resources needed for backup, rescue and recovery missions (Vinet & Levraut, 2022). Mirzak (2024) states that crisis management can be seen as one of the critical component of organisational resilience and success in today's dynamic and uncertain business environment.

Crisis management is a crucial aspect of the operation of most institutions, including universities, and their readiness for unexpected circumstances. According to Gigliotti (2019) there was a time when crises on college and university campuses were relatively rare. Much has changed, and it has changed quite rapidly. As stated by Moon et al. (2023) models of crisis management provide organisations with a valuable framework for creating emergency plans. They include essential information for making informed decisions during crisis scenarios, outlining staff roles, authority structures, and communication channels. Oleksiyenko et al. (2022) add that effective campus crisis management depends on the capacities of institutions and administrators to understand and resolve problems and their causes.

The topic of security threats in universities is broad, as evidenced by the numerous articles published in the Web of Science and Scopus databases. Universities can face crises such as war, pandemics, natural disasters, civil unrest, financial operations disruptions, cyber attacks, and institutional integrity threats (Ryan et al. 2023; Connie 2023; Janice 2023; English and Maguire 2023). Natural disasters and their links to universities were discussed by Patel et al. (2022). This study explores the influence of students' demographic characteristics on disaster preparedness, identifying 15 significant Disaster Preparedness Indicators associated with sociodemographic traits. Findings emphasize the critical role of government/university responsibility, emergency procedures, university curriculum, and Disaster Risk Reduction adoption in shaping students' disaster awareness. As stated by Gibbs et al. (2022) climate change reports suggest that severe and complex disaster scenarios are likely to become more frequent. This paper reflects on the changing roles of universities in the context of these new disaster risk scenarios. A transformative approach is encouraged as part of an array of resilience strategies, interconnected systemically and temporally. Several authors have discussed cybersecurity in universities (Igbinovia and Ishola 2023; English and Maguire 2023; Mo et al. 2023, Thorpe et al. 2020). The research of Maier and DePrince (2020) offers universities suggestions on how to reduce students' fear and increase their perception of safety. The crises and threats faced by several U.S. universities between 2008-2018 were summarized by Moerschell and Novak (2020), noting physical threat by weapon: injury, loss of life; Physical threat by natural disasters; Physical harm: other; mental harm.

The Covid-19 pandemic was a recent crisis that affected higher education as a whole. Almost no institution was prepared for this crisis. It required new approaches to crisis management and communication with staff and students. This issue has been the subject of several studies. The impact of Covid-19 placed Higher Education leadership in a state of crisis management, where decision making had to be swift and impactful (McNamara 2021). Younis and Elbanna (2023) dealt with the impact of the COVID-19 pandemic on higher education. The qualitative study of Moon et al. (2023) explored crisis management in the University of Sydney during the early stages of the COVID-19 pandemic.

It is crucial to explore crisis management at the university level, as we are constantly facing unexpected crises as a society. This is confirmed by Ryan et al. 2023, who states that the effects that major crises, such as war, pandemics, natural disasters, and civil unrest, have on students' experiences of university are not well understood. As stated by Oleksiyenko et al. (2022) empirical research on crises management at universities remains scant. So it is essential for universities to obtain feedback also from students in order to implement an effective crisis management strategy. There is a research gap in the area of student feedback on perceptions of potential threats and crises in the development and implementation of crisis management at universities. This hinders the development of more effective strategies for coping with crisis situations.

2. Aim, methodology and data

The aim of this study is to identify the prevailing perception of potential threats in the university environment from the perspective of university students. The initial phase of the research involved the preparation of a questionnaire and subsequent implementation of a pilot survey. The collected data were then processed through the Survio platform and MS Excel, analysed and evaluated using contingency tables and basic descriptive mathematical-statistical methods. The last stage was the selection of relevant findings and their interpretation in the results section of the present study.

The questionnaire survey was conducted online through the Survio platform. The data collection period began on 27 February 2024 and ended on 11 May 2024. By 24 March 2024, the vast majority of responses (96.04%) had already been registered. The respondents were employees and students of the Alexander Dubcek University of Trenčín. For the purposes of this study, the results are filtered only to the student part. A total of 329 students took part in the research. The questionnaire was accessible via a hyperlink or QR code, allowing respondents to complete it on any device. The questionnaire was primarily sent through student email accounts. The questionnaire consisted of 12 questions, with respondents able to select one of the options offered. Only one question allowed for multiple responses to be marked. The questionnaire took respondents an average of 2-5 minutes to complete, with a return rate of 86.06% (358 responses out of 416 visits).

3. Results and discussion

The research part of this study is an analysis and evaluation of selected areas of the questionnaire, which focused on the perception of potential threats from the perspective of employees and students of universities. The study focuses only on the group of respondents made up of students. Table 1 shows the basic frequencies of the respondents according to their age and gender.

Table 1: Number of respondents by age and gender

	men	women	total
up to 28 years (included)	58	171	229
29-44 years	11	68	79
45-59 years	5	16	21
over 60 years (included)	0	0	0
total	74	255	329

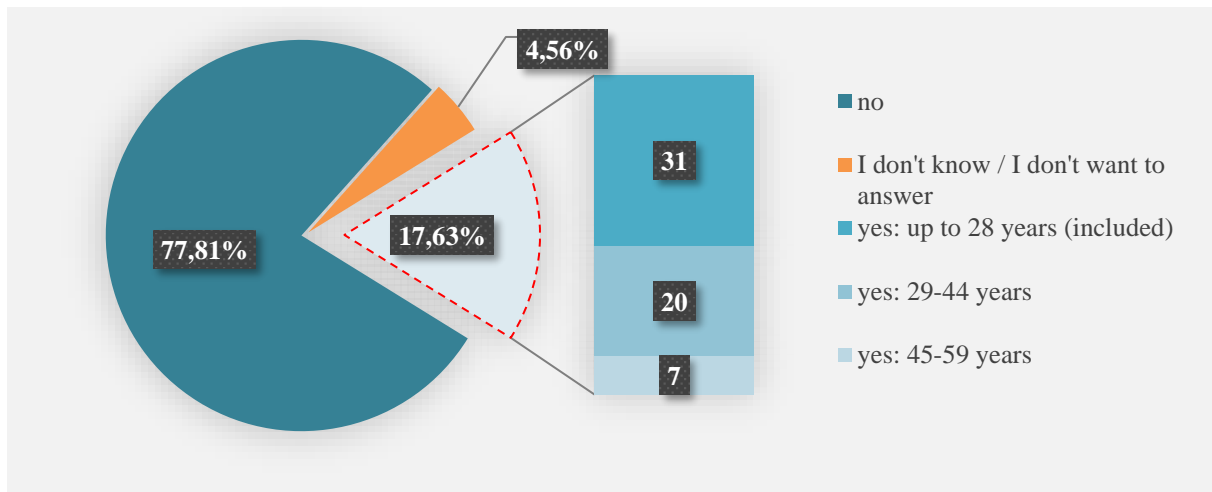
Source: own processing

The largest group of respondents were female students aged up to 28 years (Generation Z), 171 in total, and the smallest group of respondents were male students aged 45 to 59 years (Generation X), 5 in total. For both genders, the largest group of respondents were students under 28 years of age, with 229 respondents, representing 69.6% of the responses. The second group with the highest number of responses was Millennials (Generation Y), with a total of 79 (24.01% of responses). The remaining number of responses came from members of Generation X (21 responses, 6.38% of responses). A total of 329 people participated in the questionnaire survey.

It is evident that students' perceptions of potential threats are significantly influenced by their personal experiences of crisis situations. Consequently, respondents were asked at the outset of the survey whether they had personally encountered any unexpected crisis event other than the

global pandemic caused by the novel coronavirus (e.g., technical accident, terrorism, mass shooting, violent clash of cultures and ideologies, political unrest, hacker/cyber attacks, etc.). In the event of a positive response, the timing and location of the incident were irrelevant. The results are presented in Figure 1.

Figure 1: Respondents' answers to the question "Do you have personal experience of any unexpected crisis event other than the COVID-19 pandemic?" (%) with emphasis on the number of "yes" responses by age category

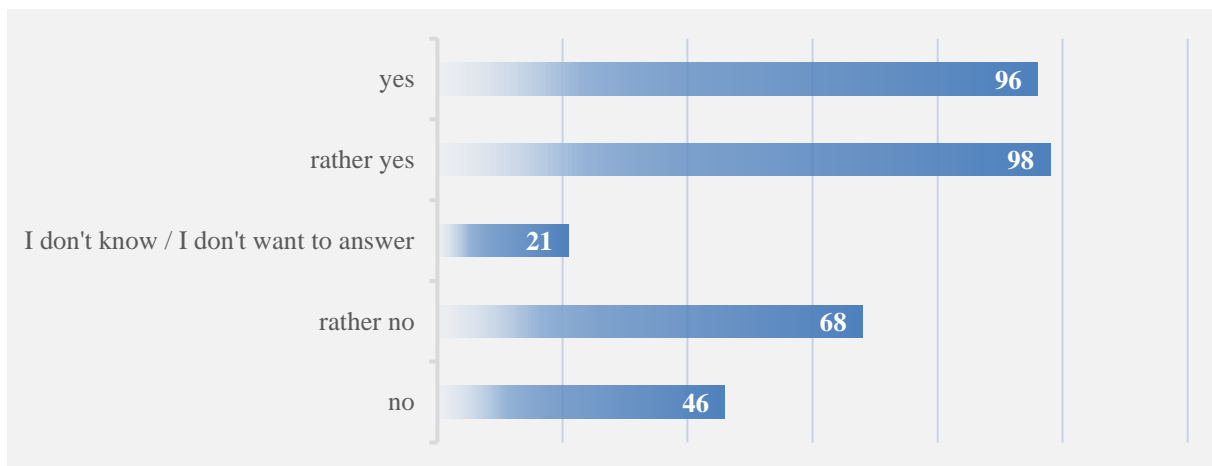


Source: own processing

The majority of respondents (256) among the students reported no personal experience of a crisis event (77.81%). However, more than one-sixth of respondents (17.63%) had personally experienced this type of event. A deeper analysis of the 'yes' responses revealed that out of 58 'yes' responses, as many as 31 belonged to Generation Z respondents, the lowest age group. A smaller number of responses (20) belonged to Generation Y respondents, while Generation X was the least represented (7 yes responses). It is paradoxical that the youngest respondents have the most personal experience of a crisis situation. However, when the number of affirmative responses in each age group is compared with the total number of respondents in that age group, it becomes evident that the reality is the opposite. In the case of the age category up to 28 years old, the proportion of positive answers to the aforementioned question is 13.54% of the total number of answers. For respondents aged between 29 and 44 years old, this figure rises to 25.32%, while for respondents aged between 45 and 59 years old, it reaches 33.33%. This phenomenon can be reasonably explained by the fact that as age increases, the probability of experiencing a crisis also increases.

In light of the number of security incidents that have taken place at universities in Slovakia and the Czech Republic, it can be assumed that the number of young people with personal experience of a crisis event will gradually increase. In December 2023, an unprecedented security incident occurred at the Faculty of Arts of Charles University in Prague. An armed assailant shot 14 people and dangerously injured dozens more in the faculty building and its immediate surroundings. This incident was arguably the most significant security event to occur in the Central European region in recent years, and its visibility was also enhanced by considerable media attention. Therefore, another question in the questionnaire survey focused on this event and its impact on the perception of security at the university. The results are presented in Figure 2.

Figure 2: Number of respondents' answers to the question "Did the incident that took place at the Faculty of Arts of Charles University in Prague in December 2023, which resulted in 14 victims, influence your view on the safety of universities in the Slovak Republic?"



Source: own processing

In almost two-thirds of the cases (cumulatively 59%), the respondents answered positively to the question about the impact of the event in Prague on the perception of security of universities in the Slovak Republic. This was indicated by 96 respondents who answered "yes" and 98 respondents who answered "rather yes." In contrast, 114 respondents were not influenced by this event to the extent that they would reconsider their attitude to the perception of security at universities in the Slovak Republic. However, when this question is analysed from a gender perspective, it becomes evident that merging the positive and negative responses into two groups provides greater clarity (Table 2).

Table 2: Otázka „The question "Did the incident that took place at the Faculty of Arts of Charles University in Prague in December 2023, which resulted in 14 victims, influence your view on the security of universities in the Slovak Republic?" from the perspective of men and women

	men	share of the male group	women	share of the female group
yes-rather yes	25	33,78%	169	66,27%
I don't know / I don't want to answer	7	9,46%	14	5,49%
no-rather no	42	56,76%	72	28,24%

Source: own processing

The above proportions demonstrate that women were twice as likely to alter their perception of the safety of Slovak universities following the incident in Prague compared to men. While only 33.78% of men expressed similar views, 66.27% of women did so. It is therefore clear that the female part of the survey respondents perceived the above situation more negatively than the men.

The crisis event in Prague in December 2023 is a good example of how an unprecedented case can shake students' confidence and negatively affect their subjective sense of safety in a university environment. However, as the media coverage of this event and its virality on social

media led to extremely negative associations, respondents were also asked a more general question about their perceptions of safety. This is shown in the table below (Table 3).

Table 3: Question "Do potential threats affect your sense of safety at university?" from the perspective of men and women

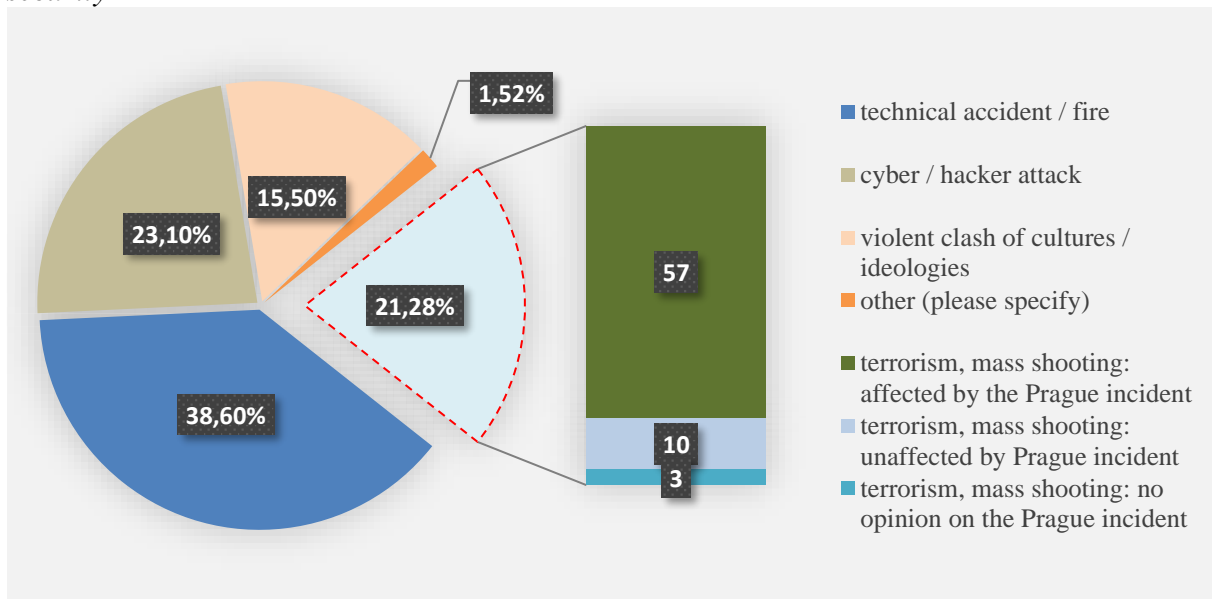
	men	share of the male group	women	share of the female group	share totally	total
yes	5	6,76%	18	7,06%	23	6,99%
rather yes	8	10,81%	45	17,65%	53	16,11%
<i>I don't know / I don't want to answer</i>	2	2,70%	34	13,33%	36	10,94%
rather no	35	47,30%	110	43,14%	145	44,07%
no	24	32,43%	48	18,82%	72	21,88%
total	74	100%	255	100,00%	329	100,00%

Source: own processing

The majority of respondents answered in the negative (65.95% cumulative) when asked if potential threats affected their sense of safety at university. This was the case for 79.73% (cumulative) of males and 61.96% (cumulative) of females. Although the difference between male and female perceptions of potential threats is still evident, it is no longer twice as large as in the previous case where a specific event was addressed. Positive responses were dominated by females (yes 7.06% and rather yes 17.65%), while males were less represented (yes 6.76% and rather yes 10.81%). It is notable that a significant number of students (10.94% in total) have provided a neutral answer (I don't know / I don't want to answer) - in the case of females, it accounted for almost one eighth of all responses from this group of respondents (13.33%). The reasons for this can range from general assumptions to specific factors: for example, lack of experience of a crisis event and consequent inability to perceive the threat potential and its impact on security. For example, the partial results of our micro-survey show that up to 80% of female students have no personal experience of a crisis situation, while this figure is significantly lower for male students (70.27%).

After questions focused on personal experience of crisis situations and perceptions of different crisis situations, respondents were asked a question focused on specific examples of threats and crises. The focus was on exploring the frequency of individual responses. Students could choose from four options of potential crises or identify their own type of threat that could potentially occur in a university environment. The results are shown in Figure 3. It shows that students considered a technical accident or fire to be the most likely (38.60%), followed by a cyber or hacker attack (23.10%) and terrorism or mass shooting (21.28%). Students consider a violent clash of cultures or ideologies (15.50%) to be the least likely (of the possible answers). The 'other' answers included burglary, robbery or no answer. Further analysis did not reveal any significant differences between male and female responses - it can therefore be concluded that the gender of the respondents does not influence their opinion on the hypothetical occurrence of different types of crisis events in the university environment.

Figure 3: Respondents' answers to the question "What type of crisis event do you consider most likely to occur in a university setting?" (%) with emphasis on the number of responses "terrorism, mass shooting" according to the impact of the incident in Prague on perceived security



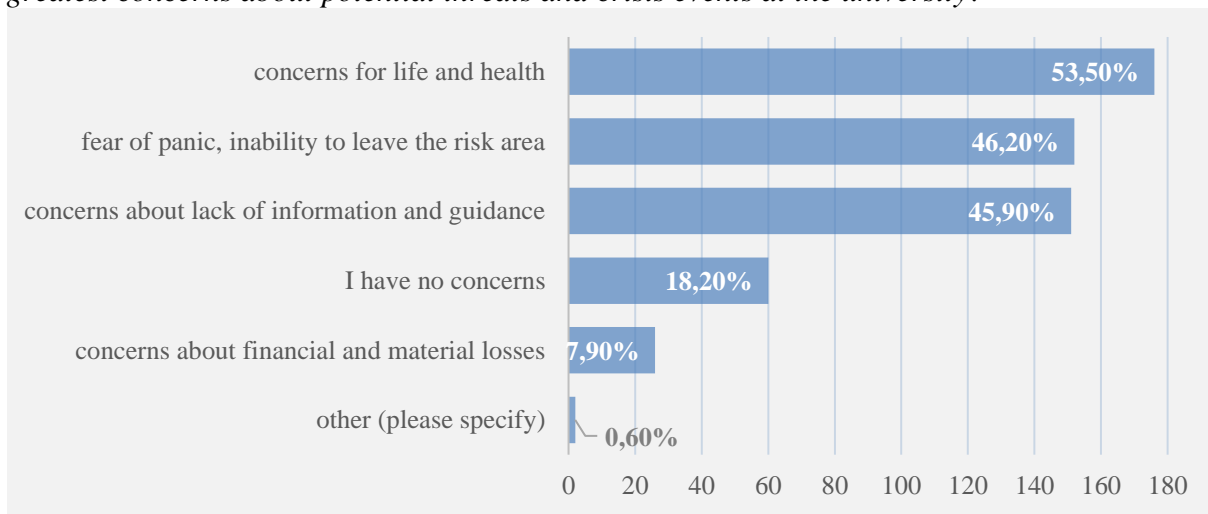
Source: own processing

Figure 3 examines the background to the answer 'terrorism, mass shooting' in more detail. This option was considered in the context of responses to the question about perceptions of the event at Charles University in Prague. Up to 81.42% of respondents whose perceptions of university security in the Slovak Republic were influenced by this event considered terrorism or a mass shooting to be the most likely crisis event at the university. Only 14.29% of respondents who consider terrorism or a mass shooting to be the most likely threat do not feel affected by the Prague incident. This clearly shows that the Prague incident has had a significant impact on subsequent perceptions of the potential threat of terrorism or mass shootings in the university environment - in fact, more than four-fifths of these responses come from respondents whose views on security have changed since the Prague event.

In order to gain further insight into the anticipated type of crisis event, respondents were asked to identify the specific concerns they associate with potential threats. The results are presented in Figure 4, which depicts both the overall frequency of responses and their percentage representation in the total set of responses submitted to this question. The respondents were presented with a set of predefined response options, but were also permitted to provide their own responses. For this question, respondents were permitted to select multiple responses, rather than being constrained to a single option.

As can be seen from Figure 4, respondents' top concern about potential threats at university is fear for life and health. A total of 176 students chose this as their top response. This was followed by concerns about panic and not being able to leave a risky area (152 responses) and concerns about lack of information and instructions (151 responses). By far the most common response was 'I have no concerns', with 60 students responding in this way. The least concern was about financial and material losses (26 responses). In the 'other' category, there were responses relating to concerns about mental health.

Figure 4: Numbers and proportions of respondents' answers to the question "What are your greatest concerns about potential threats and crisis events at the university?"



Source: own processing

The higher education environment today (compared to the past) is very vulnerable to security threats, as evidenced by a number of recent events (not only) in Slovakia and the Czech Republic. Even the present study proves that the times when crises in higher education institutions were relatively rare (Gigliotti, 2019) are a thing of the past. With up to around a quarter of respondents (24.70%) having a negative perception of their own sense of security due to potential threats, the ability of institutions to understand and address the issues and causes associated with these crises is becoming increasingly important (Oleksiyenko et al., 2022). Similarly, the range of potential threats perceived by respondents identified in the survey confirms the multifaceted nature of crises that can be associated with the HE environment (disasters, cyber-attacks, threats to institutional integrity or others) (Ryan et al., 2023; Connie, 2023; Englis, Maguire, 2023). Several studies (e.g. Moerschell, Novak, 2020) also highlight the increasing frequency of gun-related crises, which is reflected in the present research (more than one fifth of respondents - 21.28% - perceive the threat of a mass shooting or terrorism as the most likely of several possibilities in the university environment). As a result, the present study as a whole contributes to research on the impact of crises and threats on university students - indeed, these impacts are still not fully explored and the current level of empirical research cannot therefore be considered sufficient (Ryan et al., 2023; Oleksiyenko et al., 2022).

Conclusion

In today's globalised world, security threats are a reality and affect virtually all areas of society. Dangerous incidents do not avoid the university environment either, as we have seen many times in the past in the Slovak Republic and its immediate surroundings. The issue of potential threats in the university environment is therefore becoming an important area of scientific research, to which the present study responds. We have focused on the perception of these threats from the perspective of Slovak university students. The pilot research, conducted in the form of a questionnaire survey, showed that only about every sixth respondent (17.63%) had personal experience with a crisis situation. Despite the lack of personal experience, the security incident in Prague (mass shooting at the Faculty of Arts of Charles University in Prague in December 2023) influenced the perception of university security of almost two thirds of students (59%), with this response being twice as common among women as among men. However, it is worth noting that the occurrence of terrorism or mass shootings is only

considered by respondents to be the third most likely crisis event in the university environment (21.28% of responses) - the first being a technical accident or fire (38.60% of responses). Life and health concerns are most often associated with these threats (53.50% of responses). Potential threats create negative feelings about safety in the university environment for one in four students (cumulative 23.10% of responses).

As the research is concerned with students' perceptions of threat, the subjectivity of the respondents can be seen as a limitation of the research. Perception itself is a difficult variable to measure, which may indicate a potential inability of the respondent to accurately define themselves on a given response scale. This limitation was addressed, for example, by the addition of the 'other' option, although this was only used by a minimal number of respondents when answering individual questions. Future scientific research will look at an expanded group of respondents (students and university staff) and should also consider specific mechanisms that can help stakeholders manage potential and existing crisis events more effectively. The results of the present pilot study, together with the expected results of the extended research, can contribute to the definition of relevant suggestions and recommendations for the development or updating of crisis management in higher education institutions. Thus, the present study can be seen as an attempt to understand the current student perspective on security threats and also as a starting point for further exploration of the aforementioned issue.

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Innovations in V4 countries: Development of innovation potential

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Abstract: Innovation is an essential topic in many ways. A proper and efficient innovation management strategy frequently conditions businesses and their success. Businesses usually need to be innovative to adapt and solve enterprise difficulties. This study's primary objectives are to evaluate and describe the innovation performance of the Visegrad Group (V4) countries and assess the influence and dependence of factors affecting the innovation potential of these countries in relation to the gross domestic product (GDP). The analysis is carried out through the analysis of one of the most important reports indicating innovation performance (the European Innovation Scoreboard). The analysis is complemented by examining the level of correlation through the Pearson correlation coefficient. The analysis pointed out that, compared to other V4 countries, the Czech Republic is the most innovation-oriented country with support for the implementation of innovations. The Slovak Republic achieves highly above-average values in the field of environmental sustainability. Moreover, the analysis managed to confirm that there is a statistically significant dependence between financial support and firm investments.

Introduction

Innovation management is the process of overseeing an organization's innovation strategy from the initial idea stage to the successful execution phase. It consists of choices, actions, and processes related to developing and putting into practice an innovation strategy (Taylor, 2017). The management of innovation processes in a business environment is a complex and multidisciplinary task that requires the integration of different approaches and strategies (Daraojimba et al., 2023). From theoretical understanding to practical applications, the literature on this topic provides valuable insights and tools that can help managers and organizations manage innovation effectively. Invention is key in the field of innovation management because it represents the primary impulse without which any innovation can't arise (Wetzels, 2021). Innovation management and the complex management of innovation processes in business entities are effective tools for creating a space suitable for ensuring the implementation of specific innovations and their effective alignment with the primary goal of satisfying the needs of interested entities (Tirmizi et al., 2020). Innovation is one of the most important interests of any organization, and its role in the development and coordination of the market is inseparable. Innovations are applicable in all areas, from product development to management methods to work execution methods (Kondratenko et al., 2020). Every company should have effective and correctly set innovation processes, from their creation to their actual implementation. In the case of stagnation, competitive entities achieve a competitive advantage associated with the outflow of their customers (Somale, 2021; Navas, 2018).

One of the important questions that the company deals with is whether it is worth investing in innovation, as the innovation process is costly and involves the risk of information leakage. For this reason, it may be more profitable for a company to imitate improvements from other companies. Through analysis of the impact of innovations, whether in the form of innovation

performance or impacts on business performance, the company learns about its strengths and weaknesses and can prepare in advance for new market opportunities. Currently, artificial intelligence (AI) has an ever-increasing impact as it increasingly interferes with business processes. AI has the advantage of continuous improvement, constantly learning from its own experiences and generating new knowledge and behaviors (Mariani et al., 2023). In addition, it can be used to some extent in decision-making and even in the field of innovation and innovation management (Dabija and Vatamanescu, 2023; Gama and Magistretti, 2023). The industrial sector is under growing pressure to raise customer satisfaction, cut expenses, and increase production. But in the age of digital transformation, SMEs have significant difficulties, especially in the context of Industry 4.0 and Industry 5.0, which are defined by the rapid adoption of cutting-edge technologies like artificial intelligence, robots, and the Internet of Things (IoT). The industry now has more chances to address these difficulties thanks to the introduction of the Internet of Things (Frajtova Michalikova, 2023; Lewandowska et al., 2023). Firm value is significantly influenced by innovation, which improves long-term growth and renewal (Huang et al., 2023; Nakata and Hwang, 2020). Individuals are a vital component of successful innovation; it takes individuals with imagination to envision and develop new ideas, as well as people with implementation skills to get them into the market (Weiss et al., 2022). Human capital is a crucial component of innovation because it is individuals that provide businesses with a competitive edge through their knowledge and proficiency in managing innovation.

The paper is divided as follows: The introduction presents the importance of innovation in the business environment. The theoretical section presents an overview of the importance of innovation, especially in connection with today's globalized world. This section also describes the importance of investments in research and development in connection with the effective management of innovation processes. The graphic and statistical analysis of the research is described in the sections aim, methodology, and data. The investigation's findings are detailed in the results and discussion section. The discussion section compares the conducted study with other studies that dealt with the topic of innovation and innovation management in V4 countries. The conclusion part describes a summary of crucial findings and future challenges and limitations that directly affect the study.

1. Theoretical part

Innovation implementation has become a must for growth, competitiveness, and even survival in the face of global rivalry, rapid technological advancement, and resource constraints. Since innovation has an undeniable impact on economic development, managers and those in positions of authority continue to face a major challenge in supporting innovation, while the concept of innovation itself for businesses, regions, and nations is legitimately considered an important area of research (Skare et al., 2023a). Global industry and value chains play a crucial role in international trade by providing developing nations with the means to advance production and innovation, lessen poverty, and better integrate (Valaskova et al., 2022; Nagy et al., 2022). The industrial environment is no longer viewed as a one-sided production chain that aims to create without considering the logical, physical, and process constraints that surround it. Industry 4.0 has brought about an increase in intelligence in the manufacturing process (Kliestik et al., 2023; Chahed, 2023). The richness and variability of innovation's knowledge, as well as its functions as an accelerator of change, advancement, success, and prosperity, serve as two reasons for the growing interest in innovation-related topics. It is not just the most significant component but also a complicated economic category. The process of implementing new technologies for corporate operations is known as "digital transformation" (Vial, 2019). Because digital technologies are integrated into company processes, digital transformation also results in organizational changes (Civelek et al., 2023). In this sense,

companies want to be ready for the constantly evolving digital landscape that includes the Internet of Things (IoT), blockchain, AI, machine learning, big data analytics, mobile technologies, and other IoT tools (Cetindamar-Kozanoglu and Abedin, 2020). Effective innovation management requires a comprehensive approach that considers both internal and external factors affecting the innovation process. Great emphasis is placed on innovative management in manufacturing companies, where investments in science and research represent an area where insufficient investments in this area can mean stagnation of a specific business entity but also of the entire segment of the country's economy (Nihal et al., 2023). In practice, however, a wrong interpretation and understanding of the concept of innovation is often observed within the top management of companies and managers, which is naturally related to the insufficient use of innovation potential. At the same time, however, managers are often aware of the necessity and need not only to create innovations but also to effectively manage them within the innovation cycle of products. The company must not only innovate the products it offers but also "itself," its business strategies, and the space in which it operates. Almost every business is undergoing a transformation. Companies need to expand to progress and prosper. Small and medium-sized businesses' (SMEs') growth and success are greatly influenced by innovation across all industries. SMEs are frequently seen as the economic engines of innovation because of their adaptability to changing trends, capacity to completely transform current markets, and speed of response to new ideas (Machova et al., 2023). The economic sector, which dictates how businesses approach the social and environmental sectors, is the most crucial component of SME sustainability. SMEs will become more interested in social and environmental issues if they can thrive economically. The quality of SME management in this situation, along with efficient risk management that doesn't compromise the goals of the business, are the most important factors (Khan et al., 2023). Even if they do not want to make changes, external changes and competitive pressure are likely to force them to make significant adjustments for a variety of reasons, including the social, political, and business environment. The purpose of innovation is much deeper than just creating more value for customers and a better competitive advantage for companies. The traditional definition of management innovation, which includes business model innovation, social innovation, and responsible innovation Sustainable innovation, or green innovation, refers to the main objective of generating profits for a company (Hao et al., 2023). To achieve sustainable innovation, it is necessary to coordinate micro, meso, and macro processes that can be coordinated across national borders and beyond the confines of certain businesses, regions, or nations. It is doubtful that free efforts would lead to such coordination (Meissner, 2024). Regulators provide framework circumstances that, at least initially, compel and reward businesses to modify their innovation management strategies considering the updated framework outlined by the grand challenges. In addition, it is also necessary to consider other indicators that influence the innovative potential of countries. One of them is corporate indebtedness. Debt finance has gained popularity recently and is likely the most significant external source of funding for businesses (Gajdosikova et al., 2023).

Innovation performance differs between companies and between nations due to a multitude of factors. In recent years, attention has been focused on sustainable development, and even companies, within their innovation strategies and activities, must respond and adapt their activities to sustainability. The association between sustainability factors and the financial performance of businesses from various industries has been extensively investigated over the years (Mititean and Sarmaş, 2023). According to the study by Benoni et al. (2023), methods for business innovation have become popular, but there are still research gaps about their true potential. In this context, it is necessary to mention the concept of innovation ability. Innovative ability is the ability to develop new ideas so that innovation is created, applied, and effectively controlled in achieving company goals (Managnanini et al., 2023).

Support for research and research development is also implemented from within the European Union within the framework of various operational programs (Andrijauskiene et al., 2023). The problem is how to measure innovations and classify them in a narrower sense, because in current sources, many authors identify innovations differently, and their classification has different criteria and indicators (Kogabayev and Maziliauskas, 2017). Technological processes and innovations are crucial to the transformation of traditional economies. Sectoral differentiation at national levels, the structure of the economic system, and the effects of international trade significantly influence innovation processes and thus affect the advancement of enterprises. The integration of digital technologies is the basis for the development of sustainable models in production and consumption, and innovation processes are an integral part of this process. These processes are the result of the convergence of digital technologies with various sectors, including medicine, biotechnology, agriculture, energy, education, mobility, logistics, manufacturing, and others (Skare et al., 2023b).

2. Aim, methodology, and data

Based on a range of indicators and metrics, innovation is a value that can be quantified through specialized statistical and mathematical techniques. A comparative examination of innovation performance across EU member states, other European nations, and their regional neighbors is offered by the European Innovation Scoreboard (EIS). It evaluates the relative merits and demerits of national innovation systems and assists nations in determining the areas that require attention (Bielinska-Dusza and Hamerska, 2021). It is necessary to measure innovations and their impact not only at the level of companies but also of individual countries. One of the most important documents analyzed in the territory of the European Union is the comprehensive European Innovation Scoreboard, published annually. Each country tries to achieve the highest possible score within the evaluation. The European Innovation Scoreboard's (EIS) organizational structure consists of: finance and support; innovators; intellectual assets; linkages; attractive research systems; employment impacts; firm investments; digitalization; use of information technologies; human resources; environmental sustainability; and sales impacts.

Human resources measure the availability of a highly skilled and educated workforce. Digitalization measures the level of digital technologies. There are three factors that include finance and support: venture capital investments from the private sector, research and development (R&D) expenditures in universities and government research organizations, and direct government financing and tax assistance for commercial R&D. Three indicators of R&D and non-R&D investments made by firms to produce innovations are included in the company investments category: business R&D expenditures, non-R&D innovation expenditures, and innovation expenditures per employee. Employed ICT specialists and businesses actively developing their employees' ICT abilities are two factors that are captured by the term "use of information technologies. Measuring the percentage of SMEs that have implemented innovations in their businesses or on the market encompasses innovators in both products and business processes. Applications for PCT patents, trademarks, and designs are among the several types of intellectual property rights (IPR) that are developed during the innovation process and are included in the category of intellectual assets. Environmental sustainability captures improvements to reduce the negative impact on the environment. Linkages comprises three metrics that assess innovation capabilities: job-to-job mobility of human resources in science and technology; research collaboration between the public and commercial sectors; and collaborative initiatives among innovative enterprises. The economic impact of innovation is measured by sales impacts. It includes exports of knowledge-intensive services, exports of medium- and high-tech goods, and sales of innovative products. Employment impacts measure the impact on employment in knowledge-intensive activities and employment in innovative

enterprises. Framework conditions capture the main drivers of innovation performance external to the firm and differentiate between the three innovation dimensions.

The main goals of this study are to measure the impact and dependency of variables influencing these countries' potential for innovation in relation to GDP, as well as to evaluate and characterize the innovation performance of the Visegrad Group (V4) countries. For these purposes, the following hypotheses are established:

Hypothesis H1a: There is a statistically significant dependence between financial support and firm investments.

Hypothesis H0a: There is not a statistically significant dependence between financial support and firm investments.

Hypothesis H1b: There is a statistically significant dependence between environmental sustainability and financial support.

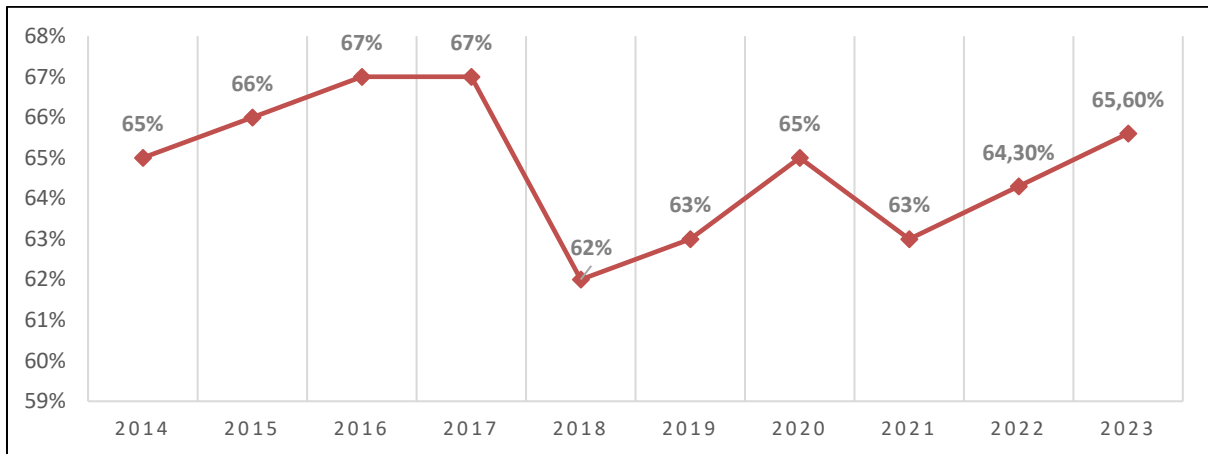
Hypothesis H0b: There is not a statistically significant dependence between environmental sustainability and financial support.

It is necessary to verify the degree of correlation. For these purposes, the Pearson correlation coefficient is used. The strength of the dependence is measured through the Pearson correlation coefficient. Correlation coefficients are expressed on a scale from -1 to +1; a value of 0 denotes no linear or monotonic association, while a value closer to 1 indicates a stronger relationship that eventually approaches a straight linear, continuously increasing or decreasing curve. According to Schober et al. (2018), a coefficient of <0.10 indicates a negligible relationship; 0.10 to 0.39 is weak; 0.40 to 0.69 is moderate; 0.70 to 0.89 is strong; and 0.90 to 1 refers to a very strong relationship between variables. The correlation coefficient can take on negative values. In this case, it is an indirect relationship—the higher the value of one variable, the lower the value of the other variable—a negative relationship between variables.

3. Results and discussion

Quantifying even numerical characteristics within innovation research (such as research and development costs and quantification of research and development investments) can bring concrete findings with the aim of describing the current state, predicting future development, and proposing methods and parameters that companies can apply with the aim of making the innovative potential of enterprises more effective. The summary innovation index for each of the Visegrad Group's member nations was graphically shown. It showed the evolution of this indicator in Slovakia in a straightforward and understandable way using a line graph. Based on the graphic display, it is not possible to observe a clear trend. The indicator reached its lowest value in 2018. Subsequently, an increase was recorded. The total innovation index subsequently fell again during the years 2020 and 2021, mainly caused by the COVID-19 pandemic, when companies did not know how to fully utilize their innovation potential and rather focused on covering operating costs (Figure 1). In the European Innovation Ranking (EIS), Slovakia stagnates at 23rd place and belongs to the group of emerging innovators.

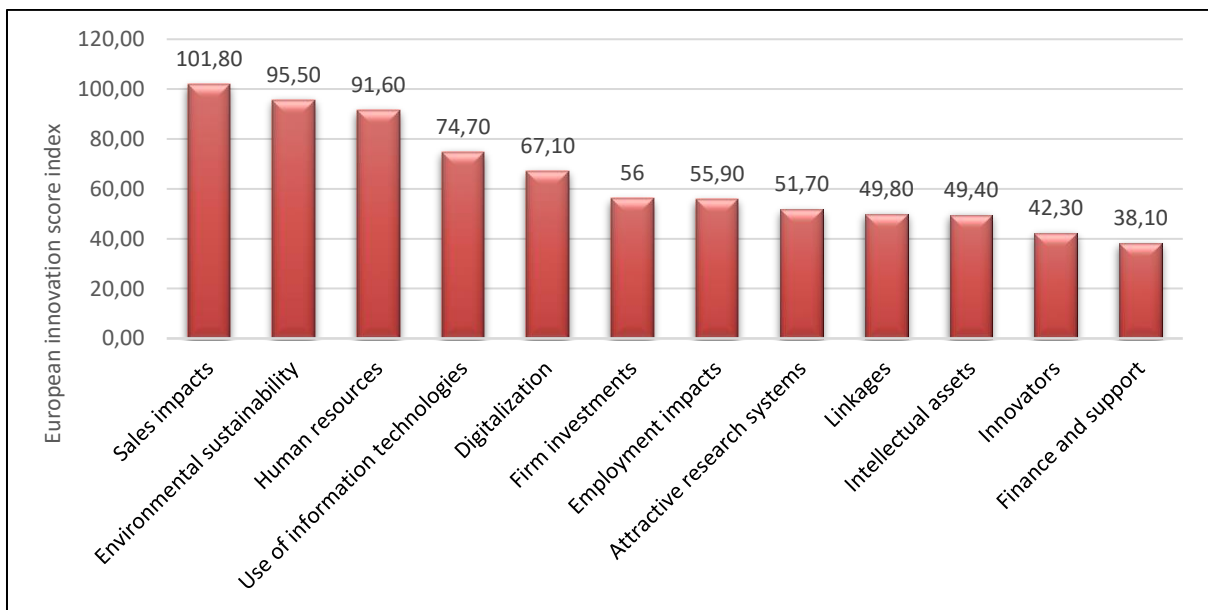
Figure 1: European innovation score in Slovakia



Source: Own processing according to European Innovation Scoreboard (2023)

Following that, a bar chart was used to show each country's attempt to attain the best possible value in each of the distinct areas that the European Innovation Scoreboard research had recorded in the examined year 2023. Particularly in the areas of human resources, environmental sustainability, and sales impacts, Slovakia records the highest values (Figure 2).

Figure 2: European innovation score index in Slovakia by categories in 2023

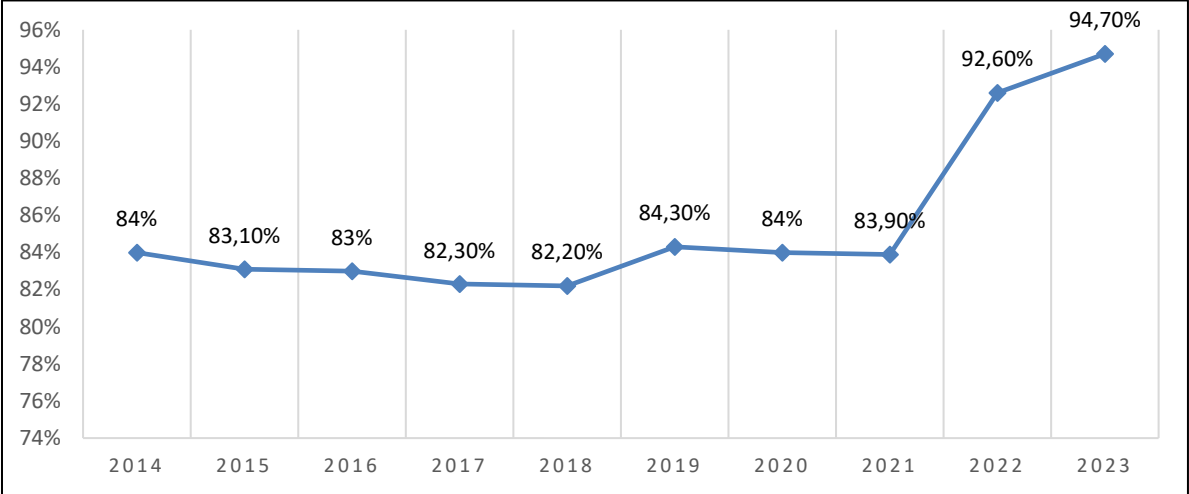


Source: Own processing according to European Innovation Scoreboard (2023)

Using a line graph, it demonstrated this indicator's development in the Czech Republic. Compared to the Slovak Republic, the Czech Republic achieves significantly higher values. The highest increase is observed in 2021, 2022, and 2023 (Figure 3). The Czech Republic is a moderate innovator, with performance at 94.7% of the EU average in 2023. Performance is

better than the middle-class innovators' average. The country's performance gap with the EU is becoming smaller.

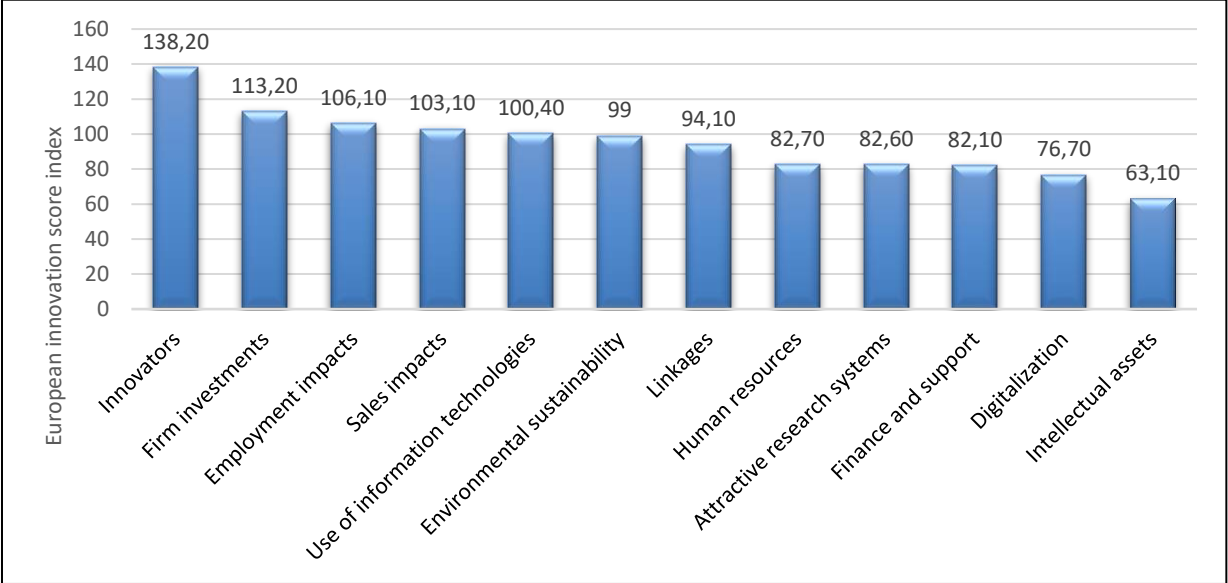
Figure 3: European innovation score in Czech Republic



Source: Own processing according to European Innovation Scoreboard (2023)

The European Innovation Scoreboard's documented categories for the year 2023 under examination were displayed using a bar chart. The Czech Republic records the highest values, particularly in the areas of innovators, firm investments, and employment impacts (Figure 4).

Figure 4: European innovation score index in Czech Republic by categories in 2023

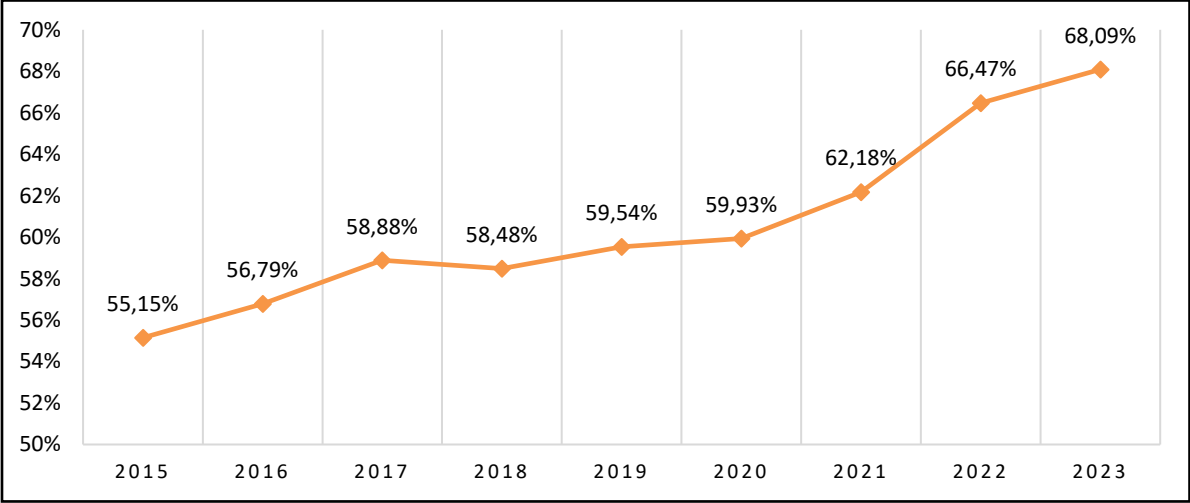


Source: Own processing according to European Innovation Scoreboard

Furthermore, Poland, another V4 nation, is graphically displayed. Poland, with the exception of 2018, experienced a continuous increase in the summary innovation index (Figure 5). Poland is an emerging innovator, with performance at 62.8% of the EU average in 2023 (Figure 5).

Performance is above average for emerging innovators. The country’s performance gap with the EU is becoming smaller.

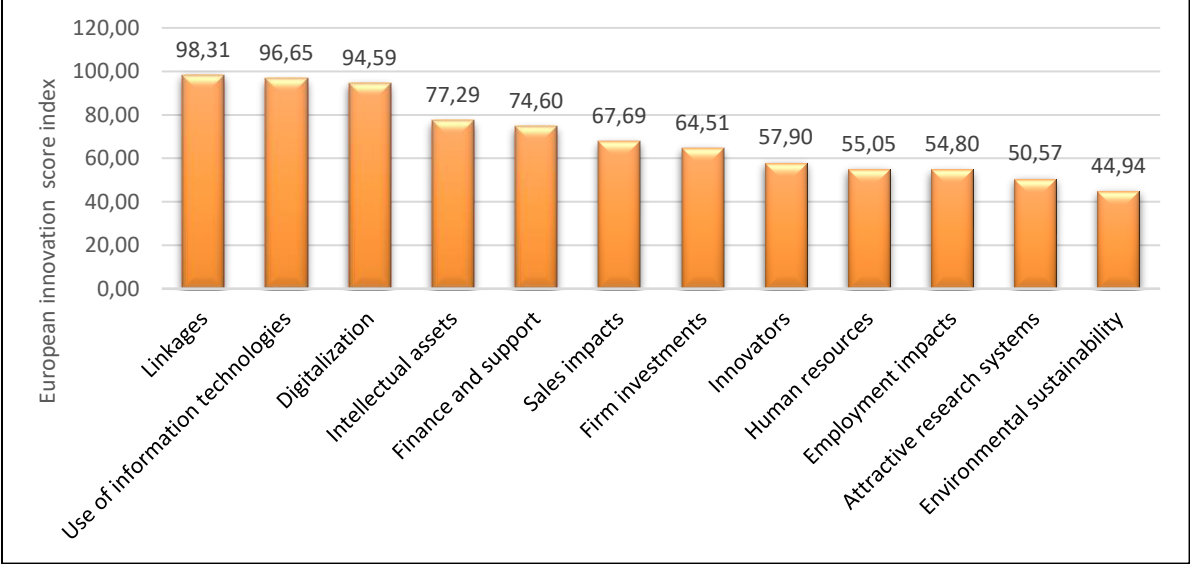
Figure 5: European innovation score in Poland



Source: Own processing according to European Innovation Scoreboard (2023)

In the subgroup analysis, it is possible to reflect more notable distinctions. The fundamental finding is that the environmental sustainability category showed the lowest value among all categories. On the contrary, the highest value was recorded through the linkages category (Figure 6).

Figure 6: European innovation score index in Poland by categories in 2023

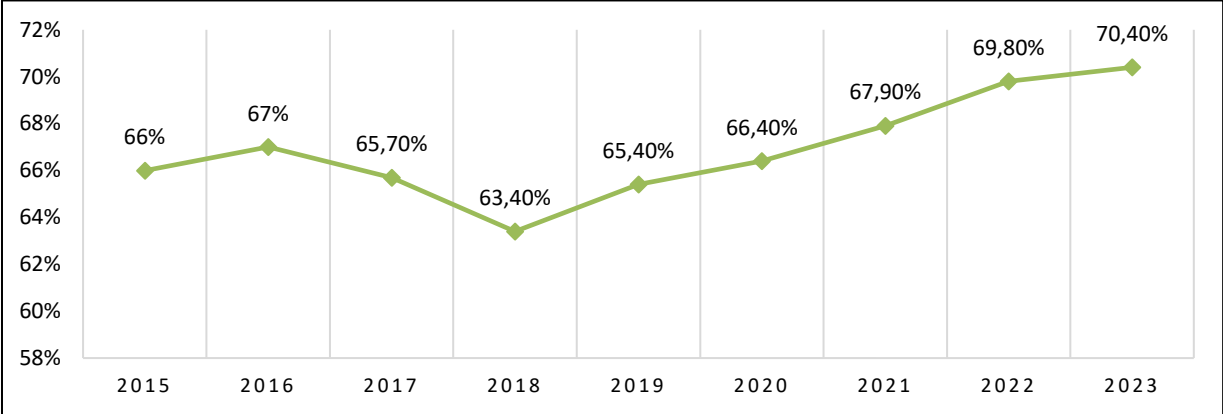


Source: Own processing according to European Innovation Scoreboards

Additionally, it completed a graphic analysis for Hungary. and the following findings can be stated: The lowest value this country reaches is in 2018 (Figure 7). The highest value can be observed in 2023. Hungary is a moderate innovator, with performance at 70.4% of the EU

average. Performance is below the average of moderate innovators. The country's performance gap with the EU is becoming larger.

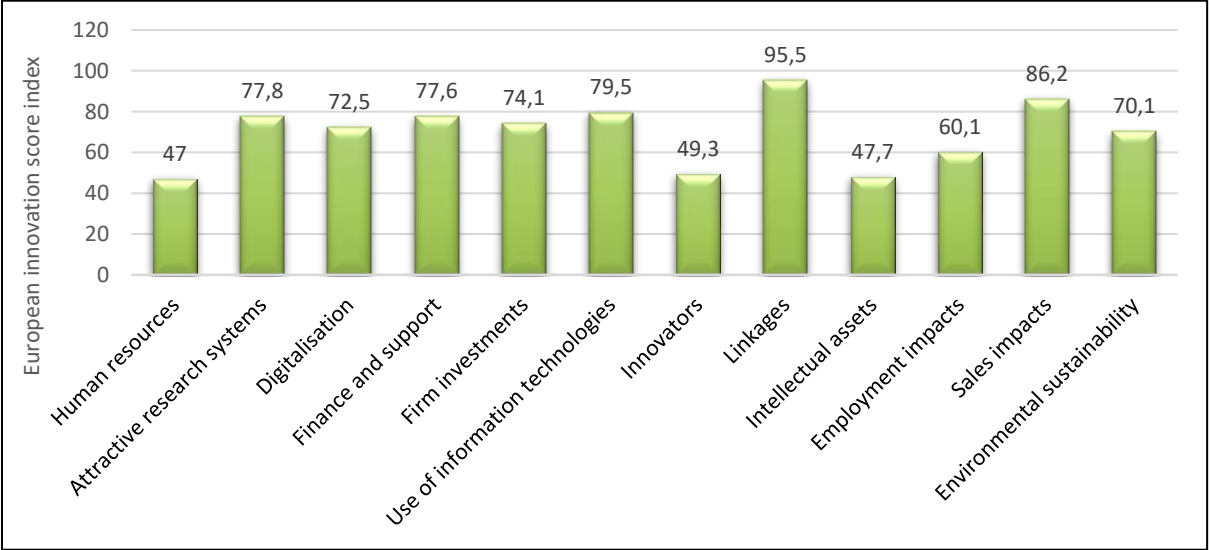
Figure 7: European innovation score in Hungary



Source: Own processing according to European Innovation Scoreboards

More notable differences were seen in the subgroup analysis. The category linkages achieves the highest score, followed by the categories sales impacts and use of information technologies (Figure 8).

Figure 8: European innovation score index in Hungary by categories in 2023

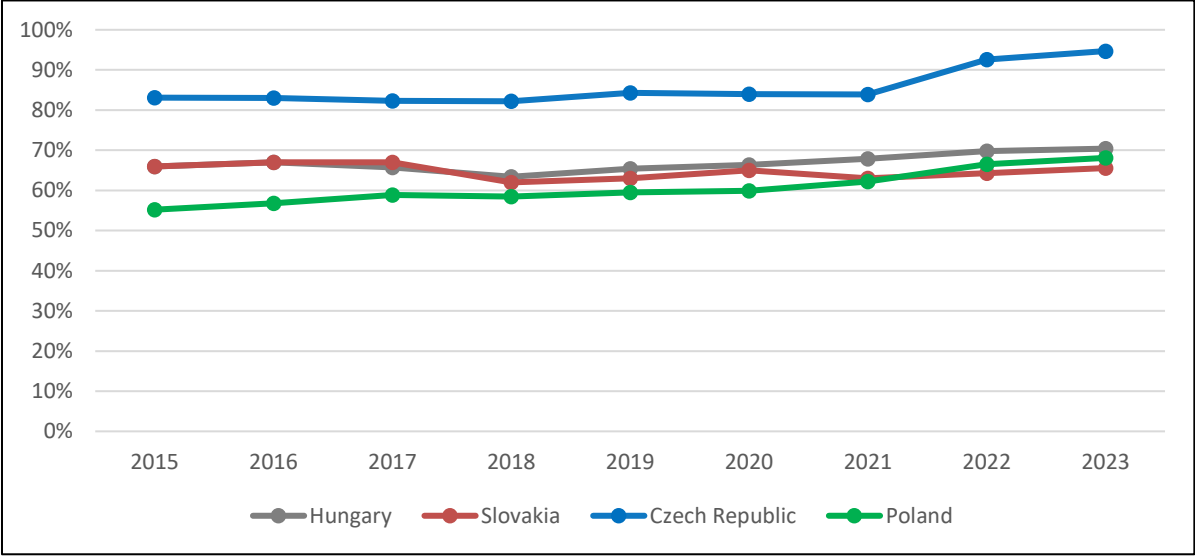


Source: Own processing according to European Innovation Scoreboard

Additionally, a line graph is used to display the V4 countries' summary innovation index, which clearly compares the innovation performance of the V4 countries. It is possible to state that, among all the analyzed countries, the Czech Republic is the most complex innovator based on this indicator. In recent years (2022 and 2023), Slovakia has seen a slight increase. The year 2021 turned out to be particularly critical for Slovakia, i.e., the year when the COVID-19 pandemic most significantly affected the functioning of the economy and the stagnation of innovation processes. On the contrary, since 2018, Hungary has recorded a continuous increase in the summary innovation index. From 2015 to 2021, Poland achieved the lowest values of

this indicator among all analyzed V4 countries. In 2021, however, Poland almost equaled the value of the index. The increase continued in 2022 and 2023 (Figure 9).

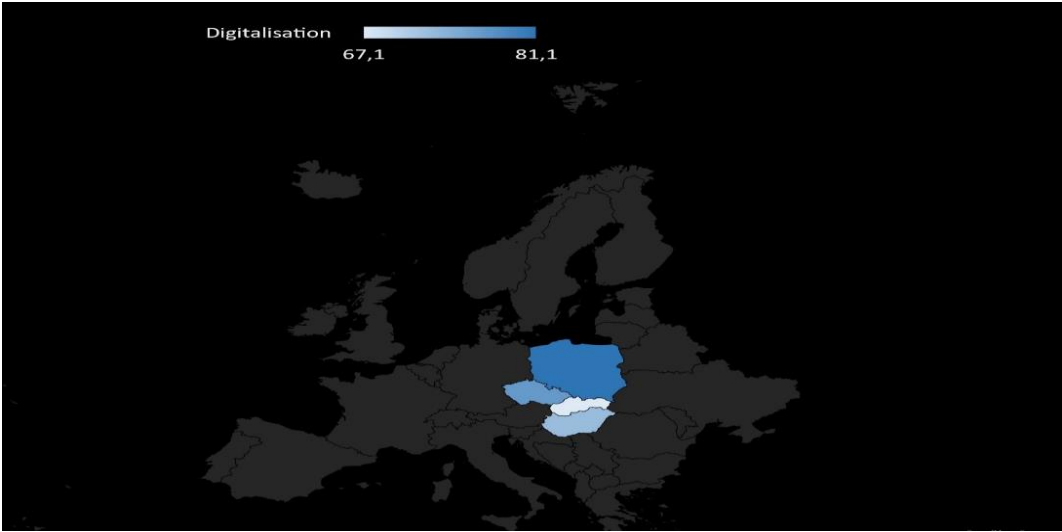
Figure 9: Comparison of innovation indexes of V4 countries (2015-2022)



Source: Own processing according to European Innovation Scoreboards

The corporate world is changing as a result of digitalization and, subsequently, digital transformation, which create new internet-based technologies (Li et al., 2023). It is important to remember that the challenges posed by the quick growth of digital technologies have led to the digital transformation of many corporate sectors (Hetmanczyk, 2023). Within the summary innovation index of the V4 countries, the degree of digitization ranges from 67.1 to 81.1. As illustrated in Figure 10. Slovakia achieves the lowest degree of digitization, followed by Hungary and Poland. The Czech Republic is the leader in digitization among the analyzed V4 countries (Figure 10).

Figure 10: Map of the degree of digitization of V4 countries



Source: Own processing according to European Innovation Scoreboards

Table 1 reports on the results of selected aspects of the European Innovation Scoreboard evaluation within Slovakia. Table 2 reports on the results of selected aspects of the European

Innovation Scoreboard evaluation within Slovakia. The firm investments category reaches increasing values. Slovakia achieves highly positive values within the framework of environmental sustainability. However, the trend of this indicator is decreasing.

Table 1: Selected aspects of European Innovation Scoreboard (Slovakia)

	2021	2022	2023
Finance and support (EIS score)	25.5	38.6	38.1
Environmental sustainability (EIS score)	110.4	93.4	95.5
Firm investments (EIS score)	48.2	55.7	56

Source: Own processing according to European Innovation Scoreboard

Table 2 presents the Czech Republic's scores for a subgroup of the European Innovation Scoreboard's evaluation criteria. The value of the firm investments category rises. The Czech Republic achieves a stable position in the environmental sustainability category. Moreover, this indicator has an increasing character.

Table 2: Selected aspects of European Innovation Scoreboard (Czech Republic)

	2021	2022	2023
Finance and support (EIS score)	69.5	86.2	82.1
Environmental sustainability (EIS score)	95.9	98.8	99
Firm investments (EIS score)	73.2	94	113.2

Source: Own processing according to European Innovation Scoreboard

Table 3 informs about selected aspects of the EIS about another V4 country. Poland achieves below-average results within individual countries. The lowest values are achieved by the environmental sustainability category, and it is possible to state a significantly decreasing character.

Table 3: Selected aspects of European Innovation Scoreboard (Poland)

	2021	2022	2023
Finance and support (EIS score)	56	59.8	61.2
Environmental sustainability (EIS score)	62.2	44.5	43.8
Firm investments (EIS score)	60.1	56.9	59.3

Source: Own processing according to European Innovation Scoreboard and OECD Data

Table 4 informs about the achieved results for Hungary. Among the V4 countries, Hungary achieves more stable but average results. The highest values can be observed within the

categories of financial and support in 2021. On the contrary, the lowest value was recorded in 2021 in the category of firm investments.

Table 4: Selected aspects of European Innovation Scoreboard (Hungary)

	2021	2022	2023
Finance and support (EIS score)	83.4	79.7	77.6
Environmental sustainability (EIS score)	72.2	70.4	70.1
Firm investments (EIS score)	64.2	68.3	74.1

Source: Own processing according to European Innovation Scoreboard and OECD Data

It is also necessary to record the value of the gross domestic product. Table 5 informs about the values within individual years and V4 countries.

Table 5: Gross domestic product of V4 countries (USD Billions)

	2021	2022	2023
Slovakia	97.15	100.88	133.04
Czech Republic	281.79	290.57	335.24
Poland	681.35	688.13	842.17
Hungary	182.09	177.34	203.83

Source: Own processing according to OECD Data and Statista

Table 6 reports on the achieved results of the Pearson correlation coefficient. Within the category, Slovakia reached the value of 0.5518; this dependence can be considered moderate. This leads to the conclusion that finance and support principles have a positive impact on the GDP. The research revealed a moderate negative dependence between environmental sustainability and GDP when the value of -0.4532 was reached. This moderate degree of association means that the more the principles of environmental sustainability are used, the more the corresponding GDP value decreases. The Czech Republic achieves, within all categories, a positive correlation that can be observed. Poland achieved a negative correlation within the environmental sustainability category. This is the same situation as when examining this indicator within Slovakia. Hungary, as the only V4 country, also achieved a negative correlation within the financial and support categories. This addiction can be described as moderate.

Table 6: Correlation of selected EIS aspects in V4 countries (2021-2023)

	Finance and support	Environmental sustainability	Firm investments	GDP
Slovakia	0.5518	-0.4835	0.6069	1
Czech Republic	0.4256	0.6706	0.9238	1
Poland	0.7339	-0.5601	0.2413	1
Hungary	-0.6596	-0.4681	0.8289	1

Source: Own processing

The analysis is supplemented by the verification of established hypotheses. SPSS statistical software is used for this verification. SPSS statistical software is used for this verification. Individually selected categories are compared with each other, and it is necessary to find out

which are statistically significant based on the level of significance, which is set at $\alpha = 0.05$. Statistical significance is confirmed only in the case of financial support and corporate investments that are implemented. According to the data, we can confirm the hypothesis H1a, which assumes that there is an association between financial support and firm investments. On the contrary, the hypothesis H1b is not confirmed; therefore, the hypothesis H0b is accepted. There is not a statistically significant dependence between environmental sustainability and financial support (Table 7).

Table 7: Correlation of selected European Innovation Scoreboard aspects

		Finance and support	Environmental sustainability	Firm investments
Finance and support	Pearson Correlation	1	-0.997	0.998
	Sig (2-tailed)		0.051	0.043
Environmental sustainability	Pearson Correlation	-0.997	1	-0.989
	Sig (2-tailed)	0.051		0.094
Firm investments	Pearson Correlation	0.998	-0.989	1
	Sig (2-tailed)	0.043	0.094	

Source: Own processing in software IBM SPSS

Regarding innovation, the V4 nations do not rank among the top in the world. The Czech Republic was the most ranked nation among those under discussion. The shift to a circular economy that is low-carbon and resource-efficient is seen as essential as the trend toward sustainable development gains momentum. Sustainable development-promoting inventions are currently a hot topic on the international scene. The findings of the study by Parobek et al. (2021) showed a correlation between the value and the ecological sustainability parameters. Spatial dependence of knowledge inputs (R&D expenditure and R&D personnel) and innovation patent applications (Wibisono, 2023). The summary innovation index values of all the Visegrad Group members are below the EU28 average, placing them in the category of modest innovators. Of the V4 nations, Poland is in the worst position, while the Czech Republic is in the best (Janoskova and Kral, 2019). R&D spending has no discernible impact on the overall innovation index score in Slovakia or Hungary (Ivanova and Zarska, 2023). Many different economic, political, and social aspects affect the competitiveness of the V4 countries. Since each of these nations has developed to some extent, it was intriguing to evaluate the outcomes of their competitiveness during the previous time frame. The Czech Republic seems to be the most successful of these nations. Poland has a lower rating but balanced development; Hungary comes in second, while Slovakia shows the poorest results (Ivanova and Cepel, 2018). Innovation is a crucial tactic for achieving sustainability. Businesses view innovation favorably as a crucial component of sustainable development. The findings suggested that, to promote the innately motivating components of the growth of innovative activity for the sustainable development of enterprises, political interventions should be taken into consideration. This would help those areas of innovation that businesses are not currently focused on heavily and remove the barriers to innovation that have been identified in favor of sustainable development (Loucanova et al., 2023). The findings indicate that a variety of factors, including external

knowledge, internal and external R&D, current tax rates, and membership in a business membership association, have an impact on product developments in both business and manufacturing sectors (Odei and Appiah, 2023).

Conclusion:

Competitiveness and economic growth depend on innovation, and a nation's performance in this area can be measured and assessed in several ways. Understanding individual innovations and the adoption process is necessary to comprehend the conception, development, and application of innovations in businesses. The investigation revealed that, in contrast to the other V4 nations, the Czech Republic is the one that supports the adoption of innovations the most. In terms of environmental sustainability, the Slovak Republic performs far above average. Furthermore, the examination succeeded in verifying that there exists a statistically noteworthy correlation between financial assistance and company investments. Slovakia achieves below-average results in financial support. However, in terms of environmental sustainability, it achieves above-average results, even higher than the Czech Republic. Hungary holds its position stably within its sub-indicators. Poland achieves below-average results in most sub-indicators and among all V4 countries. This study has obvious limitations, especially the issue of data availability. Future research projects that focus on the Visegrad Group (V4) territories may find great use for the spatial analysis used in this work. To produce more reliable and thorough study findings, future studies ought to take a wider variety of data sources into account. The obstacles to introducing innovations as a tool for sustainable development that have been highlighted should be the subject of future research as well. Considering the future challenges, there appears to be potential to explore different types of innovations, especially those to which he attributes importance in recent years - innovations in the field of circular economy and waste management. Innovations in the circular economy represent the convergence of two different but interconnected fields of study. Due to more complex outputs, it would be necessary to include in this study several sub-indices that affect the total innovation index. As part of establishing the correlation and verifying the hypotheses, only three years were included, mainly due to the fact that the environmental sustainability category is observed in these years in the European Innovation Scoreboard document.

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Generational Conflict in the Labor Market and its Challenges for Strategic Human Resource Management

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Abstract. The current labor market is characterized by the presence of employees from various generations, each with different expectations, values, and work habits. This generational diversity requires comprehensive human resource management strategies to effectively handle differences and achieve a competitive advantage. Four generations meet in the work environment, with conflicts often arising due to differing work values, communication styles, and views on work-life balance. These conflicts can significantly impact productivity, engagement, employee satisfaction, and the overall success of the organization. This article utilizes bibliometric analysis using the VOSviewer tool to identify trends and challenges in managing a multigenerational workforce. The keywords for the analysis were "strategic management of human resources" and "multigenerational workforce." The most frequent terms include "human-resource management," "performance," "impact," "firm performance," "competitive advantage," "innovation," "strategic human resource management," "leadership," "perceptions," and "employees." The analysis identified three clusters: human resource management and organization, employee performance, and human resources in the context of competitive advantage. The PRISMA analysis determined the quantity and relevance of scientific research on this topic. From an initial 6591 studies from the Web of Science database, 64 highly relevant studies were selected after applying filters. This article emphasizes the need for strategic human resource management in addressing generational conflicts and leveraging generational diversity to improve organizational performance.

Keywords: labour market, HRM, employee satisfaction

Introduction

The labor market comprises employees from various generations, each characterized by distinct expectations, values, and work habits compared to others. This creates the need for organizations to develop comprehensive human resource management strategies. These strategies should be capable of managing the diversity among these generations and achieving a competitive advantage through generational diversity.

Currently, four generations are converging in the labor market – baby boomers, Generation X, Generation Y, and the youngest, Generation Z. Each of these generations brings unique characteristics and perspectives to the workplace, which can lead to significant synergies but also potential conflicts. Baby boomers, born between 1946 and 1964, are often characterized by a strong work ethic and loyalty to their employer. Generation X, born between 1965 and 1980, is marked by independence and pragmatism, often preferring flexibility and work-life balance. Generation Y, also known as millennials, born between 1981 and 1996, places great emphasis on technology, immediate feedback, and career growth. The youngest, Generation Z, born after 1997, has grown up in the digital age and values speed, innovation, and inclusivity.

Reasons for conflicts among these generations include differences in work values, communication styles, and views on work-life balance. Older generations may prefer more traditional forms of communication, such as face-to-face meetings or phone calls, while younger generations may favor digital communication through emails, chat apps, or social media. Additionally, differences in priorities and motivations, such as long-term commitments versus the need for immediate recognition, can lead to misunderstandings and tensions. The impacts of these conflicts can be significant, affecting aspects such as work productivity, employee engagement, and satisfaction, which in turn influence the overall success of the organization. If organizations can effectively manage generational diversity, they can gain a competitive advantage through increased creativity, a broader range of skills and perspectives, and a better ability to attract and retain talented workers from various age groups.

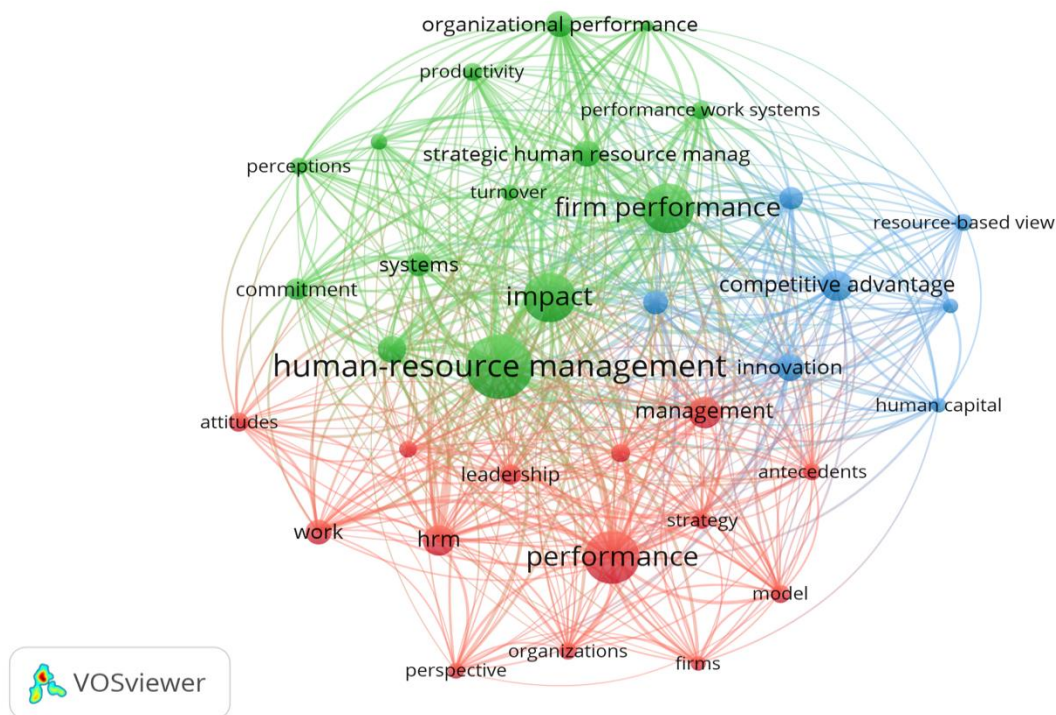
Therefore, it is essential for managers and HR professionals to understand the characteristics of each generation and create a work environment that fosters mutual understanding, collaboration, and respect. Strategic initiatives, such as interpersonal skills training, flexible working conditions, and culturally sensitive management, can significantly contribute to harmonizing generational groups and thereby to the overall success of the organization.

1. Literature review

In identifying trends in the issue of generational conflict in the labor market and its challenges for strategic human resource management, a bibliometric analysis was conducted using the VOSviewer tool (Figure 1). For the purposes of this analysis, the keywords “strategic management of human resources” and “multigenerational workforce” were used. The most frequent records in the context of this analysis are as follows: “human-resource management” (137), “performance” (106), “impact” (98), “firm performance” (97), “competitive advantage” (50), “innovation” (44), “strategic human resource management” (42), “leadership” (30), “perceptions” (23), and “employees” (22). Regarding the focus of individual scientific research, three clusters were identified. The first cluster consists of 14 items and focuses on human resource management and organizations. The second cluster also consists of 14 items but focuses on employee performance. The third and final cluster has 7 items and deals with human

resources in the context of competitive advantage.

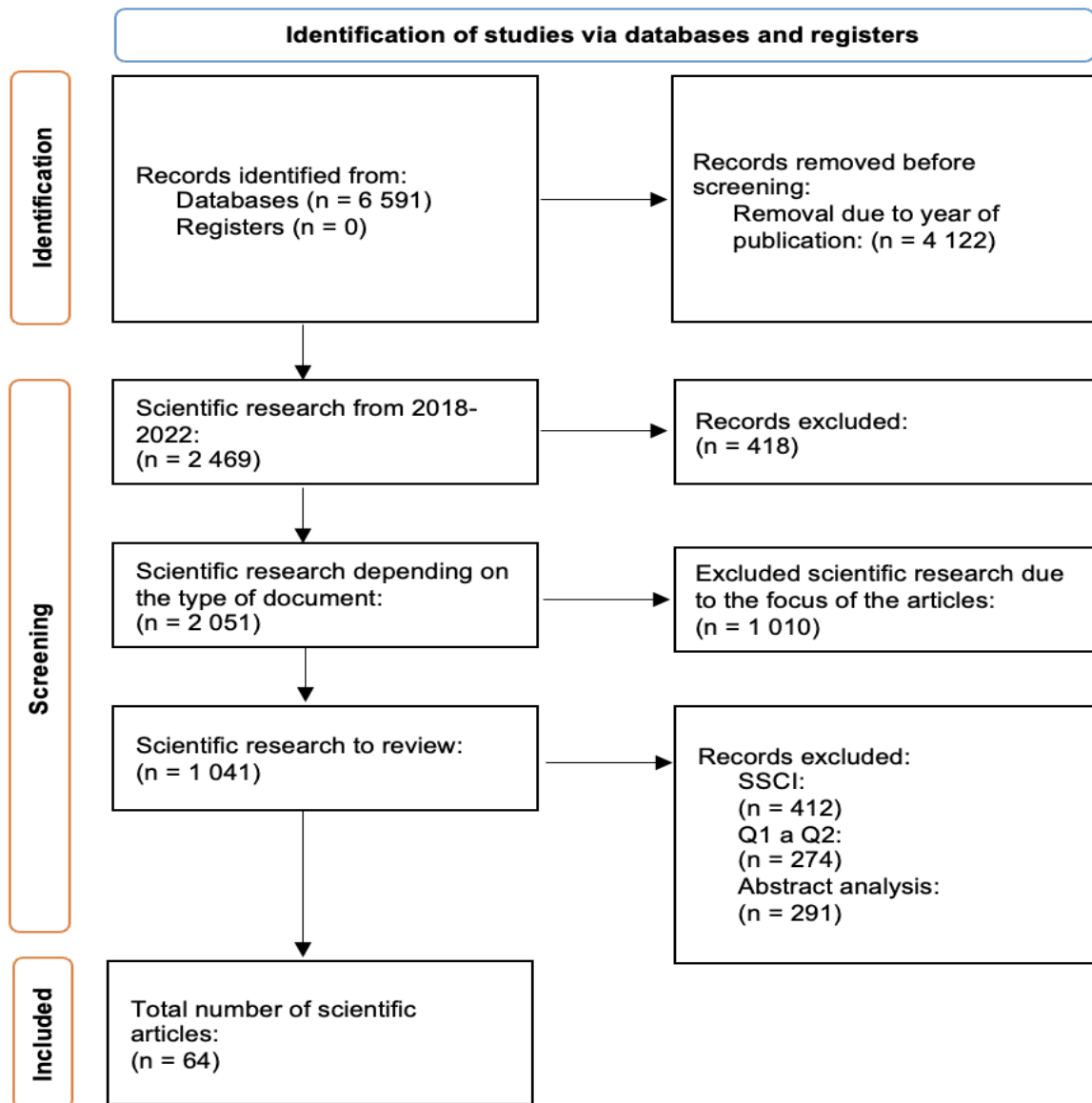
Figure 1. Map of keywords



Source: own elaboration

The keywords used for the purposes of the bibliometric analysis were also subjected to PRISMA analysis. The aim was to identify the quantity of scientific research considered relevant to the investigated issue. Figure 2 shows the PRISMA analysis. The starting point is the Web of Science database, and the keywords examined are “strategic management of human resources” and “multigenerational workforce.” The first step involved identifying scientific research without applying selection criteria (n = 6591). Subsequently, all research not published within the time frame of 2018 - 2023 was eliminated (n = 2469). Next, the research was preselected based on the type of document, with only articles being relevant (n = 2051). Regarding the investigated issue, we chose articles categorized under “business” and “management” (n = 1041). We then focused on SSCI (n = 629) and Q1/Q2 articles (n = 355). The final step was the analysis of abstracts (n = 355), based on which we excluded 291 articles, concluding that 64 studies are considered relevant to our issue.

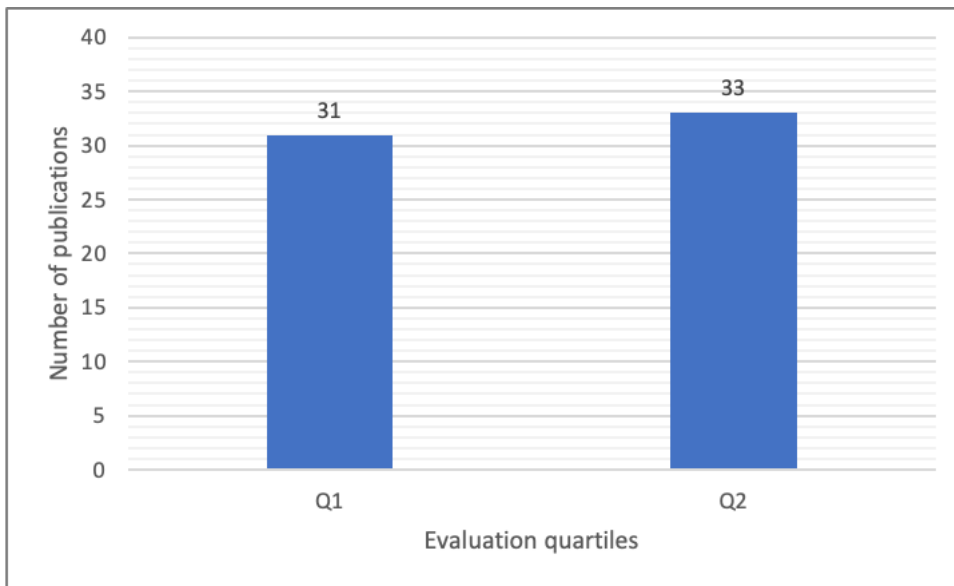
Figure 2. PRISMA analysis



Source: own elaboration

One of the criteria mentioned was categorization according to individual quartiles, with four general quartiles distinguished: Q1, Q2, Q3, Q4. To select the highest quality articles, quartile 1 and quartile 2 were considered, and the Journal Citation Reports tool was used for journal analysis. Their frequency in the two relevant quartiles in the context of the total of 64 articles identified through the PRISMA analysis is as follows:

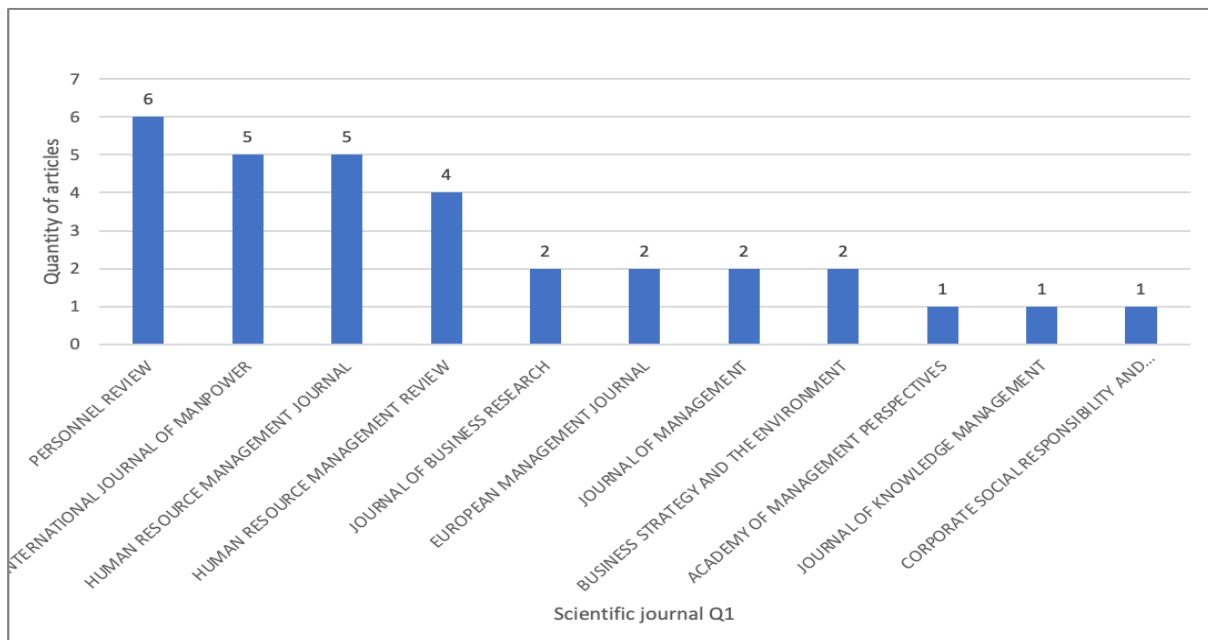
Figure 3. Quartiles of evaluation of selected articles



Source: own elaboration

In Figure 4, we can see the journals that fall into quartile 1 and the frequency of published articles based on our established criteria. The three most relevant Q1 journals addressing the issue are: Personnel Review, International Journal of Manpower, and Human Resource Management Journal.

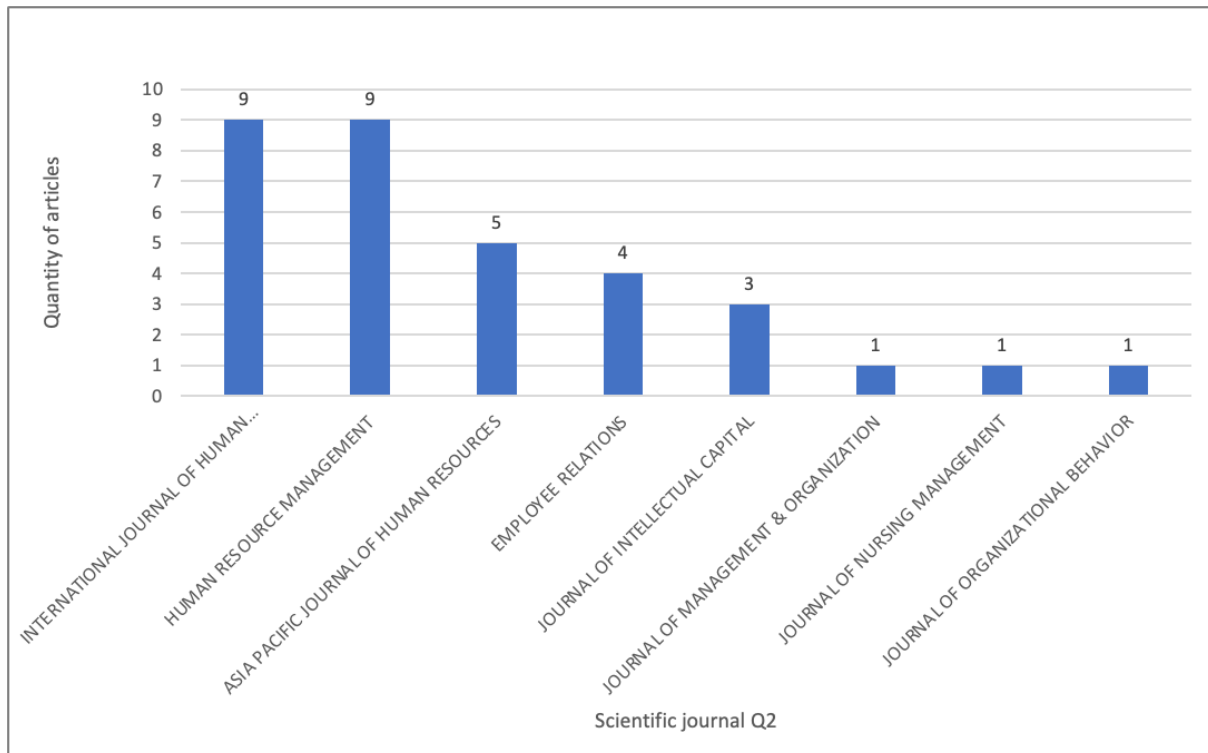
Figure 4. Scientific journals Q1



Source: own elaboration

Figure 5 illustrates the journals that are classified in quartile 2, along with the frequency of published articles that correspond to the criteria in the PRISMA analysis. The three most relevant Q2 journals addressing the issue are: International Journal of Human Resource Management, Human Resource Management, and Asia Pacific Journal of Human Resources.

Figure 5. Scientific journals Q2



Source: own elaboration

The elementary factor that will lead an organization to gain a competitive advantage is human capital and strategic human resource management. Its primary focus is the effective management of employees' skills, capacities, and, not least, knowledge to significantly influence the achievement of the organization's strategic goal (Hamadamin & Atan, 2019). As noted by Hameed & Anwar (2018), activities in the area of human resource management (HRM) in an organization are related to the managerial functions of strategic human resource management. The term "strategic" indicates that HRM practices involve policies that address issues of employee career growth, engagement, evaluation, application of knowledge, capacity planning, employee training, retention, and, not least, the management of administrative matters (Singh et al., 2020).

In connection with strategic human resource management, the relatively recent COVID-19 pandemic cannot be overlooked. At the end of December 2019, this disease began spreading worldwide, and on March 11, 2020, the World Health Organization declared it a pandemic. As of August 25, 2020, more than 23.3 million cases of infection had been confirmed, and over 800,000 deaths had been reported globally (Gómez et al., 2020; Abbas, 2021). A joint statement by the World Health Organization and the International Chamber of Commerce noted the pandemic's impact on both health and the economy. Consequently, immediate measures by governments were necessary to minimize the transmission of the disease. These measures aimed to reduce the short-term infection risks for employees and simultaneously lower the long-term costs for businesses and the economy of individual countries (Lebni et al., 2022). Human resource managers, responsible for hiring, performance management, salaries, benefits, and

development and training, sought innovative, creative, and efficient ways to address employee issues, maintain their health (Chanana & Sangeeta, 2021; De Leon, 2020), and generally support them through the creation of a reliable management strategy (Roggeveen et al., 2020; Abbasi et al., 2018; Ziapour et al., 2017). The challenge named COVID-19, given all its circumstances and the changing economic environment, required much thought and flexibility to properly manage human resources (Risley, 2020; Abbas et al., 2019). An example is the strategy implemented for the employees of San Matthew Libraries, which was a response to the ongoing pandemic. They managed to reach customers by phone in less than two months, creating new teams to design solutions and provide services to the public in a completely changed and flexible environment. Additionally, they continuously responded to various situations in the organization by enhancing their employees' capabilities (Shuja et al., 2020; Su et al., 2020). It is important to realize that crises also create opportunities, which was true for the recent pandemic. It offered a unique opportunity to rethink organizational culture and human resource management strategies. Various natural, economic, political, or health crises should be understood as opportunities to examine and develop the capabilities of both individuals and organizations (Radic et al., 2020).

Strategic human resource management is closely linked to generational change in the labor market. The demographics of the workforce have shifted, and organizational leaders have begun to ask how to manage employees from different generations. The issue of generational conflict has come to the forefront. These generational disagreements among employees are not new, as each generation is shaped by different historical, socio-economic, and political events, bringing its unique perspective on everything around it (Teng, 2020). In the current 21st century, managers may find themselves leading five different generations, adding value and diversity to their teams while working together to achieve goals. It is important to point out that for multigenerational teams to collaborate effectively, it is the manager's responsibility to understand each generation, find common ground between them, motivate and inspire the team to work towards organizational goals, and create a successful work environment (Cushing, 2019). Goins (2021) suggests that managers overseeing a multigenerational workforce should minimize generational stereotypes, improve their communication, and develop innovative training plans to achieve results. He also states that all generations want to feel respected and valued, and if managers succeed in creating this feeling among their employees, productivity will improve and increase. In Slovakia, we can observe the presence of four generations in the labor market. These include the baby boomers born between 1946 and 1964, Generation X born between 1965 and 1980, Generation Y born between 1981 and 1995, and the youngest Generation Z born between 1996 and 2012 (AMA, 2019).

In the context of these generations, it is necessary to highlight the issue of their motivation as employees. This aspect poses an extraordinary challenge for management, which currently holds several views on the matter. However, organizations must first consider employees' personal factors, including their attitudes, values, needs, work ethic, emotions, and personality; contextual factors such as organizational structure, salary, benefits, interpersonal relationships, and the nature of work; internal factors (internal motivators); external factors (external motivators). All of this needs to be considered in the development and implementation of motivational strategies based on individual differences. One possible strategy is employee recognition programs. These are designed to acknowledge specific employees for a wide range of activities. Recognition can take the form of a simple "thank you," but it can also take more complex forms, such as a formal program where employees are honored in front of their colleagues or coworkers. These recognition programs are often communicated by companies through various media, including bulletin boards, monthly bulletins, corporate emails, and websites (Cote, 2019). For employees who have performed outstanding work, it will be

necessary for the organization to express recognition and also provide rewards for their efforts, taking into account the individual needs and preferences of each generation. For example, for Generation Y representatives, an attractive experience might be dining at a new exclusive restaurant. Older generations, on the other hand, may prefer to share their recognition with their family or friends on a trip to the zoo, an aquapark, or another amusement park. The oldest generation, the baby boomers, prefer formal recognition from their coworkers, while for Generation X, it is more about a smaller group and in a private setting (Schweyer, 2015). Another strategy is flexible forms of employment. Remote work, telecommuting, or other forms of alternative work schedules provide employees with the opportunity to decide individually when they will work, how much time they will dedicate to their work, and where their tasks will be completed. An important aspect of implementing flexible forms of employment is also deciding on the balance between work and personal life. The U.S. Bureau of Labor Statistics (2018) reported that more than 20 million Americans chose to work part-time compared to full-time employment—this allows employees to better balance work, family responsibilities, and other opportunities that may arise. Another interesting strategy is job design change. This program includes three options: job rotation (used, for example, to motivate employees with new challenges, reduce their burnout, increase responsibilities within the job, and support career development), job enrichment (also known as horizontal "job loading," which involves increasing the diversity and quantity of an employee's tasks within their position, resulting in job diversification), and job enlargement (also known as vertical "job loading," which involves expanding job responsibilities or changing the role within a position, leading to the development of new skills without the employee leaving their current position or organization). Creating this program involves adapting jobs to employees so that there is a continuous increase in task diversity within their work, allowing them to learn new things from new assignments and also aiming to increase their job responsibility. The purpose is to increase employee motivation, job satisfaction, and organizational productivity. All three options provide employees with the opportunity to acquire or develop new skills, making them a greater asset to the organization and leading to increased job satisfaction (Robbins, 2017). Another available strategy is incentive compensation plans, also known as performance-based reward plans. Examples of such programs include wage incentives, profit-sharing, bonuses, profit-sharing plans (motivational plans based on increased productivity compared to profit from one period to another), and skill-based pay (also known as "knowledge-based pay," where employees are rewarded based on the number of skills or knowledge they possess) (Robbins, 2017). Lastly, programs addressing work-life balance are also a strategy. Based on a FlexJobs survey of 1,200 employees, a key finding was that employees have difficulties and struggle to manage their professional and personal lives. Also, the percentage of respondents who found that only 30% were satisfied with a balanced work and personal life decreased compared to the results from 2015. Employees find themselves more stressed at work and that issues with work-life balance have increased from 29% in 2015 to 37% in 2018, resulting in health problems (Reynolds, 2018). Employers propose work-life benefits to help employees balance work and personal life. In a report on employee benefits, life work benefits are on the rise, including flexible work schedules such as work from home, flexible hours, and compressed workweeks (Workplace Trends, 2015). The aim is to support employees' balance between work and personal life, leading to higher satisfaction, engagement, and productivity. Based on a survey of more than 330 human resource professionals, more than two-thirds of organizations offer some type of flexible work benefits, either full-time or part-time (SHRM, 2018). In conclusion, for organizations to be successful in motivating a multigenerational workforce, it will be necessary to design and implement strategies that meet the specific needs (internal and external) of each employee. Within such strategies, programs can be subsequently designed to motivate and

increase both engagement and job satisfaction in achieving organizational goals through productive employees (Cote, 2019).

2. Methodology

This article examines generational conflicts in the labor market and their challenges for strategic human resource management through quantitative and bibliometric analyses. For the purpose of this article, we utilized the Web of Science database, where we identified relevant literature using the keywords "strategic management of human resources" and "multigenerational workforce." Our analysis focused on studies published from 2018 to 2023. The PRISMA model (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) was used, allowing us to systematically and transparently identify, select, and analyze relevant studies. The initial selection included 6,591 studies, which were then filtered according to the following criteria: time frame 2018-2023, document type (article), categories (business and management), index (SSCI), and journal quality (Q1/Q2). After these filters, 355 articles remained. After analyzing the abstracts, we selected 64 studies considered highly relevant for the purposes of this article. To identify trends and challenges in the management of the multigenerational workforce, we used the VOSviewer tool, which visualizes bibliometric networks. Using this tool, we analyzed keywords and authors in the research. Identified keywords included "human-resource management," "performance," "impact," "firm performance," "competitive advantage," "innovation," "strategic human resource management," "leadership," "perceptions," and "employees." These keywords were most frequently used and formed three main clusters:

- Human resource management and organizations.
- Employee performance.
- Human resources in the context of competitive advantage.

For the final selection of studies, we used qualitative analysis of abstracts. This analysis allowed us to eliminate studies that were not directly focused on the investigated problems of generational conflicts and their impact on strategic human resource management. This methodology provides a robust framework for studying and understanding the dynamics of generational conflicts in the workplace and allows for the formulation of effective human resource management strategies that can lead to increased productivity and employee engagement, thus achieving organizational competitive advantage. Based on the analyzed studies, we identified key factors contributing to generational conflicts in the workplace. These factors include differences in work values, communication styles, and views on work-life balance. Our analysis shows that strategic human resource management, which considers these differences, can significantly contribute to harmonizing between generational groups and thus to the overall success of the organization. Proposed strategic initiatives include training focused on interpersonal skills and flexible working conditions.

Conclusion

In conclusion, it can be stated that effective human resource management, which takes into account generational diversity in the workplace, is key to achieving competitiveness and organizational success. Based on the analysis of available literature and identified trends in managing the multigenerational workforce, it is evident that differing values, communication styles, and views on work-life balance among different generations can lead to conflicts. These conflicts can have a negative impact on productivity, employee engagement, satisfaction, and ultimately, the overall success of the organization.

However, with the right approach and implementation of appropriate strategies, such as flexible forms of employment, job design changes, or individually tailored motivational programs, organizations can turn these challenges into opportunities. Flexibility in employment and a focus on employee development and satisfaction enable better alignment of work and personal life, which is crucial for retaining talented workers and increasing their engagement.

Research has also highlighted the importance of the COVID-19 pandemic, which has dramatically changed the way human resources are managed and necessitated rapid adaptation and innovative approaches. Experiences from this period have shown that organizations that were able to quickly respond to changing conditions and implement measures to protect the health and safety of employees were able to maintain their productivity and reduce negative impacts on their operations.

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For future research and practice in the field of human resource management, it is therefore important to focus on the ongoing development of strategies that promote inclusion and harness the potential of all generations in the workplace. In this way, organizations can not only overcome generational conflicts but also utilize them to achieve higher creativity, innovation, and overall development.

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Exploring local food perceptions. Insights from consumers, farmers, and literature

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Abstract. This study aims to explore local food, drawing insights from consumers, farmers and literature to unravel the perceptions and values surrounding local food. Utilizing a mixed-method approach with investigating literature, free association games and interviews, this research aims to provide a holistic understanding of how local food is perceived and valued by different stakeholders. The findings reveal that local food perceptions are deeply rooted in values, often blurring the lines between domestic and local products, as observed by both farmers and consumers. Region-specific characteristics and social connections emerge as key influencers shaping individuals' understanding of what constitutes local food. While local products are generally associated with superior quality and environmental benefits, the study uncovers significant variability in how "local" is conceptualized. The study sheds light on the role of social interactions at local markets, which serve to reinforce the cultural and communal dimensions of local food consumption. These findings highlight the importance of clearer definitions and enhancing communication surrounding the concept of "local" food. This research advocates for a unified understanding, which can serve as a foundation for informed decision-making and policy development. By understanding perceptions, stakeholders can devise strategies to bolster local food systems and champion sustainable food practices.

Keywords: local food, customer, farmers

Introduction

The concept of local food has received significant attention in recent years, largely driven by increasing consumer awareness and interest in sustainability, food quality, and community support (Enthoven & Van Den Broeck, 2021). The dynamic nature of local food perceptions underscores the need for comprehensive investigation to elucidate food system changes. Despite this growing interest, the conceptualization of local food remains ambiguous and lacks clarity. This ambiguity presents both challenges and opportunities for the local food sector, influencing consumer behaviour, policy making, and market dynamics. Local food is often associated with various positive attributes, such as environmental sustainability, freshness, and superior nutritional value (Marie-Laure Augère-Granier, 2016). However, the notion of what constitutes 'local' food is subjective and varies greatly depending on regional contexts, including population density, accessibility, and whether an area is urban or rural (Garcia et al., 2020). In Europe, for instance, perceptions of local food quality differ widely: Northern and Western Europeans link local food with environmental sustainability and animal welfare, while in Eastern and Central Europe, local food is intertwined with cultural and rural traditions (Fonte, 2008). Southern Europeans, on the other hand, consider factors like culture, tradition, climate, soil, and local knowledge in their quality assessments of local food (Fonte 2008). The subjective nature of local food perceptions necessitates a nuanced approach to understand the perceptions of different stakeholders in the food supply chain.

Recent studies have shown that consumers have distinct preferences and behaviours regarding local food (Feldmann & Hamm, 2015). Many consumers value healthy eating and sustainability, and their consumption patterns are closely linked with environmental activism. Engagement with local food is also characterised by a willingness to pay a premium for organic products and an interest in food as a means of connecting with place and community (Chen et al., 2022; Fromm & Read, 2018).

This study is original in its approach to understanding local food culture through different types of proximities. By employing a mixed-method approach that includes literature review, consumer questionnaires, and market interviews, this research provides a comprehensive view of how local food is perceived. This approach not only captures the quantitative aspects of preferences but also delves into qualitative insights, enriching the understanding of local food perceptions. The findings of this research have the potential to inform local food policies, marketing strategies, and community initiatives aimed at promoting local food systems. The paper starts with a literature review, providing an overview of existing research on local food perceptions, highlighting key themes and gaps in the literature. It contextualizes the current study within the broader discourse on local food. Then the methodology is presented on how primary data was acquired, detailing the mixed-method approach used. The section describes the processes of conducting literature reviews, consumer free association games, and performing short interviews at local markets. In the results section we present the findings of the study, discussing perceptions of local food. It examines how the different stakeholders define local food, their value-oriented attitudes, and the importance of regional characteristics and social connections. The discussion interprets the results, linking them to existing literature and theoretical frameworks. It considers the implications of the findings for local food systems, policy, and consumer behaviour. The summary section includes the key insights of the study, proposes practical recommendations, and suggests areas for future research.

1. Theoretical part

Local Food Systems in Europe

Over the past decade, governments worldwide have actively promoted local food systems (LFS) and short food supply chains (SFSC), driven by their perceived advantages. In line with the ambitions of the European Green Deal and the objectives of the Farm to Fork strategy, the European Union promotes the adoption of healthy and sustainable diets. This initiative creates opportunities for operators in the agri-food chain to transition to sustainable practices and supports sustainable food consumption (Barska & Wojciechowska-Solis, 2020). The development of markets for local food products is influenced by various factors, including cultural, legal, and technical elements, as well as commitment, close producer-consumer relationships, and partnerships between public and private sector entities, which have significant economic, environmental, and social benefits (Enthoven & Broeck, 2021). In 2020, the European Commission introduced the "Farm to Fork Strategy," which emphasizes the importance of bolstering the resilience of regional and local food systems. The strategy highlights the Commission's commitment to fostering shorter supply chains and reducing reliance on long-haul transportation to enhance the resilience of these systems (Wesseler, 2022).

The local food concept

Enthoven (2021) notes that while there is no universally agreed-upon definition of LFS, several common characteristics can be identified in the literature. One such characteristic, highlighted in the Joint Research Centre (JRC) definition, is geographical proximity. The JRC describes an LFS as "a food system in which foods are produced, processed, and retailed within a defined geographical area (within a 20 to 100 km radius approximately)" (Kneafsey et al., 2013).

Definitions of LFS often emphasize their favourable characteristics, aiming to highlight the positive impacts they can have on society, the economy, and the environment. Enthoven and Broeck (2021) identified claims regarding the benefits of LFS. According to their research, LFSs are expected to enhance consumers' access to healthy food, with consumers showing a willingness to pay a premium for local produce over non-local alternatives. Additionally, participation in LFS is believed to provide farmers with a heightened sense of social recognition and economic benefits. Furthermore, LFSs are claimed to strengthen social ties and stimulate the local economy from a community perspective. Advocates argue that LFSs promote environmentally friendly production practices, thus benefiting the environment and reducing the overall impact on climate change (Enthoven & Broeck, 2021). Martin and Isoahola (2021) also suggests that local food systems not only support local economies but also contribute to building community resilience. Additionally, research by DeLind and Howard (2021) highlights that local food systems encourage sustainable agricultural practices, which are vital in mitigating climate change. Moreover, a comprehensive review by Rossi et al. (2021) indicates that LFS play a crucial role in fostering food security and promoting public health by ensuring access to fresh and nutritious food.

Different proximities in the local food domain

Understanding food proximities is essential to grasp the complex dynamics of local food systems. The term "proximity" extends beyond mere geographic distance, encompassing relational and value-based dimensions that significantly influence consumer perceptions and behaviors (Chicoine et al., 2022; Eriksen, 2013). Although there are several food proximity concepts in the literature, Eriksen's triple proximity approach is used in this research, who distinguished between geographic, value and relational proximities. Geographical proximity refers to the physical distance between food production and consumption locations. This traditional view highlights the importance of minimizing "food miles" to reduce transportation-related environmental impacts and support local economies. It emphasizes spatial and community connections that foster a sense of locality (Torre & Rallet, 2005). Relational proximity focuses on the social connections between different actors within the food system, such as producers, consumers, distributors, and retailers. This dimension emphasizes the quality of relationships and direct interactions in alternative distribution practices like farmers' markets and cooperatives. These interactions enhance trust and transparency, making local food systems more resilient and community-oriented (Eriksen, 2013). Value proximity involves the subjective attributes and values that consumers associate with local food products, such as freshness, quality, authenticity, and traceability. These values reflect the priorities and beliefs of consumers and producers, highlighting the importance of perceived benefits and intrinsic qualities beyond physical origin (Chicoine et al., 2022).

The concept of food proximity provides a multifaceted framework for understanding local food systems. By integrating geographical, relational, and value proximities, we gain a comprehensive view of how local food is perceived and valued, therefore in this research understandings are also investigated through this concept.

Confusion in Local Food Definitions

Achieving sustainable food systems is a complex goal, influenced by environmental factors, social welfare considerations, and livelihood security (Eriksen, 2008). However, solutions must be tailored to specific spatial and regional contexts, as what works in one area may not be effective elsewhere (Eakin et al., 2017; Thompson, 2007). Navigating this complexity presents a significant challenge for policymakers and local decision-makers, particularly in the face of rapid social and environmental changes. Defining appropriate interventions and seeking

guidance to achieve a more sustainable future remains paramount in diverse contexts. This issue holds particular significance in Hungary, where rural areas, despite being ideal for food production, face challenges such as declining populations, unemployment, and poverty (Ericksen, 2008; Eakin et al., 2017). The definitions explored in the reviewed articles ranged from distances (i.e., miles or kilometers), political boundaries, and specialty criteria, to more holistic approaches that also included emotional and/or ethical dimensions such as personal relations within the region (Feldmann, 2015).

Due to the lack of an official definition and regulation through standardized labels, it is difficult for consumers to identify local products. There is also no guarantee that products labeled as local fulfill consumers' expectations (Feldmann, 2015). Without a proper definition of local food, discussions on local foods may lose their transferability across different times, spaces, individuals, and products. More importantly, without understanding the scope of local foods, policymakers may not be able to create necessary regulations to guide development. The absence of specific labeling laws on local foods may be directly related to the lack of research on how to define local food (Hu et al., 2010). The absence of a clear definition poses significant challenges for authorities in regulating and standardizing labels within the realm of local food. This lack of clarity impedes the effective implementation of policies aimed at supporting local food systems, which are increasingly subject to scrutiny and oversight (Braaten & Coit, 2010; Brune et al., 2023). Moreover, beyond its impact on marketing and policymaking, the absence of a universally accepted conceptualization of local food acts as a barrier to research endeavors. Within academic discourse, local food definitions are muddled, ranging from criteria based on market structures, geographical proximity between producers and consumers, to delineations by political or regional boundaries (Bazzani et al., 2017). This inconsistency undermines the coherence and depth of research findings, weakening both the scope and significance of scholarly inquiries (Cappelli et al., 2022; Eriksen, 2013). (Ahmed et al., 2021) discuss the regulatory complexities and the need for more precise definitions to facilitate better policy frameworks.

Despite the growing body of literature on local food systems, significant gaps remain. Most notably, the lack of a unified definition of local food systems impedes the development of consistent research methodologies and the formulation of coherent policies. The existing definitions are often context-specific and do not adequately address the diverse dimensions of local food systems, such as socio-economic impacts, cultural significance, and environmental sustainability (Enthoven & Broeck, 2021). Furthermore, while much of the literature highlights the benefits of LFS, there is a paucity of studies that critically examine the potential drawbacks or challenges associated with local food systems. This gap in the literature underscores the need for more comprehensive and balanced research that takes into account the complexities and nuances of LFS. More studies are needed to explore how the different stakeholders perceive local foods, their willingness to pay a premium for local produce, and the factors that influence their purchasing decisions (Barska & Wojciechowska-Solis, 2020). Addressing these gaps will provide valuable insights for policymakers, practitioners, and researchers aiming to enhance the sustainability and resilience of local food systems. The promotion and development of local food systems in Europe offer numerous potential benefits, including enhanced food security, economic growth, and environmental sustainability. However, the lack of a unified definition and the associated regulatory challenges highlight the need for more robust and comprehensive research. Addressing the existing gaps in the literature, particularly regarding consumer perspectives will be crucial for the successful implementation of policies and practices that support sustainable local food systems.

2. Aim, methodology, and data

This study has two goals: firstly, to construct a comprehensive definition of local food through an innovative approach harnessing word associations; secondly, to delve into the divergent perceptions of local food among consumers, small farmers (local producers), and scientific literature. The research methodology encompasses three distinct but interlinked strategies.

Consumer associations: Through engaging in free association games, Hungarian consumers were invited to articulate words associated with "local food." A cohort of 112 participants, predominantly representing the younger demographic (with an average age of 22 years; 69% female, 31% male), contributed, yielding a repository of 664 words.

Small farmer interviews: The perspectives of small-scale farmers were elicited through targeted interviews, aimed at understanding their perception and definitions of local food. Twenty German small farmers participated in this phase (local small food producers from Hessen region), enabling the extraction of 97 relevant words.

Literature Review: A review of scholarly literature was conducted to collect local food definitions and conceptualizations. A total of 38 definitions were collated from academic sources, resulting in the identification of 1424 pertinent words.

The dataset comprises a diverse array of words evoked by consumers and small farmers, alongside definitions extracted from scholarly literature. Following initial data collection, a series of pre-processing steps were implemented to refine the dataset. This involved the systematic removal of conjunctions, suffixes, and punctuation marks. Additionally, words occurring singularly were excluded to enhance the dataset's robustness. The refined dataset underwent meticulous descriptive and frequency analyses to unveil patterns and insights.

Assumption: Components of geographical proximity plays a more important role in the scientific literature, than in the consumer and farmer local food perception.

At the heart of this research lies a hypothesis: that the significance of geographical proximity in defining local food differs markedly across scientific literature, consumer perceptions, and small farmer perspectives. Through a comparative analysis of definitions sourced from these three distinct domains, the study seeks to unravel the nuances and complexities underlying the conceptualization of local food.

3. Results and discussion

Considering frequencies in the total dataset (farmer, consumer and literature merged) the words with the higher frequency are listed in Table 1.

Table 1: Most frequently appearing words in total (frequency and percentage)

Word	consumer		local producer		literature		Total (f)
health	38	6%	3	4%	0	0%	41
fresh	27	4%	2	3%	1	0%	30
tasty	28	4%	0	0%	0	0%	28
expensive	31	5%	0	0%	0	0%	27
consumer	0	0%	0	0%	23	2%	23
product	5	1%	2	3%	12	1%	19
geographic	0	0%	0	0%	18	1%	18
producer	6	1%	0	0%	12	1%	18

vegetable	15	2%	0	0%	0	0%	15
quality	12	2%	0	0%	2	0%	14
market	13	2%	0	0%	1	0%	14
distance	0	0%	0	0%	14	1%	14
produced	0	0%	1	1%	12	1%	13
domestic	12	2%	0	0%	0	0%	12
production	0	0%	0	0%	12	1%	12
bio	11	2%	0	0%	0	0%	11
pepper	11	2%	0	0%	0	0%	11
agriculture	6	1%	0	0%	4	0%	10

Source: Self-edited table

Interestingly, we do not see commonly shared expressions by the three different groups. Also, due to the different number of elements between the groups, considerations and conclusions drawn only from the total frequencies could be misleading, therefore the top 5 elements by group are considered instead, presented in Table 2.

Table 2: Most frequently appearing words per group (consumer, small producer, literature)

Consumer	(f)	Small producer	(f)	Literature	(f)
health	38	traditional	5	consumer	23
expensive	31	regional	4	geographic	18
tasty	28	health	3	distance	14
fresh	27	fresh	2	product	12
vegetable	15	product	2	produced	12
market	13	natural	2	producer	12
quality	12	ingredient	2	production	12
domestic	12	domestic	2	where	8
bio	11	receipt	2	mile	8
pepper	11	sustainable	1	consumption	7

Source: Self-edited table

The differences in the local food perceptions emerge in the table, as common words are quite rare; health and freshness are both present in the consumer and farmer understanding, as well as domestic. In the literature, the product, producer, production, produced words might refer to statement where the distance is understood between producer and consumer, or referring to the place or way of production. Considering the 3 types of proximity (Eriksen 2013) we can also investigate, whether the farmers, consumers and literature emphasis one of these.

Table 3: Most frequently appearing words per group (consumer, small producer, literature) and per proximity

Food proximities	Consumer	Local producer	Literature
Geographic	market (13), domestic (12)	regional (4), domestic (2)	geographic (18), distance (14), where (8), mile (8)

Value	health (38), expensive (31), tasty (28), fresh (27), quality (12), bio (11)	traditional (5), health (3), fresh (2), natural (2), sustainable (1)	
Relational	turstable (7)		social (5)

Source: Self-edited table

In this study, we explore the multifaceted understandings of local food among farmers, consumers, and as depicted in scientific literature. By comparing these perspectives, we uncover both convergences and divergences in how local food is perceived and valued.

A farmer's conception of local food emphasizes tradition and regional identity, prioritizing freshness and naturalness. The emphasis on health highlights the importance of wholesome ingredients sourced from the region. Ingredients play a crucial role in crafting authentic dishes, while adherence to original recipes ensures the preservation of culinary heritage. Additionally, the regional aspect is celebrated, reflecting a connection to local flavors and culinary traditions."

A consumer's perception of local food revolves around health, freshness, and quality, valuing natural and organic produce. The inclusion of 'expensive' suggests a willingness to invest in premium, locally sourced items. Additionally, the emphasis on taste and freshness underscores the desire for flavourful, recently harvested ingredients. The mention of 'vegetables' and 'fruits' highlights the importance of locally grown produce in the diet. The association with 'market' suggests a preference for purchasing from local markets, fostering a sense of community and trust. Furthermore, the emphasis on 'domestic', 'Hungarian', and 'village' suggests a preference for products with strong ties to local culture and heritage.

In the scientific literature, local food is often defined in terms of geography, emphasizing proximity and distance. It refers to products that are grown, produced, or harvested within a certain geographical area, typically measured in miles or kilometres. The concept of local food encompasses the entire production process, from cultivation to the point of consumption. It reflects a connection between producers and consumers, promoting social interactions and community engagement. The geographical aspect plays a crucial role, with distance serving as a defining factor. Additionally, local food is often associated with specific regions or areas, fostering a sense of place and identity.

Comparing these three local food understandings, while farmers and consumers share a common appreciation for health, freshness, and regional identity, their emphasis differs slightly. Farmers focus more on the preservation of culinary heritage and traditional practices, while consumers prioritize the health benefits and quality of locally sourced products. Both groups value community connections, as evidenced by the importance placed on local markets. The scientific literature provides a broader framework, defining local food through geographical proximity and the entire production process. This perspective aligns with the practical and community-oriented views of both farmers and consumers but adds a more structured, measurable dimension to the concept of local food.

When comparing the findings of this study with existing literature, several key similarities and differences emerge. Enthoven and Broeck (2021) identified claims regarding the benefits of local food systems (LFS), such as enhancing consumers' access to healthy food and consumers' willingness to pay a premium for local produce over non-local alternatives. This aligns with our finding that consumers prioritize health, quality, and are willing to invest in premium local items. Enthoven and Broeck (2021) also noted that participation in LFS provides farmers with

a heightened sense of social recognition and economic benefits, which parallels our finding that farmers emphasize regional identity and cultural heritage. The community and social aspects highlighted by farmers and consumers in our study are also reflected in the literature, which suggests that LFS strengthen social ties and stimulate the local economy (Enthoven & Broeck, 2021; Martin & Isoahola, 2021). Moreover, Martin and Isoahola (2021) state that LFS contribute to building community resilience and supporting local economies, which is consistent with our finding that both farmers and consumers value the community connections fostered by local markets.

Conclusion

The conclusion drawn from our analysis of local food perceptions among farmers, consumers, and within scientific literature highlights the multifaceted nature of this concept. At the centre of our investigation was the hypothesis that the role of geographical proximity in defining local food diverges across these domains, reflecting diverse cultural, economic, and environmental considerations. Through a comparative examination of definitions and perspectives, we aimed to show the complex layers shaping the conceptualization of local food. Our findings underscore a convergence in recognizing the intrinsic value of local food across all stakeholders, but with differences in emphasis and priorities. For farmers, local food embodies tradition, regional identity, and a commitment to preserving culinary heritage. The focus on utilizing fresh, natural ingredients sourced from the region reflects not only a dedication to quality but also a deep-seated connection to local flavors and culinary traditions. In contrast, consumers prioritize health, freshness, and quality in their perception of local food. The preference for natural and organic produce emphasizes a growing awareness of food safety and environmental sustainability, coupled with a willingness to invest in premium, locally sourced items. Moreover, the association of local food with community markets highlights its role in fostering social connections and trust within communities, reflecting a broader societal shift towards community-oriented consumption patterns.

In scientific literature, local food is predominantly defined through the lens of geographical proximity, emphasizing the spatial dimensions of production and consumption. This definition extends beyond mere physical distance to encompass the entire production process, from cultivation to consumption, thereby fostering a structured and measurable understanding of local food. Additionally, but not as strongly, the literature emphasizes the role of local food systems in promoting social interactions, community engagement, and regional identity, aligning with the perspectives of both farmers and consumers.

While our study offers valuable insights into the divergent perspectives on local food, it is not without limitations. The relatively small sample size and lack of diversity among participants may limit the generalizability of our findings. Moreover, the geographical focus of our study may not capture the full spectrum of local food perceptions globally. Methodological constraints, such as the mixed-method approach utilized, may also introduce biases into our analysis. Future research could address these limitations by conducting comparative regional studies across diverse geographic areas and demographic groups. Longitudinal research designs could provide further insights into the dynamics of local food perceptions over time, considering the evolving economic, social, and environmental factors influencing consumer behaviour and farmer practices. Furthermore, future research should explore the intersectionality of local food with broader societal trends, such as the rise of alternative food movements, the impact of globalization on food systems, and the role of policy interventions in shaping local food networks. Understanding the complex interplay between these factors will be important for developing evidence-based strategies to support and strengthen local food

systems. Additionally, future research could focus on consumer behaviour analysis, utilizing advanced analytical techniques and behavioural models to uncover the underlying motivations, barriers, and enablers for choosing local food over conventional alternatives.

By addressing these areas, future research can build upon the foundations laid by this study, offering a more nuanced and comprehensive understanding of local food systems. This approach will be essential for informing policy development, promoting sustainable food practices, and enhancing the resilience and viability of local food systems in the face of emerging challenges. Ultimately, the collective efforts of researchers, policymakers, farmers, and consumers will be instrumental in fostering a more equitable, resilient, and sustainable food system for future generations.

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The Impact of Demographic Factors on CSR Perceptions in Czech and Slovak SMEs

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Abstract: Small and medium-sized enterprises are at the heart of the business environment in every country. At the same time, emphasis is placed on corporate social responsibility (CSR). The objective of this paper is to examine the influence of selected demographic factors on CSR. The empirical research was carried out in June 2022 in Slovakia and the Czech Republic using the CAWI Research Method. The questionnaire could be completed by the owner or the top manager of the SME. Descriptive statistical analysis was used to analyse the characteristics of the variable, and regression (LRM) and correlation analysis methods were applied to find statistically significant differences in the influence of each independent factor. The analysis suggests interesting differences in how demographic factors influence CSR. In general, the impacts of these factors on CSR are very weak. The results showed that firm size influences SMEs' attitudes towards CSR in all countries. Only in Czech Republic business sector has significant impact on CSR. The other independent variables such as length of business and manager's age, do not affect attitudes towards CSR. We can generalise that in the conditions of Slovakia and the Czech Republic, among demographic criteria, only firm size plays and sector (in Czechia) a significant role in determining the attitudes of SME managers.

Introduction

Small and medium-sized enterprises (SMEs) differ notably in this regard. Unlike large enterprises, SMEs lack comparable resources to simultaneously engage in socially responsible activities. Nonetheless, SMEs constitute a significant proportion of business entities within the national economy, contributing substantially to regional employment, driving economic growth, positively influencing GDP, and enhancing government revenues. However, they are susceptible to fluctuations in the business environment (Alabsy, 2021; Dankiewicz et al., 2020; Totanan et al., 2021). Given the constraints on implementation, applying the CSR concepts and methodologies designed for large companies to the specific context of SMEs is impractical. The tools required by SMEs for effective CSR implementation differ from the formalised instruments utilised by larger corporations (Dias et al., 2019; Gelbmann, 2010; Nenkov et al., 2016).

The topic of corporate social responsibility (CSR) remains perpetually relevant. In recent years, notable examples have emerged demonstrating efforts to tackle environmental, social, and economic challenges. The European Union is presently aligning with the global trend towards sustainability and environmental protection, a concept that has been integrated and promoted within the governmental policies of its member states (Guo et al., 2015; Isensee et al., 2020). This current trajectory places increasing demands on managerial approaches to effectively coordinate the management of all supporting business processes within the framework of corporate responsibility and sustainability (Potkány et al., 2021; Smekalova et al., 2014).

This paper aims to examine the influence of selected demographic factors on Corporate Social CSR in Slovak and the Czech SMEs. The originality of this article stems from its unique research and approach to investigating these four areas. The research findings are novel in terms of their content and applicability.

The scientific article is organised as follows: The introduction acquaints the reader with the various aspects of the SMEs under study. The theoretical section critically examines the impact of selected demographic factors on the CSR element of SME management. The methodology section outlines the study's objective, details the data collection procedures and methodology, provides information about the questionnaire, and presents the research questions and statistical hypotheses. The results section presents the findings of regression and correlation analyses and evaluates the statistical hypotheses. The discussion summarises the results and compares them with similar studies. Finally, the conclusion addresses the research's limitations and suggests future research directions.

1. Theoretical part

The attitudes of business owners and managers towards social responsibility can be influenced by various demographic factors. Numerous studies, such as those by Çera et al. (2022) or Dvorsky et al. (2020), indicate that demographic characteristics affect business risk perception, governance, and related aspects. Additionally, research by Betáková et al. (2023) reveals that the size of the company, the industry, and the educational attainment of respondents influence their perceptions and implementation of CSR, while the age category of the entrepreneur does not significantly impact the studied factors. Zvarikova et al. (2023) identified partial differences in ethical entrepreneurship based on enterprise size, respondent gender, and educational level. Several other studies emphasise the varying approaches to the examined areas depending on selected demographic factors.

The concept of CSR is relatively new in Slovakia and the Czech Republic - they remain in the background compared to Western Europe. This may be influenced by the relatively short period of market economy or the lack of interest of other academic groups due to the mediocrity and blandness of the national economies of the countries (Dvorsky et al., 2020; Olah et al., 2021). The spread of CSR in the form in which we know it today in Slovakia and the Czech Republic is mainly driven by large corporations, in most cases with foreign capital. It is only recently that CSR has gained the attention of medium and small enterprises. (Lušňáková et al., 2019; Slabá, 2020). Remišová & Lašáková (2014) argue that research on CSR in the context of countries such as Slovakia and the Czech Republic is still under-researched, with little emphasis on comparative studies. Fijałkowska et al. (2018) identified that there is still limited evidence on CSR practices and their effects, especially in Central and Eastern European countries.

CSR is recognised as a critical strategic tool for ensuring sustainability and achieving policy objectives (Belas et al., 2021a; Ngai et al., 2018). However, integrating various CSR activities into business strategy remains insufficiently understood (Bikefe et al., 2020). This knowledge gap challenges researchers striving to develop a more robust and sophisticated CSR theory. Advancing knowledge in this domain is a priority for numerous scholars and researchers. Many authors attribute CSR predominantly to large enterprises, and while there is extensive research on CSR, it is often segmented by specific areas. Research primarily focuses on large enterprises, with small and medium-sized enterprises only recently gaining recognition as secondary subjects of study. The primary reason for this focus is the potential for resource generation

(Gelbmann, 2010), as also indicated by studies from Bulanda et al. (2020) and Lazanyi et al.(2020).

For instance, younger managers or owners may be more receptive to new trends and innovations, including CSR, as they tend to be more attuned to social and environmental issues (Kukanja et al., 2016); this sensitivity often translates into a greater willingness to invest in sustainable and environmentally responsible practices. Grenčíková et al. (2022) highlight generational differences in work approaches, noting that each generation exhibits distinct attitudes, a widely discussed topic among researchers. It is reasonable to infer that a similar pattern may apply to entrepreneurs across different age groups.

The industry in which a firm operates significantly influences its approach to CSR, environmental issues, and ethics (Yumei et al., 2021). For instance, companies in the energy, mining, and manufacturing sectors are subject to stricter regulations and greater public scrutiny, prompting them to adopt more comprehensive CSR strategies (Ngai et al., 2018b). Conversely, firms in less scrutinised sectors may focus their CSR efforts more on innovation and social impact.

The duration of a business's operations can significantly impact its capacity and willingness to invest in CSR activities. Older, more established firms typically possess a stable financial foundation and greater resources, enabling them to engage in more extensive CSR projects. Their prolonged presence and influence in the market often foster a heightened sense of social responsibility. On the other hand, newer firms may exhibit greater agility and adaptability, allowing them to incorporate CSR into their business strategy more swiftly, albeit on a smaller scale (Çera et al., 2022).

Company size is another critical factor influencing approaches to CSR, financial management, and ethics. Scholarly literature and financial reports indicate a direct correlation between a company's size and its CSR budget, concluding that CSR initiatives are particularly effective for larger budgets and, thus, more prevalent in large companies (Zbucea & Pinzaru, 2017). Company size significantly impacts financial management as well. Micro and small enterprises face specific challenges compared to medium-sized enterprises, such as limited access to finance, greater sensitivity to cash flow, and reduced financial resilience (Zhang, 2023). These constraints limit the capacity of micro and small enterprises to implement large-scale CSR strategies. Conversely, medium-sized enterprises typically possess greater resources and can access a broader range of CSR activities, enabling them to develop and implement more comprehensive and sustainable strategies.

***Research Hypothesis:** The demographic characteristics of SME managers and owners influence their attitudes towards CSR.*

2. Aim, methodology, and data

This paper aims to define and quantify the impact of significant demographic factors on the CSR. The empirical research was carried out as part of a broad-based research that aimed to ascertain the attitudes of small and medium-sized firms. It was conducted in June 2022 in Slovakia and the Czech Republic using the CAWI Research Method. The questionnaire could be completed by the owner or the top manager of the SME. The questionnaire was secured against automatic computer completion. Descriptive statistical analysis was used to analyse the characteristics of the variable. Descriptive statistics techniques were used to depict the

respondents' profile in terms of frequency distribution. Regression and correlation analysis methods are applied to find statistically significant differences in the influence of each independent factor. To evaluate the statistical hypotheses, correlation analysis was used to find the relationship between the variables at the significance level $\alpha = 0.05$. To test the significance and determine the effect size of demographic factors on the perception of selected attitudes of entrepreneurs towards the issues of the research representatives, linear regression modelling (LRM) was used. Positive responses to the independent variables should lead to positive perceptions of the dependent variable verifying each country's relationship. For the following calculation, the following hypotheses (4) were established:

- H1: Firm size significantly influences SME manager's attitude towards CSR application in managerial practice
- H2: The business sector significantly influences SME manager's attitude towards CSR application
- H3: The length of the business significantly influences SME manager's attitude towards CSR application
- H4: The age of an SME manager significantly influences SME manager's attitude towards CSR application

The selection of respondents was done by random sampling method from the professional database of MNFORCE agency, which carried out the data collection based on the requirements of the researcher. A comprehensive descriptive analysis of the respondents is shown in Table 2. The total number of respondents was 347 in the Czech Republic and 322 in the Slovak Republic.

3. Results and discussion

Table 1: Results of descriptive statistics, correlation and LRM analysis for Czech Republic.

<i>DESCRIPTIVE</i>	<i>size</i>	<i>sector</i>	<i>duration</i>	<i>age</i>	<i>CSR</i>
Mean	1,7867	3,0086	2,2795	2,1643	2,5331
Standard Error	0,0432	0,0972	0,0420	0,0501	0,0548
Std. Deviation	0,8050	1,8112	0,7825	0,9337	1,0206
Sample Variance	0,6480	3,2803	0,6124	0,8718	1,0415
Kurtosis	-1,3441	1,7993	-1,1737	-0,8717	0,1175
Skewness	0,4057	1,3874	-0,5354	0,2886	0,5088
<i>CORRELATION</i>	<i>size</i>	<i>sector</i>	<i>duration</i>	<i>age</i>	<i>CSR</i>
CSR	-0,2271	0,1351	0,0770	0,1019	1
<i>LRM</i>	<i>Multiple R</i>	<i>R Square</i>	<i>Adj. R Sq.</i>	<i>Std. Error</i>	<i>Observations</i>
	0,2748	0,0755	0,0647	0,9869	347
<i>ANOVA</i>	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Sign. F</i>
Regression	4	27,2315	6,8079	6,9890	<0,0001
Residual	342	333,1374	0,9741		
Total	346	360,3689			
	<i>Coefficients</i>	<i>Std. Error</i>	<i>t Stat</i>	<i>P-value</i>	<i>VIF</i>
Intercept	2,5159	0,2272	11,0747	<0,0001	

<i>size</i>	-0,2787	0,0667	-4,1814	<0,0001	1,0229
<i>sector</i>	0,0624	0,0295	2,1186	0,0348	1,0112
<i>duration</i>	0,0879	0,0747	1,1757	0,2405	1,2151
<i>age</i>	0,0588	0,0626	0,9389	0,3484	1,2143

Source: own research

Based on the descriptive statistics - skewness and skewness (values in the interval $<-2 ; 2>$), a normal distribution is satisfied. The results of the correlation analysis define, at the significance level $\alpha = 0.05$, that CSR is weakly negatively influenced by the size of the business (-0.2271) and very weakly positively influenced by the sector, the length of business and the age of the respondent (0.0770 - 0.1351). LRM results from the Czech Republic showed that CSR is only 6.5% (Adj. R. Sqr. = 0.0647) affected by business size ($C = -0.2787$, p-value = <0.0001) and sector ($C = 0.0624$, p-value = <0.0348) [regression model is statistically significant: Sign. F = <0.0001]. The other factors examined are not statistically significant. Based on the results of the VIF calculation to identify multicollinearity (Variance inflation factor), the independent variables (x) are moderately correlated (in the interval $1 < VIF < 5$).

Table 2: Results of descriptive statistics, correlation and LRM analysis for Slovak Republic.

DESCRIPTIVE	<i>size</i>	<i>sector</i>	<i>duration</i>	<i>age</i>	<i>CSR</i>
Mean	1,6957	3,0590	2,0839	1,9658	2,3106
Standard Error	0,0447	0,0952	0,0420	0,0512	0,0508
Std. Deviation	0,8014	1,7075	0,7545	0,9182	0,9119
Sample Variance	0,6423	2,9155	0,5693	0,8431	0,8316
Kurtosis	-1,1850	2,5890	-1,2290	-0,6140	0,0986
Skewness	0,6049	1,5964	-0,1398	0,5781	0,4367
CORRELATION	<i>size</i>	<i>sector</i>	<i>duration</i>	<i>age</i>	<i>CSR</i>
CSR	-0,1985	-0,0658	0,0526	0,0574	1
LRM	<i>Multiple R</i>	<i>R Square</i>	<i>Adj. R Sq.</i>	<i>Std. Er.</i>	<i>Observations</i>
	0,2292	0,0526	0,0406	0,8932	322
ANOVA	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Sign. F</i>
Regression	4	14,0285	3,5071	4,3958	0,0018
Residual	317	252,9156	0,7978		
Total	321	266,9441			
	<i>Coefficients</i>	<i>Std. Error</i>	<i>t Stat</i>	<i>P-value</i>	<i>VIF</i>
Intercept	2,6586	0,2100	12,6572	0,0000	
<i>size</i>	-0,2429	0,0632	-3,8454	0,0001	1,0311
<i>sector</i>	-0,0451	0,0294	-1,5354	0,1257	1,0137
<i>duration</i>	0,0743	0,0747	0,9949	0,3205	1,2766
<i>age</i>	0,0240	0,0609	0,3939	0,6939	1,2585

Source: own research

The results of the correlation analysis in Slovakia define, at the significance level $\alpha = 0.05$, that CSR is very weakly negatively influenced by the size of the enterprise and the sector (-0.1985 - -0.0658) and very weakly positively influenced by the length of the business and the age of the respondent (0.0526 - 0.0574). LRM results from the Slovak Republic showed that CSR is only 4% (Adj. R. Sqr. = 0.0406) affected by business size ($C = -0.2429$, p-value = 0.0001) [regression model is statistically significant: Sign. F = 0.0018]. Based on the results of the VIF calculation to identify multicollinearity (Variance inflation factor), the independent variables (x) are moderately correlated (in the interval $1 < VIF < 5$).

Table 3: Regression models.

	Regression models
CSR CZ	$y_{CZ} = 2,5159 - 0,2787 x_1 + 0,0624 x_2 + 0,0879 x_3 + 0,0588 x_4$
CSR SK	$y_{SK} = 2,6586 - 0,2429 x_1 - 0,0451 x_2 + 0,0743 x_3 + 0,0240 x_4$

Source: own research

For the Czech Republic, hypothesis H1 and H2 are accepted, and reject the other hypotheses - i.e. firm and sector size significantly affect CSR. **For Slovakia, only H1 is accepted**: sector significantly affects CSR.

The analysis suggests interesting differences in how demographic factors influence CSR between the Czech and Slovak Republics. In general, the effects of these factors on the areas mentioned above are very weak. In the area of CSR, the results from both countries are quite similar, with company size and sector (only in the case of the Czech Republic) having a very weak but positive effect.

In this context, the results do not correlate with research Betakova et al. (2023) in the sector, where we found that the sector has no influence on the perception of CSR in Slovakia. The size of the enterprise as an influencing factor is also demonstrated when compared with research Zvarikova et al. (2023). Assumption of other research (i.e. Kukanja et al. (2016)) dealing with a different approach to the issue, based on the age structure of managers, was not in the research. The research did not support the authors' study that the age generation has a different perspective on selected aspects of (Grencikova et al., 2022; Luther et al., 2018; Chitescu et al.; 2023).

It can be generalised that in the conditions of Slovakia and the Czech Republic, among demographic criteria, only firm size plays a significant role in determining the attitudes of SME managers in both countries.

Conclusion:

The initial partial aim of the paper was to compare selected demographic factors pointed out by several studies as influencing factors of the CSR. The research has shown that firm size significantly influences the attitude of SMEs towards CSR, with a more positive attitude towards CSR increasing with firm size. Other demographic parameters do not affect the attitudes of SMEs with the factor under study.

The research has some limitations. The first is the narrow focus on two countries that have close ties and are very similar in many aspects. The thesis does not include comparisons with other countries, the results of which could determine the research findings. To determine the greater accuracy of the research, it is advisable to compare the results with those of other countries with the same regional, economic, institutional, and political conditions. Therefore, the results can only be generalised to the locality covered by the study.

In terms of methodology, four influencing factors were chosen. Based on the results, it is clear that there are many other (unexplored) factors. Future research can define these unknown influencing determinants, including their potential influencing power.

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Satisfaction and commitment among Hungarian and Slovak employees

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Abstract. Commitment and job satisfaction are crucial because they directly influence employee retention and productivity, leading to a more stable and efficient workforce. Additionally, high levels of commitment and satisfaction foster a positive work environment, enhancing teamwork and overall organizational success. That's why it's important to deal with these factors. Our study aims to compare job satisfaction and organizational commitment between Slovak and Hungarian employees. Using a questionnaire validated by Vanhala and Ahteela, which investigates impersonal and personal trust, satisfaction, and commitment among employees. The survey was administered via LimeSurvey, yielding responses from 1572 Hungarian and 660 Slovak employees. Simple statistical methods were employed to analyze the data. The results indicate that Slovak workers are generally more satisfied with their jobs and salaries compared to Hungarian workers. Furthermore, Slovak employees showed higher organizational commitment, with a greater proportion indicating they would recommend their organization to a friend and would not leave for higher pay elsewhere.

Keywords: job satisfaction, employee retention, teamwork, organozational commitment

Introduction

Commitment holds strategic significance for leadership, as employee commitment is a global issue and one of the most critical and challenging priorities for companies worldwide. Understanding workplace commitment is essential for maintaining organizational success and competitiveness, especially as the nature of work and workplaces continues to evolve. With the advent of remote work, flexible working conditions, and changing employee expectations, the dynamics of employee commitment are shifting, necessitating ongoing research in this area to adapt and thrive in the modern work environment (Santana-Martins et al., 2024).

Various models have highlighted that certain personal characteristics can serve as antecedents of commitment and act as triggers for employee engagement (Meyer & Allen, 1997; Klein et al., 2012). One such characteristic is emotional awareness, defined as the ability to recognize and interpret one's own and others' emotions (Santana-Martins et al., 2022a). This ability plays a crucial role in enhancing accurate contextual understanding and guiding behavior accordingly. Furthermore, emotional awareness enables individuals to perceive and express their emotions, supporting their capacity to regulate feelings and develop emotional maturity (Rimé, 2015; Smith et al., 2018; Santana-Martins et al., 2022b). Emotional maturity, a significant aspect of emotional awareness, is instrumental in fostering a deeper connection and commitment within the workplace. Employees with high emotional maturity are better equipped to navigate the

complexities of interpersonal relationships, manage stress effectively, and maintain a positive outlook, all of which contribute to a higher level of commitment. This emotional intelligence not only improves individual performance but also enhances team dynamics and overall organizational health (Santana-Martins et al., 2024). The concept of commitment in the workplace is multifaceted, encompassing various foci such as commitment to leaders, career commitment, and commitment to colleagues. Commitment to leaders involves the trust and loyalty that employees place in their supervisors or managers. This type of commitment is crucial as it directly impacts employee motivation, job satisfaction, and retention. Leaders who demonstrate empathy, transparency, and support can cultivate a strong sense of loyalty and commitment among their team members (Santana-Martins et al., 2024). Career commitment, another vital focus, refers to an employee's dedication to their professional growth and career development. This form of commitment is often driven by personal ambition, job satisfaction, and the opportunities provided by the organization for advancement. Companies that invest in employee development, offer clear career progression paths, and recognize achievements are more likely to foster high levels of career commitment, leading to enhanced performance and reduced turnover (Santana-Martins et al., 2024). Commitment to colleagues involves the bonds and relationships that employees form with their peers. A strong sense of camaraderie and teamwork can significantly enhance employee engagement and commitment. Collaborative work environments, where employees feel valued and supported by their colleagues, contribute to a positive organizational culture and higher levels of job satisfaction (Santana-Martins et al., 2024).

To gain a comprehensive understanding of the employee engagement process, it is essential to study the antecedents of commitment, such as emotional maturity, and the various commitment foci. By examining these factors, organizations can develop targeted strategies to enhance employee commitment. For example, leadership training programs that focus on emotional intelligence can equip managers with the skills needed to build trust and loyalty within their teams. Similarly, initiatives that promote career development and foster a supportive work environment can enhance commitment across different levels and roles within the organization (Santana-Martins et al., 2024).

In conclusion, employee commitment is a critical factor for organizational success, especially in today's rapidly changing work landscape. The strategic importance of commitment for leadership cannot be overstated, as it directly influences productivity, job satisfaction, and retention. By understanding and addressing the antecedents of commitment, such as emotional awareness and maturity, and focusing on different types of commitment, organizations can create a more engaged and committed workforce. Ongoing research in this area is vital to adapt to evolving workplace dynamics and to maintain competitiveness in a global market. In our research, we used basic statistical analyses to examine the perspectives of employees in organizations in Hungary and Slovakia regarding this topic. We investigated how satisfied they are with their jobs and how committed they are to their organizations.

1. Theoretical part

Human resources place significant emphasis on the skills of subordinates, recognizing that these abilities, when properly harnessed and managed, can drive the success of various public and private organizations (Uma et al., 2017; Ong & Koh, 2018; Ong et al., 2019). The effective utilization and management of these skills are essential for achieving organizational objectives. Human resource management (HRM) practices encompass a comprehensive set of internally consistent and coherent methods designed to bolster and advance employee competence,

motivation, and commitment. These practices focus not only on the enhancement of individual talents and skills within the organization but also on fostering a supportive environment where employees can thrive and contribute to the organization's overall success. By strategically managing human capital, organizations can ensure sustained growth and a competitive edge in their respective fields (Elrehail et al., 2019; Ana et al., 2019). These HRM practices foster a deep sense of commitment among employees towards their organizations, particularly where elements of organizational trust, both personal and impersonal, are already established. As a result, employees are motivated to go above and beyond in their efforts to achieve the organization's objectives, displaying a positive attitude towards efficient and effective operations. This commitment manifests in high levels of identification with the organization, active participation in its activities, and unwavering loyalty. Such a supportive and engaged workforce contributes significantly to improved job performance and overall organizational success. The high identification, participation, and loyalty of subordinates create a positive feedback loop that enhances both individual and organizational performance (Devananda & Onahring, 2019; Faiza et al., 2019).

Human Resource Management (HRM) practices play a crucial role in enhancing employee job satisfaction, which in turn impacts overall organizational performance. According to Mohammad et al. (2019), HRM practices have a significant positive influence on how satisfied employees feel about their jobs. Job satisfaction, as defined by Devananda and Onahring (2019), refers to "an individual's affective orientation towards the roles they currently occupy, which is related to their workplace behavior." This definition underscores the importance of employees' emotional responses to their roles and how these responses influence their behavior at work. One of the primary goals of HRM practices is not only to improve employee attitudes but also to boost their performance. Cai et al. (2019) emphasize that effective HRM practices are designed to enhance overall employee performance by fostering a supportive and motivating work environment. Ana et al. (2019) found a strong, positive correlation between HRM practices and employee satisfaction, which subsequently leads to better organizational performance. This relationship indicates that when employees are satisfied with their jobs, they are more likely to perform better, contributing to the organization's success.

Organizational commitment is another critical aspect of the employer-employee relationship. Mizanur et al. (2013) describe organizational commitment as a bond or connection between the organization and its employees. This bond is essential for maintaining a stable and dedicated workforce. When employees feel a strong sense of commitment to their organization, they are more likely to be engaged and motivated in their work. However, if this bond is weak or nonexistent, it can lead to job dissatisfaction and high turnover rates, as noted by Murat et al. (2014). High turnover can be detrimental to an organization, leading to increased recruitment and training costs, as well as potential disruptions in productivity and morale. To address these challenges, leaders must implement strategies that increase employee commitment and satisfaction. Mehwish et al. (2019) suggest that leaders use incentives and motivational techniques to foster a more committed and satisfied workforce. By recognizing and rewarding employees' contributions, organizations can enhance their commitment and satisfaction levels, leading to better retention and performance. The mediating role of organizational commitment in the relationship between HRM practices and employee engagement has been explored by Alima and Faizuniah (2018). Their research focused on bank employees and found that HRM practices are significant predictors of employee engagement. Moreover, their findings indicated that organizational commitment partially mediates the relationship between HRM practices and employee engagement. This suggests that while HRM practices directly influence engagement, the presence of strong organizational commitment further enhances this effect.

Several researchers have identified a positive link between HRM practices, employee satisfaction, and organizational commitment. Abubakar et al. (2019), Albrecht et al. (2015), and Ukil (2016) have all found evidence that effective HRM practices can lead to higher levels of employee satisfaction and commitment. Murat et al. (2014) specifically investigated the relationships between various HRM practices - such as recruitment and selection, training and development, compensation and benefits, and performance appraisal - and job satisfaction and organizational commitment. Their findings revealed positive relationships across these dimensions, highlighting the importance of comprehensive HRM practices in fostering a satisfied and committed workforce.

Similarly, Mizanur et al. (2013) concluded that in the Bangladeshi banking sector, there are positive relationships between HRM practices, job satisfaction, and organizational commitment. This conclusion aligns with the broader body of research suggesting that effective HRM practices are crucial for achieving high levels of employee satisfaction and commitment, which are essential for organizational success. Cherif (2020) further supports these findings, indicating that HRM practices significantly contribute to positive outcomes in job satisfaction and organizational commitment. As organizations strive to create supportive and engaging work environments, the implementation of effective HRM practices becomes increasingly vital. By fostering job satisfaction and organizational commitment, HRM practices can help build a stable, motivated, and high-performing workforce, ultimately driving the organization towards its strategic goals. Employee commitment, which includes emotional attachment, a sense of duty, and continuity within the organization, has profound implications for organizational outcomes and performance (Beer et al., 2015; Park et al., 2022). This multifaceted concept plays a critical role in shaping how employees engage with their work and their overall contribution to the organization's success. One of the key dimensions of employee commitment is the affective component, which is often regarded as the most influential when compared to the normative and continuity components (Mercurio, 2015). The affective component reflects the emotional attachment and identification that employees feel towards their organization. This emotional bond is crucial as it greatly influences employees' willingness to remain with the company. Employees who feel a strong emotional connection to their organization are more likely to be motivated, engaged, and committed to their roles, which enhances overall productivity and performance. Meyer et al. (2002) and subsequent studies by Klein et al. (2021), Iqbal et al. (2023), and Ngah et al. (2023) have demonstrated that employees with a strong affective commitment are more likely to exhibit higher levels of job performance, lower absenteeism, and reduced turnover intentions. This emotional bond creates a sense of loyalty and belonging, which drives employees to go above and beyond in their roles, contributing to the overall success and sustainability of the organization.

2. Aim, methodology, and data

Our goal is to provide a general overview for future research on how employees in Hungarian and Slovak organizations perceive organizational commitment and job satisfaction, and to identify any differences between the two countries. We used a questionnaire validated by Vanhala and Ahteela (2011), which includes statements related to impersonal and personal trust, satisfaction, and commitment. Respondents could indicate the extent to which each statement applied to them on a five-point Likert scale. Our research is a smaller part of a larger study that introduces the importance of the topic.

The list of participants was obtained by filtering the Orbis database, which contains global financial information, financial data, news, ownership structures, mergers, acquisitions, etc. The conditions for this filtering are summarized in Table 1.

Table 1: Filtering the sample

Hungary		Number of organizations
Status	Active organization / unknown status	76 704 609
World region / country / region in the country	Hungary	1 366 114
Size classification	Large, medium, small, and micro companies	1 365 051
Complete		1 365 051
Usable addresses		474 219
Slovakia		Number of organizations
Status	Active organization / unknown status	77 442 738
World region / country / region in the country	Slovakia	1 057 558
Size classification	Large, medium, small and micro companies	1 057 017
Complete		1 057 017
Usable addresses		155 523

Source: own editing

The questionnaire was filled out by employees from all managerial levels, as well as intellectual and manual workers, regardless of gender and age. We included organizations of all sizes, so employees from micro, small, medium, and large companies were among the respondents. The questionnaire also asked about the location of the organizations (county in Hungary, district in Slovakia). To meet the research goals, we also asked about resource intensity (whether the organization is capital-, labor-, or knowledge-intensive). Table 2 shows the sample size.

Table 2: Sending the questionnaire

	Employees of Hungarian organizations		Employees of Slovak organizations	
	Person	Percent	Person	Percent
Sent	219881	100	155523	100
Partial fillings	2560	1,16	1108	0,71
Complete fillings	1572	0,71	660	0,42

Source: own editing

3. Results and discussion

The presentation of the results begins with an overview of the response rates, followed by diagrams created using basic statistical methods, which were generated with the help of Limesurvey. Each diagram is followed by a comprehensive thematic analysis that includes comparisons with the literature and our reflections. The following two (3rd and 4th) tables show the number of returned responses based on the criteria defined in the filtering process.

Table 3: Hungarian fill-ins

Number of employees (person)		Position of respondent		Resource requirements	
1-10	775 (49%)	Senior manager	1098 (70%)	Labor intensive	592 (38%)
11-50	497 (32%)	Mid-level manager	278 (18%)	Capital intensive	255 (16%)
51-250	203 (13%)	Junior manager	30 (2%)	Knowledge-intensive	725 (46%)
250+	97 (7%)	Intellectual worker	158 (10%)		
		Manual worker	8 (0,5%)		

Source: own editing

Table 4: Slovak fill-ins

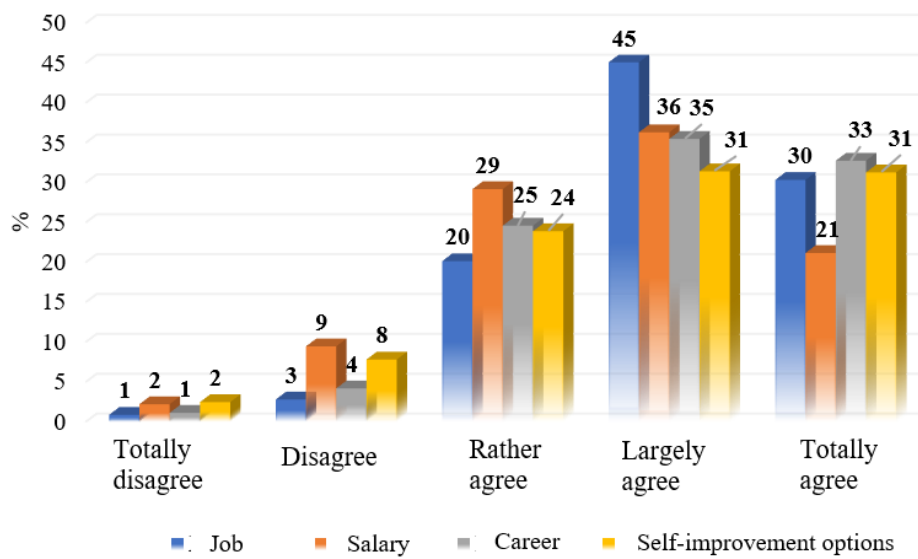
Number of employees (person)		Position of respondent		Resource requirements	
1-10	376 (57%)	Senior manager	339 (51%)	Labor intensive	214 (32%)
11-50	166 (25%)	Mid-level manager	144 (22%)	Capital intensive	76 (12%)
51-250	75 (11%)	Junior manager	52 (8%)	Knowledge-intensive	370 (56%)
250+	43 (7%)	Intellectual worker	105 (16%)		
		Manual worker	20 (3%)		

Source: own editing

The analysis is based on the results of the LimeSurvey questionnaire program.

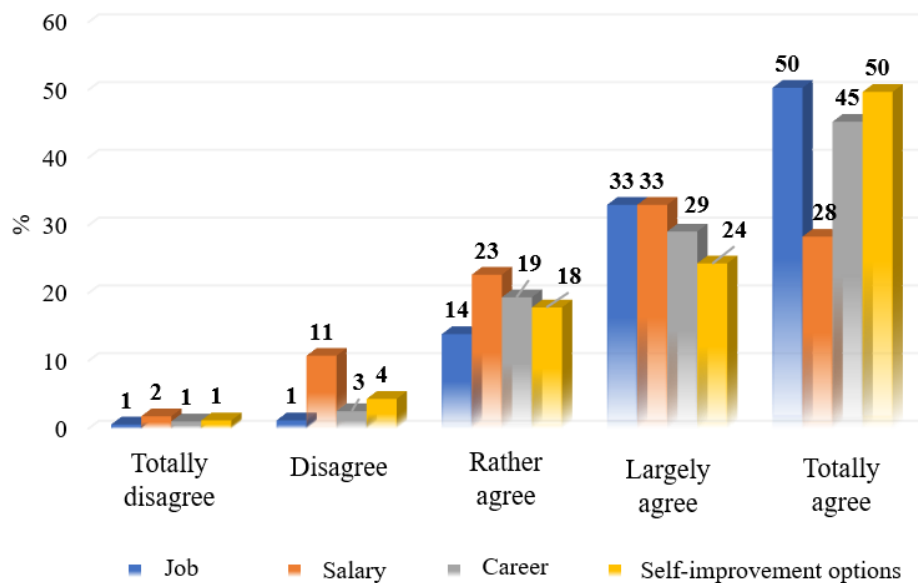
Gunz and Mayrhofer (2011) examined in their study whether ethics and satisfaction contribute to the subjective career success of employees in the organization, with which we agree, as our research revealed how satisfied employees are within the organization, as presented in Figures 1 and 2.

Figure 1: Satisfaction among Hungarian employees



Source: own editing

Figure 2: Satisfaction among Slovak employees



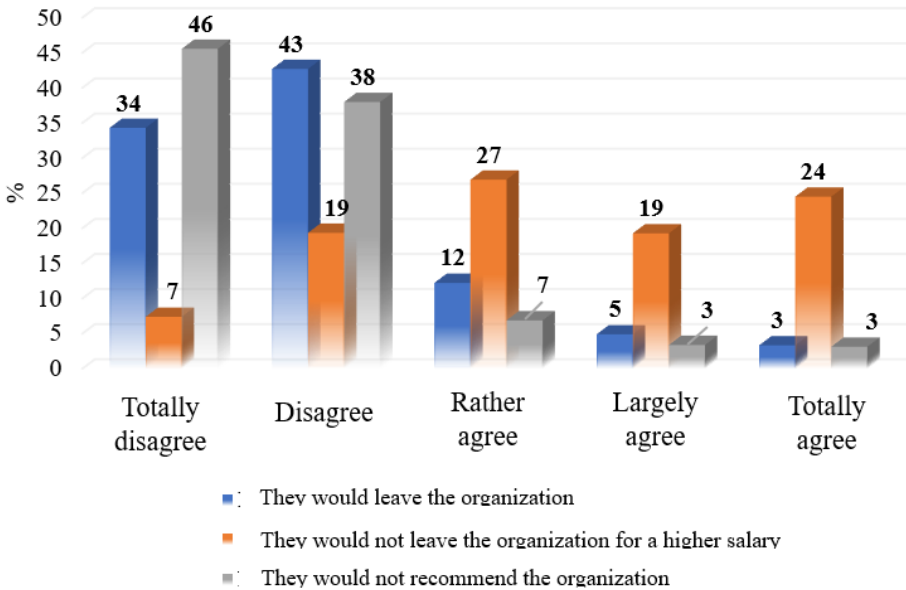
Source: own editing

The two charts reveal that, proportionally, Slovak workers are generally more satisfied with their jobs than Hungarian workers. Specifically, 30.28% of Hungarians fully agreed with the statement, "Overall, I am satisfied with my job," compared to 50.30% of Slovaks. Regarding salaries, both groups had similar views, though a slight difference was observed. Most workers in both countries chose the "strongly agree" option, with 28.33% of Slovak workers and 21.12% of Hungarian workers completely agreeing, indicating higher salary satisfaction among Slovaks. For the career-related statement, "Overall, I am satisfied with my career within the organization," Slovaks again showed higher satisfaction (45.30%) compared to Hungarians (32.70%). The final statement addressed the availability of opportunities within the

organization for employees to develop themselves and their skills, with similar responses from both sides proportionally.

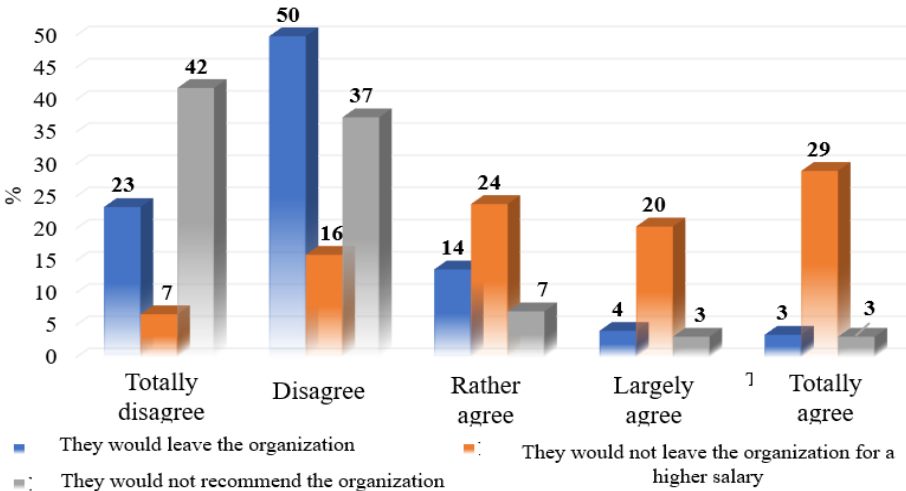
Our research did not explore cultural differences, but we examined average salaries in Hungary and Slovakia. In Hungary, the average gross salary in July 2023 was 559,100 HUF (approximately 1,440 €), while in Slovakia, the average salary in the first half of 2023 was 1,373 € (approximately 532,623 HUF). The salary ratio is not significantly different, but the purchasing power of Slovak salaries is higher due to the lower cost of living, possibly explaining their higher satisfaction levels. The next figures, 3 and 4, focus on employee engagement.

Figure 3: Commitment among Hungarian employees



Source: own editing

Figure 4: Commitment among Slovak employees



Source: own editing

On the topic of engagement, the first statement was: "Sometimes I feel like leaving the organization for good." Proportionally, workers from both countries felt similarly, with 76.97% of Hungarians and 73.18% of Slovaks indicating they would not leave the organization. However, 20.42% of Hungarians and 21.21% of Slovaks did have this feeling. The next statement explored whether respondents would leave the organization if offered a higher salary elsewhere. 70.57% of Hungarians and 73.03% of Slovaks would not leave the organization even for a higher salary elsewhere. The responses to the final statement were also positive regarding engagement, as 83.53% of Hungarian respondents and 79.09% of Slovaks would recommend the organization to a friend. In the literature review, we discussed several studies that describe organizational commitment as a bond between the organization and its employees, without which employees are not satisfied with their work (Mizanur et al., 2013; Murat et al., 2014). Although our results were analyzed using simple statistical methods, it is clear that both Hungarian and Slovak workers gave positive responses regarding organizational commitment, though Hungarians' satisfaction levels are lower than those of Slovaks.

HRM practices are vital for enhancing employee skills, commitment, and satisfaction, which drive organizational success. Effective HRM practices create a supportive environment that fosters motivation and loyalty, leading to improved job performance and organizational growth. Research shows that when employees feel committed and satisfied, they are more engaged and productive, contributing significantly to the achievement of organizational objectives. These facts highlight the importance of HRM practices in fostering employee commitment and satisfaction, which aligns with the results showing generally positive responses from both Hungarian and Slovak workers regarding job satisfaction and organizational commitment. However, the results indicate that Slovak workers report higher levels of satisfaction across several metrics compared to Hungarian workers. This discrepancy might be influenced by differences in salary and purchasing power, as discussed. Despite these differences, both groups show strong engagement and a willingness to stay with their organizations, reflecting the positive impact of effective HRM practices on employee loyalty and organizational success.

Conclusion

In conclusion, our analysis reveals that Slovak workers are generally more satisfied with their jobs and salaries compared to Hungarian workers. Despite similar average salaries in both countries, the higher purchasing power of Slovak salaries likely contributes to their greater job satisfaction. Both groups showed strong organizational commitment, with a majority indicating they would not leave their organization even for higher pay elsewhere, and many willing to recommend their organization to others. However, Slovak workers consistently reported higher satisfaction levels across various aspects, highlighting potential areas for improvement in Hungarian organizational practices.

We reached more Hungarian employees (1572) than Slovak employees (660). If we had obtained nearly equal sample sizes from both countries, the Slovak results, and possibly the overall survey findings, might have differed. Hungarian workers completed the questionnaire more quickly and in larger numbers than Slovaks, indicating a higher response rate among Hungarians. Our research, conducted in Hungary and Slovakia, allowed us to focus on a specific area but also imposed limitations. Cultural differences were not examined, suggesting a direction for future research. To explore significant cultural variations, it would be beneficial to include more countries in the study, providing a more comprehensive understanding of the topic. It may also be worthwhile to analyze responses by different organizational roles (top, middle, and bottom managers, intellectual and physical workers). Our survey had a higher

proportion of responses from top managers - 70% of Hungarian respondents were top managers, compared to 51% of Slovak respondents.

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Generational Differences of Employees in a Manufacturing Company in the Context of Employer Selection Motives

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Abstract. The phenomenon of generational differences in work preferences represents a significant aspect of the contemporary work environment. This study examines the impact of generational differences on the perception and preferences of work aspects and their implications for human resource management. The objective of the study is to examine and compare the differences in preferences and evaluations of work aspects among different generations of employees currently present in the labour market (Baby Boomers, Generation X, Generation Y, and Generation Z). The research is based on two research questions: RQ1: Does the proximity of the workplace play a significant role in the job selection process for different generations of employees? RQ2: To what extent are creative opportunities at work and benefits provided compared to salary important for different generations? The presented results are derived from a pilot survey conducted on employees of a manufacturing company in Slovakia. The survey results indicate that the distance of the workplace from the residence does not show statistically significant differences between generations. This suggests that the distance may be less critical for job selection. Another factor that was examined, namely the importance of benefits compared to salary, was found to be ambiguous, and thus requires further investigation. It is of great importance to identify the benefits that would influence the decision of individual generational cohorts regarding job selection or retention, given the current demographic trends. Further research should aim to conduct a more detailed examination of the motivations and preferences of individual generations in order to create more targeted strategies for human resource management in the context of generational differences.

Keywords: labor market, generations, workforce, motivation

Introduction

The study of generational cohorts is gradually becoming a prominent area of research among researchers. Each generational cohort is considered to exhibit specific traits that distinguish it from other cohorts. The concept of generational differences and categorisation is primarily derived from a unique position in the chronological sequence at the intersection of biological and historical time (Arras-Djabi et al., 2024; Lyons et al., 2019). This implies that each generational cohort was constituted during a specific historical period, developed during a distinct era, and was shaped by the distinctive factors of that era. These differences are evident in the socio-economic, political, and cultural contexts, which have a long-lasting impact on the development of a particular generational cohort and influence their attitudes and behaviour. These distinctions in the aforementioned domains have an impact on both the private and professional spheres. From the perspective of work and work life, each generation has specific expectations of its employer. As each generation enters the labour market, it is vital to comprehend the prevailing trends that the incoming generation deems appropriate. From the perspective of the employer, and in consideration of demographic trends, it is of paramount

importance that changes implemented for the benefit of new generations do not have a detrimental impact on, and are not perceived negatively by, older generations. It is of the utmost importance to identify an optimal equilibrium that will enable the employer to attract the new generation of workers while simultaneously retaining the older ones. Researchers are engaged in the examination of various perspectives on generational differences in relation to the labour market. Abbasi et al. (2024) conducted a study to examine the impact of the work environment on Generation Y and Generation Z. The researchers explored whether there are differences in the perception of corporate social irresponsibility and organisational deviant behaviour in the workplace between Generation Z and Y. Their findings suggest that corporate social irresponsibility can be a significant factor leading to deviant behaviour in the workplace and contribute to a better understanding of the reactions of different generational cohorts to corporate social irresponsibility. Li's (2023) study addressed the impact of employee benefits on organisational performance. It focused on understanding the benefits from both the perspective of organisations and employees. The author emphasises the importance of a systematic and comprehensive understanding of employee benefits for human resource management, and provides managerial implications for the redesign of compensation packages to meet employee expectations and thus increase company performance. Putra et al. (2023) investigated the potential for enhancing employee retention and engagement within organisational settings. The authors conducted a detailed analysis of low wages and benefits in the digital sector, which has been identified as a significant contributing factor to high employee turnover rates. The findings of the study indicate that compensation in the form of wages alone does not have a significant impact on the intention to leave. However, perceived organisational support can act as a mediator in this relationship. The study indicates that organisations should place greater emphasis on employee well-being, rather than solely focusing on compensation. The authors posit that this could result in a reduction in turnover and an improvement in overall employee performance.

This study examines the identification of generational differences in a manufacturing company in the context of employer selection motives. The results can be applied in line with the aforementioned authors to reduce employee turnover, depending on the generational affiliation of the employees. The study aims to identify differences in perceptions of commuting for work and of benefits in addition to salary.

1. Literature review

Previous studies have indicated that there are significant differences in the attitudes and behaviours of individuals from different generations in the workplace. These differences can be observed in various aspects, including loyalty to the organisation, work preferences, motivators, and the nature of interpersonal relationships at both the vertical (supervisor-subordinate) and horizontal (colleague) levels. These differences are often attributed to the generational cohort theory (Pasko & Stodnick, 2021).

The study, published in 2021, aimed to examine the most important work values in relation to generational cohorts, as well as the key shifts that have occurred in the value system of different generations. The research involved the Baby Boomer generation, Generation X, and Generation Y (Millennials), and revealed that for Baby Boomers, honesty, sincerity, work commitment, respect, and discipline predominate in their value orientation. Furthermore, they are a generation whose focus is not as materialistic. In contrast, Generation X places a greater emphasis on job security, organisational commitment, and a broader orientation towards the company as a whole. Finally, Millennials are distinguished by their preoccupation with ambition and adaptability. The study also indicates that organisations are confronted with new challenges as a consequence of the emergence of a new generation entering the labour market.

Consequently, it is vital that the issue of work values undergoes examination and is subsequently understood (Singh et al., 2021).

In 2021, a further study was conducted in Canada with the primary aim of examining generational differences in relation to workplace motivation, specifically focusing on Generation X, Y, and Z. The findings indicated that employees of Generation Z tend to be more sensitive and respond to unpleasant situations much more than Generation X or Generation Y. In contrast to Generation X and Generation Y, Generation Z employees value external regulation in the form of material aspects (Mahmound et al., 2021). This is consistent with previous research indicating that Generation Z is more engaged than Generation Y (Seemiller & Grace, 2019) and that Generation Z values financial stability when seeking employment (Seemiller & Grace, 2017). The research also indicated that, although Generation Z employees value regulation, they do not perceive it as a source of motivation. Generation Z employees are motivated to work on activities that bring satisfaction, indicating that they value intrinsic motivation much more than older generations. Furthermore, the study demonstrated that workplace behaviour is more intrinsically regulated in Generation Y compared to Generation X, yet still less so than in Generation Z. The findings indicate that organisations should place greater emphasis on material rewards, such as higher salaries and non-monetary benefits, when attempting to motivate younger generations. Additionally, it is recommended that organisations focus on providing tasks that are interesting and thus intrinsically motivating (Heyns & Kerr, 2018). Finally, the research findings addressed Generation X, indicating that the behaviour of Generation X members in the workplace is more often driven by social rewards, such as praise, and also by punishments, such as the threat of job loss (Mahmound et al., 2021).

The issue of employee motivation is also closely related to their work performance. Work performance can be defined as the extent to which employees fulfil their job duties, achieve goals, and meet expected results. This implies that work performance is concerned with the quality, quantity, and time investment of an employee in their job duties (Cooper 2019; Robinson and Judge 2017; Blok et al., 2011; Janssen 2004).

The performance of employees can be evaluated using both objective and subjective indicators. These include measures of productivity, the quality of work, the frequency of attendance at the workplace, and job satisfaction (Darvishmotevali and Ali 2020; Singh et al., 2016). In examining the relationship between stress and its impact on work performance, it is essential to consider not only workplace stress but also to focus on employees' personal lives (Rasool, SF et al. 2020). The stress experienced by employees during the pandemic was a consequence of the impact of the virus on both their professional and personal lives. This had a clear effect on their work performance (Sarwar et al., 2023; Su et al. 2022).

The aforementioned studies demonstrate that the value orientations and motivations of different generations significantly impact their work performance. The Baby Boomer generation, which places a strong emphasis on honesty, sincerity, and work commitment, typically achieves a high level of work performance, related to their sense of discipline and responsibility. Generation X, which places a higher priority on job security and organizational commitment, may be motivated by social rewards and punishments, influencing their approach to fulfilling job duties and overall work performance. The Millennial generation, or Generation Y, is distinguished by its ambition and adaptability. It is driven by intrinsic motivation and seeks satisfaction in engaging work tasks, which can result in high performance if these needs are met. Generation Z, who seek internal satisfaction from their activities, can achieve high work performance if their work conditions are adequately tailored to their needs. Given the aforementioned generational differences, it is of the utmost importance for organisations to adapt their

motivational strategies and work environment to best suit the specific needs and preferences of each generation. This adaptation will ultimately lead to improved overall employee work performance.

2. Methodology

The interconnectivity of employee motivation, their work performance, and turnover represents a pivotal aspect of human resource management. It can be reasonably assumed that high levels of motivation will typically lead to better performance, which in turn will reduce employee turnover rates. The principal objective of this study is to examine and compare the differences in preferences and evaluations of work aspects among different generations of employees currently present in the labour market (Baby Boomers, Generation X, Generation Y, and Generation Z). Two research questions were formulated:

RQ1: Does the proximity of the workplace play a significant role in the job selection process for different generations of employees?

RQ2: To what extent are creative opportunities at work and benefits provided compared to salary important for different generations?

A questionnaire was conducted as part of the presented study. The data were collected electronically, with some questionnaire items utilising a Likert scale (1 = definitely not, 5 = definitely yes). The questionnaire comprised 16 questions and was operational from 2 May 2024 to 7 June 2024. A total of 168 respondents participated in the study, which was subsequently categorised into different generational groups (Baby Boomers, Generation X, Generation Y, and Generation Z). The questionnaire employed the chi-square test to test the hypotheses. Cramer's V was employed to determine the strength of the relationship between individual variables. The following hypotheses were formulated and tested:

H1: There is a significant association between generational categorisation and the belief that salary is a significant factor when seeking new employment.

H2: There is a significant association between generational categorisation and the conviction that benefits provided are as important as salary when choosing employment.

3. Findings

The present study focuses on examining the impact of generational differences on preferences and evaluations of work aspects. The research questions the study seeks to answer are: Does the proximity of the workplace play a significant role in the job selection process for different generations of employees? (RQ1) and To what extent are creative opportunities at work and benefits provided compared to salary important for different generations? (RQ2). To answer these questions, the following hypotheses were formulated: H1: There is a significant association between generational categorisation and the belief that salary is a significant factor when seeking new employment. H2: There is a significant association between generational categorisation and the conviction that benefits provided are as important as salary when choosing employment. The formulated hypotheses are tested through the outputs of the statistical program SPSS, and the evaluation of these hypotheses and finding answers to the research questions will be conducted using the chi-squared test and Cramer's V.

RQ1: Does the proximity of the workplace play a significant role in the job selection process for different generations of employees?

Table 1: Chi-squared test RQ1/H1

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	2,987 ^a	3	,394
Likelihood Ratio	3,159	3	,368
N of Valid Cases	168		

Source: own elaboration

The results of the chi-squared test indicate that the distance from residence does not show a statistically significant impact on the job selection process in the context of generational differences. The values indicate that there is no significant relationship between generation and the belief in the importance of workplace proximity. This indicates that there is an absence of evidence to suggest that generational differences influence the belief in the importance of workplace proximity in job selection.

Table 2: Symmetric measures RQ1/H1

Symmetric Measures

		Value	Approximate Significance
Nominal by Nominal	Phi	,133	,394
	Cramer's V	,133	,394
N of Valid Cases		168	

Source: own elaboration

The values of Phi and Cramer's V indicate a weak positive association between generation and the perceived importance of workplace proximity. This indicates that with increasing age, there is a slight tendency for individuals to place greater emphasis on workplace proximity when selecting a job. The analysis of the collected responses indicates that, despite the absence of a relationship between the variables under study, the willingness to travel for work was higher among Generation Y and Z. It can be assumed that these are younger workers who have not yet established a well-defined background, and travelling for work is somewhat less inconvenient for them. The p-value of the chi-squared test (0.394) is higher than the significance level set at 0.05, and the relatively low symmetric measures of Phi and Cramer's V (0.133) indicate that the relationship between the variables in connection with generational differences is weak. Therefore, it can be concluded that H1 is rejected and the alternative hypothesis is accepted, which states that there is no statistically significant relationship between generation and the belief in the importance of workplace proximity in job selection.

RQ2: To what extent are creative opportunities at work and benefits provided compared to salary important for different generations?

Table 3: Chi-squared test RQ2/H2

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	6,670 ^a	3	,083
Likelihood Ratio	6,872	3	,076
N of Valid Cases	168		

Source: own elaboration

The results of the chi-squared test indicate that it is not possible to state with certainty that there is a statistically significant relationship between generational cohorts and the belief that benefits are as important as salary when choosing a job. The p-value (0.083) is marginally above the significance level (0.05). Consequently, it is not possible to confirm with certainty whether there is a significant relationship between the indicated variables. The results of the chi-squared test do not provide sufficient evidence to either confirm or reject hypothesis H2.

Table 4: Symmetric measures RQ2/ H2

Symmetric Measures

		Value	Approximate Significance
Nominal by Nominal	Phi	,199	,083
	Cramer's V	,199	,083
N of Valid Cases		168	

Source: own elaboration

The low values of Phi and Cramer's V (0.199) indicate that the relationship between the variables "year of birth" (generational group) and "belief in the importance of benefits when choosing a job" is relatively weak. This indicates a slight tendency for individuals to place greater emphasis on benefits when selecting a job as they age. The results of the symmetric measures indicate that there is a weak positive relationship between the year of birth (generational cohort) and the belief in the importance of benefits when choosing a job. Given that the results were not clearly demonstrable and the p-value is quite close to the significance level, and considering the individual responses within the analysis derived from the processed survey, it can be stated that the results are inconclusive and that H2 cannot be accepted or rejected. If hypothesis H2 were to be assessed solely based on the separate analysis of responses, it can be claimed that there is a significant correlation between generational categorisation and the belief that provided benefits are as important as salary when choosing a job, given the distribution of responses among generations. Nevertheless, further research is necessary to provide more definitive results. It is essential to acknowledge the limitations of the

survey. Firstly, the results are based on a pilot survey and only consider a smaller sample size (166 respondents). Secondly, the study does not address other factors that might influence the variables besides the age differences of respondents. Thirdly, the obtained responses are from only one area and do not cover a larger demographic, which may distort the picture of generational cohorts considering possible socio-economic relationships that can significantly influence the decisions of these groups.

4. Discussion

The study of generational differences in the workplace is attracting increasing attention from researchers. From the perspective of demographic trends, this area represents a relatively promising research topic. A number of authors have examined generational differences in the work environment, either by studying generations individually or in comparison with each other. These include Arras-Djabi et al. (2024), Easton and Stein (2024), Mahmoud et al. (2024), Fisu et al. (2024), Raub et al. (2024), Permana et al. (2023), Benítez-Márquez et al. (2022) and Barhate and Dirani (2021). The authors have investigated the relationship between generational cohorts and the work environment. Permana et al. (2023) investigated work value factors between Generation Y and Z. They examined work value factors concerning the intention to stay. Their findings indicate that external work values had the most significant impact on the studied generational groups. Other factors such as internal values and leisure work values did not significantly influence the intention to stay. Raub et al. (2024) conducted similar research but focused on generational changes in job applicant values between Generation Y and X. According to the authors, existing research suggests a wide range of work values that can attract job applicants. They found that there are different trends in values between Generation Y and X that impact their job selection decisions. Their study's results suggest that ego-driven work values, such as support, development, compensation, work-life balance, and comfort, are becoming important. Sagituly and Guo (2023), like the previous authors, focused on identifying employee satisfaction from the perspective of Generations X and Y. They emphasize that their research was conducted in Kazakhstan, where the historical development influenced the studied generations with communist ideology. This similarity is noted with our sample of respondents in a Slovak manufacturing company. The authors highlight that differences between the older and younger studied generations mainly resulted from different political regimes and ideologies. The results show that older generations value security and coworkers but are dissatisfied with harder work, low control, and salary. Younger generations, on the other hand, prefer independence, less supervision, and are generally more supported by external job satisfaction. The results further indicate that younger generations are more dissatisfied with a lack of creativity, diversity, and success. Similar results to those presented in this study were also found by Putra et al. (2023), who examined differences in perceptions of benefit provision. They indicate that their results suggest provided benefits play a more important role than salary. Similar conclusions were also drawn in the findings presented in this study. However, it is important to note that the presented results have certain limitations described above, and it is necessary to focus on more detailed research. This further research could focus on identifying specific benefits and determining which of these benefits are significant for individual generational cohorts. Additionally, it seems necessary to increase the survey or research sample size, considering the four actively working generational cohorts.

Conclusion

The results of this study indicate that generational differences play a significant role in the perception and preferences of work aspects. However, not all examined factors show statistically significant differences between generations. For example, the distance of the workplace from home was not found to be a significant factor in job selection for different

generations, suggesting that this aspect may be generally considered less critical regardless of age. On the other hand, the importance of benefits compared to salary was more complex to interpret. While some generations may prefer a stable and high salary, others may place greater emphasis on flexibility and the work environment, which requires more detailed research. The importance of this topic for practice lies in the fact that employers should be able to better understand and respond to the needs of different age groups within their workforce. Flexibility and adaptation of the work environment and benefits can help reduce employee turnover and increase their overall satisfaction and performance. For instance, employers might consider offering various types of benefits such as remote work options, flexible working hours, educational opportunities, or health benefits to better meet the preferences of different generations. Further research in this area should focus on a more detailed examination of the preferences and motivations of individual generations, which would allow for more precise tailoring of personnel strategies. For example, a more detailed study of preferences regarding specific types of benefits and their impact on job satisfaction and motivation could provide valuable information for creating effective employment and retention policies. Additionally, research should explore how specific working conditions, such as work-related stress, career growth opportunities, or workplace atmosphere, affect different generations. Other recommendations for future research include the need to include a broader and more demographically diverse sample of respondents, as well as to consider additional factors that may influence work preferences and employee satisfaction. This more comprehensive approach would enable the creation of more effective and targeted human resource management strategies in the context of generational differences. Understanding generational differences in light of demographic trends, which currently lead to an aging population, will pose a significant challenge for personnel management and human resource management. It is important to know the employees and generations present in the labor market, their needs, preferences, expectations, etc. Identifying these trends characteristic of certain generations will enable employers to respond and find ways to retain the current workforce and attract new talent. This insight can further be utilized by employers to better understand their employees' needs and to implement strategies that support their satisfaction and engagement. Ultimately, better alignment of working conditions and benefits with the needs of different generations can lead to the creation of a more positive and productive work environment.

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What impact does the use of large language models have on organisational knowledge sustainability?

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Abstract. The topic of my research is the relationship between organisational knowledge sustainability and large language models. The objective of my research is to highlight the potential of large language models for knowledge sustainability and to help organisations design and implement more effective knowledge management practices. In my study, I sought to answer the question of whether large language models can be used to promote organisational knowledge sustainability. I used a quantitative research method in my research. I processed the data using the IBM SPSS 25 program. The questionnaire was sent out in Hungary and Sweden, and a total of 400 responses were received. The target group of my research consisted of knowledge management experts, business professionals and non-experts (in the field of knowledge management). In my questionnaire, I measured respondents' opinions using statements related to artificial intelligence, IT background support, IT knowledge and skills, IT tools, IT skills development. I used analysis of variance to examine differences between subsamples. The results of my questionnaire research showed that artificial intelligence, IT has a positive impact on organizational knowledge sustainability.

Keywords: artificial intelligence, knowledge sustainability, digitalisation, information technology

Introduction

Today, large language models have become popular and widespread in many fields and sectors. In the past, artificial intelligence was typically used to develop algorithms for consumer and enterprise software. Nowadays, large language models are directly and noticeably changing the working habits of both technologically proficient and average users. Harnessing the potential of large language models is on the agenda of organisations around the world due to the huge productivity potential they offer (Ritala. et al., 2023).

Organisations are constantly looking for ways and means to help preserve and develop the available knowledge and experience.

In this paper I explore the relationship between organisational knowledge sustainability and large language models. First, I introduce the concept of organisational knowledge sustainability that I have created. I will then turn to the potential of large language models for knowledge sustainability. I will show how these AI-based tools are being used by organisations and what good practices can be drawn from them in the field of knowledge sustainability. I will then present the results of my survey research.

The aim of my research is to provide a comprehensive insight into the world of organisational knowledge sustainability, to show how large language models can contribute to this process.

In 2022, I launched an international research project to define knowledge sustainability. In doing so, I created a theoretical model in which artificial intelligence plays an important role. In this paper I focus on the relationships between these elements of the model.

My research question is *whether the use of large language models promotes organisational knowledge sustainability*.

1. Literature processing

The concept of organisational knowledge sustainability

The aim of knowledge sustainability is to preserve and develop data, information, knowledge, tacit and explicit knowledge, building on the knowledge in the organisation. It aims to focus on useful and relevant information. The focus of knowledge sustainability is on the future, which is a priority area for intergenerational knowledge sharing supported by various management tools. Trust and ethical organisation are prerequisites for the process to work. Leadership plays a key role in the process (Vágner, Bencsik, 2022).

Putting the big language models into practice

To assess the impact of large language models on organisational knowledge sustainability, I reviewed the literature. Large language models are artificial intelligence systems that learn large amounts of language data and rules, are able to interpret and generate human texts (Alberts, I.L. et al., 2023). Baskara, FX.R., Mukarto, FX (2023) highlight the potential of improving language learning experience and measuring language proficiency. Improving language learning and language skills enables organizational staff to communicate more effectively and understand foreign markets and partners. George, A.S. et al. (2023) draw attention to the potential of filling communication and customer service roles. Automated communication tools, such as chatbots and training programs, can help to provide effective customer service and business communication, which contributes to knowledge retention and quality improvement.

Elbanna, S., Armstrong, L. (2023) focus on the automation of administrative tasks. Automated administrative tools allow reducing the administrative burden, so that employees can devote more time to improving their skills.

Carvalho, I., Ivanov, S. (2023) highlight the functions of accelerating business processes and providing information. Automated systems can help to improve the efficiency of business processes and decision making. Information services can facilitate access to timely information and faster decision-making. Ritala, P. et al. (2023) emphasize the potential of editing, translating and refining textual materials. Word processing and translation tools can help improve documentation and preserve knowledge. Kumar, A. et al. (2023) highlight the analysis of personalised recommendations and customer preferences. These activities can help companies to better understand their customers' needs and behaviours, which can help in product development and business strategy. Ivanov, S., Soliman, M. (2023) emphasize the role of learning and education. The generation of learning materials and teaching aids and the creation of explanations can help the efficiency of educational processes and knowledge retention. Cheung, K.S. (2023) writes about the potential of producing value assessment reports. Value assessment reports enable companies to better understand market conditions and business performance. Korzynski, P. et al. (2023) emphasize the tasks of decision optimization and information filtering. Information filtering and decision optimization can help in more efficient decision making and information management. Passmore, J., Tee, D. (2023) highlight the potential of coaching to generate questions and provide advice. These activities can help organizational consultants and trainers to support more effectively the development of employees and the maintenance of their knowledge. Hirsch, P.B. (2023) emphasizes the tasks of crisis anticipation and risk assessment. These activities can help companies prepare for unexpected events and manage risks.

Burger, P. et al. (2023) draw attention to the functions of spelling error correction and summarization. Such activities can help improve the quality of texts and maintain knowledge.

Today, the use of large language models in organisations is spreading and evolving very rapidly. The presence of large language models can be observed in almost all industries. I believe that this trend will increase in the future.

Organisational best practices in the use of AI-based communication tools

I examined the known organisational good practices of AI-based communication tools, the results of which are summarised in Table 1. The data shows that the use of large language models ranges from the clothing industry, through banking, to tourism and hospitality.

Table 1. AI-based communication tools in practice

Name of organisation	Use of AI-based communication tools
H&M	The "H&M AI" provides personalised fashion advice and product recommendations to shoppers.
Sephora	The "Sephora Virtual Artist" allows shoppers to virtually try on makeup via their mobile phone camera and provides product recommendations based on the shopper's preferences and skin tone.
Pizza Hut	The "Pizza Hut Chatbot" can be used to take orders, make offers and handle customer queries.
Burberry	The "R Message" provides personalised style advice, product recommendations and information about the brand's history and values.
The North Face	"The North Face Virtual Advisor" provides personalized product recommendations to customers based on their preferred activities and locations.
Mastercard	"KAI" provides customers with information about their balance, recent transactions and points accumulation.
Domino's Pizza	The "DOM" allows customers to order pizzas, track the status of their order and ask questions.
Starbucks	"My Starbucks Barista" allows customers to order and pay for coffee through it.
Uniqlo	"Uniqlo IQ" provides shoppers with personalised product recommendations and style advice based on their preferences and shopping history.
KLM Royal Dutch Airlines	The "BlueBot" has been integrated into KLM's Facebook Messenger, allowing customers to get flight updates, make reservations and check-in for their flights.
Marriott International	"ChatBotlr" allows guests to request a quote, room service, check-in and check-out times.

Source: based on Kumar, A. et al.(2023) own ed.

Compare Replika, Alexa, Siris, Google Assistant and ChatGPT

In the following, I have examined what tasks Replika, Alexa, Siri, Google Assistant and ChatGPT (as digital assistants and text generation systems) perform, what interaction mode they use, what capabilities they have, what possible social roles they can play, what anthropomorphic properties they have. The main differences between these digital assistants and text generation systems are discussed below. Digital assistants and text generation systems can contribute to organisational knowledge sustainability in different ways.

Emotional support and conversation (Skjuve et al., 2021): these systems are able to mimic human characteristics and interact. This can provide an opportunity for staff to 'talk' to a digital entity, which can not only provide emotional support but also organise leisure activities such as games or book recommendations.

Such interactions can contribute to the mental health and good mood of employees, which can have a positive impact on knowledge sustainability and performance.

Providing information and practical assistance (Aw et al., 2022): digital assistants can help staff with everyday tasks and knowledge gathering.

Reminders and time management (Canbek, Mutlu, 2016): digital assistants can help staff to manage their time effectively. For example, they can set reminders for important deadlines or business tasks. This can help ensure that information and tasks do not get lost.

Communication and connectivity (Dwivedi et al., 2023): digital assistants can help with sending and receiving messages and route planning. This can help in information flow and effective communication within and outside the organisation.

Personalised recommendations and advice (Aw et al., 2022): systems can learn about users' preferences and habits. Based on this, they can make personalised recommendations, be it about news, music recommendations or other content.

Text generation and response (Dwivedi et al., 2023): text generation systems such as ChatGPT can generate human-like text. This allows users to ask questions and receive answers, summarise texts or even write emails.

These digital assistants and text generation systems can support knowledge sustainability in different ways, be it emotional support, information gathering, communication or time management. By using these tools effectively, organisations can help to develop and maintain the knowledge of their employees, which is key to competitiveness and long-term success.

In terms of knowledge sustainability, based on a comparison between different digital assistants and text generation systems, I believe that ChatGPT is currently the most suitable. ChatGPT is extremely versatile and flexible. ChatGPT is based on written text, making it easy to integrate into different systems and applications, allowing users to easily access and share their knowledge.

ChatGPT does not require a human voice for interaction, which can be an advantage in situations where voice recognition is a problem. ChatGPT and similar large language models are constantly evolving, so they are able to learn and adapt to new information and needs. ChatGPT has the potential to effectively support knowledge management processes, contributing to the long-term knowledge maintenance of organisations.

Each tool and system has its own unique advantages and limitations, and the choice always depends on the specific goals and needs you want to meet.

2. Methodology

The research aims to investigate the impact of large language models, AI-based communication tools on organisational knowledge sustainability. The target population of my research is knowledge management experts, corporate professionals and non-experts in the field of knowledge management. I used purposive sampling technique. The data was collected online. The tests were completed in 2023. The questionnaire used in the survey consisted of three main parts. In the qualitative research, respondents completed an online questionnaire consisting of closed questions. The questions were constructed from nominal and metric scales, the latter being 5-point Likert scales. The questions were divided into three groups. The structure of the questionnaire is presented in Table 2.

Table 2. Structure of the questionnaire

Specification of the sample	Thinking about organisational knowledge sustainability	Organisational knowledge sustainability and the links between artificial intelligence and digitalisation
Age of respondents	Focus on organisational knowledge sustainability	The role of IT support

Educational background	Knowledge sharing between generations	IT knowledge, skills
His position is	The role of leadership	IT tools

Source: own editing

The questionnaire was completed voluntarily. A total of 400 respondents completed the questionnaire. Demographic data of the respondents are presented in Table 3.

Table 3. Demographics data

Citizenship	Hungarian	50%
	Swedish	50%
No	Female	43%
	Male	57%
Age	Youngest	18 years
	Oldest	80 years
	Average age	45 years
Education	Graduation	10%
	Bachelor's degree	32%
	Master's degree	40%
	PhD	18%
Occupation	Posted on	35%
	Manager	44%
	Sole trader	15%
	Student	2%
	Retired	2%
	Other	2%
Industry of occupation	Education	27%
	Ipar	20%
	Information, communication	12%
	Trade	10%
	Health	5%
	Public administration	5%
	Agriculture	6%
	Transport, transport	8%
	Tourism, catering	5%
	Social	2%
Sphere	Public sector	34%
	Competitive sector	66%

Source: own editing

In this paper I do not present the full survey. I focus on the part of the research that illustrates the relationship between knowledge sustainability and large language models.

Table 3.1 Organisational knowledge sustainability and the relationship between artificial intelligence and digitalisation

	Claims
1. Artificial intelligence	Knowledge sustainability is facilitated by artificial intelligence.
2. Back-up IT support	IT support plays an important role in making organisational knowledge sustainable.

3. Possession of IT knowledge and skills	To ensure the long-term sustainability of knowledge within the organisation, organisational members must have IT knowledge and skills.
4. IT tools	To make organisational knowledge sustainable, the organisation must provide the appropriate IT tools, e.g. internet, laptop.
5. Develop IT skills	To make organisational knowledge sustainable, the organisation needs to develop the IT skills of its employees.

Source: own editing

3. Results

The reliability indicators of the questionnaire are good (Cronbach's alpha = 0.923), indicating that the questionnaire measures reliably.

I have analysed the claims made about the relationship between organisational knowledge sustainability and artificial intelligence and digitalisation. Respondents were asked to indicate their level of agreement on a scale of 1 to 5 on various statements related to organisational knowledge sustainability. 1 indicates that they strongly disagree with the statement, and 5 indicates that they strongly agree with the statement.

Table 5 shows that respondents have positive opinions ($M > 4$) on all five statements, with the highest score being for the statement on the organisational goal of knowledge sustainability, with 230 respondents in full agreement.

Table 4. Respondents' views on the relationship between organisational knowledge sustainability and artificial intelligence and digitalisation

Statements under the category of development opportunities	I do not agree at all	I do not agree	I agree	I agree very much	I fully agree	Average (standard deviation)
Artificial intelligence	11	17	69	102	201	4,16 (1,03)
IT back-up support	1	9	41	119	230	4,42 (0,79)
Possession of IT knowledge and skills	6	10	55	129	200	4,27 (0,89)
IT tools	4	11	54	107	224	4,34 (0,88)
Developing IT skills	5	17	55	134	189	4,21 (0,92)

Source: own editing

I examined whether there was a difference when I split my sample according to the groups I examined (knowledge management experts, business experts, non-experts).

Analysis of variance was used to examine the difference between the means of the three subsamples (Table 6).

There is a difference between the subsamples in the answers related to the links between organisational knowledge sustainability and artificial intelligence and digitalisation.

The responses of business experts and non-experts on IT skills development scored significantly higher than the responses of knowledge management experts.

There is no significant difference between the company expert and non-expert responses.

Of the five variables examined, the statement "Developing IT skills" was influenced by the respondent's respondent group.

Table 5. Organisational Knowledge Sustainability and Artificial Intelligence and Digitalisation in three subsamples

Sustainability of knowledge	Group examined						ANOVA		Differences between subsamples
	(1) TM experts (n=140)		(2) Business professionals (n=150)		(3) Non-experts (n=110)		F	p	
	Average	Source	Average	Source	Average	Source			
Artificial intelligence	4,01	0,09	4,19	0,08	4,31	0,09	0,57	0,56	-
IT back-up support	4,43	0,07	4,41	0,06	4,43	0,82	0,04	0,97	-
Possession of IT knowledge and skills	4,20	0,08	4,28	0,08	4,34	0,09	0,74	0,48	-
IT tools	4,28	0,08	4,35	0,07	4,40	0,80	0,60	0,55	-
Developing IT skills	4,09	0,08	4,26	0,08	4,31	0,08	2,14	0,12	{1}<{2,3}

Source: own editing

4. Discussion

The results of this research are consistent with previous findings that AI positively impacts organizational knowledge sustainability (Al Mansoori et al., 2021; Liebowitz, 2001; Mittal, Kumar, 2019).

Digital assistants and text generation systems can support knowledge sustainability in different ways, be it emotional support, information gathering, communication or time management. By using these tools effectively, organisations can contribute to the development and maintenance of their employees' knowledge, which is key to competitiveness and long-term success.

The research participants agreed that AI has the potential to promote knowledge sustainability. The evidence shows that AI-based tools and systems are effective in contributing to the preservation and transfer of knowledge in organisations. AI enables faster and more efficient processing of information, automated tasks and intelligent decision-making in knowledge-based environments. These results confirm that the application of AI plays an important role in knowledge sustainability and contributes to the competitiveness and long-term success of organisations.

Artificial intelligence plays a significant role in the adaptation and transformation processes of organisations. Knowledge management supported by AI enables the improvement of efficiency and innovation capabilities through synergies and information processing capabilities (Nonaka et al., 2014; Kettinger et al., 2015).

The application of AI in knowledge management has a positive impact on firm performance (Jallow et al., 2020; Li et al., 2017; Tan, Wong, 2015).

Summary

The paper presents some of the results of several years of research on organisational knowledge sustainability related to artificial intelligence and digitalisation. The presented good practices and literature demonstrate that large language models are now actively promoting organizational knowledge sustainability.

The results show that respondents had a positive view on the role of AI and digitalisation in organisational knowledge sustainability. The use of large language models and the development of IT support and skills were identified as being of high importance for the success of knowledge management and the long-term sustainability of organisational knowledge.

Based on these findings, the study concludes that the development of IT tools and skills, as well as the use of large language models and artificial intelligence in knowledge management, are essential for modern organisations. These tools and technologies will help organisations to manage and maintain knowledge more effectively, helping them to maintain their competitive advantage in a dynamically changing business environment.

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The impact of the COVID-19 pandemic on the division: Food and beverage service activities

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Abstract: Among the regularly mentioned and resolved issues of recent years is the pandemic of the viral disease COVID-19 and its effects on the world and the economies of countries all over the world. At the time of the COVID-19 pandemic, several business entities in Slovakia, especially in sectors that involved direct contact with the final consumer, encountered pressure created by government measures. Government measures were set to prevent the spread of the disease, but because of the established measures, many companies were significantly limited in their business activities. Among the most affected business entities in Slovakia were businesses in the accommodation and catering services sector. For this reason, business entities in SK NACE I, division 56: Food and beverage service activities, were used for liquidity analysis. The aim of this article is to find out if the pandemic of the viral disease COVID-19 has had an impact on the liquidity of the industry. Liquidity ratios and Friedman's non-parametric test were used in the research. The research was conducted from 2016 to 2021, which also included the period of the COVID-19 pandemic. The impact of the COVID-19 pandemic was not confirmed in the case of the analysed sample during the liquidity analysis.

Introduction

In 2020-2021, the world was shaken by the pandemic of the outbreak of the viral disease COVID-19, which could not be brought under control even with strict timely measures. This disease had a significant impact not only on the healthcare sector and the health conditions of the population, but also on the functioning of the economy throughout the world. We took this fact as a stimulus, the impact of which we wanted to analyse. The aim of the article is to find out whether the pandemic of the viral disease COVID-19 had an impact on the liquidity of a selected branch of the national economy, specifically Division 56: Food and beverage service activities, and based on the analyses carried out, propose measures that could help the branch in the future. In the Slovak Republic, it was quite felt how business entities suffered because of the government's strict measures to prevent the spread of this viral disease SARS-CoV-2. The functioning and operation of some entities were partially affected, and some had to be completely closed and their operation was completely interrupted. In the current situation, those companies that did not reach liquidation, bankruptcy or cancellation due to the onslaught of strict measures are getting out of difficulties and are trying to return to the level of functioning they were at before the outbreak of the pandemic. Another of the stimuli for paying attention to this problem was the opinion that in case of certain consequences of the measures and the global

pandemic, aid from a foreign state could significantly affect the functioning and future of business entities doing business in the territory of the Slovak Republic and thus their collapse could be prevented. liquidation and cancellation. The sources for processing the article were professional and scientific articles and a lot of information obtained from publicly available sources. The content of the work is an introduction to the given issue, summary of information, theoretical basis of the resolved issue, quantification of the impacts of the pandemic in the selected industry. The core of the work is the execution of an ex-post analysis of liquidity indicators for a selected sector of the national economy. The source of input information for performing financial analysis is the Orbis database from Bureau van Dijk (Moody's Analytics Company).

The viral disease pandemic itself and the government's measures to prevent the spread of the disease significantly limited and affected the NACE I industry. In Slovakia, attention has not yet been paid to analysing the impact of the COVID-19 pandemic on the liquidity of the NACE I industry, specifically division 56. The research was carried out using ratio indicators of liquidity, and subsequently, a statistical investigation was also carried out. The findings of the research could be helpful in the future in case similar circumstances arise in the world, such as during the COVID-19 pandemic. Based on the findings, it would be possible to adapt government measures for business entities of the selected industry located in the territory of the Slovak Republic. It could help reduce the threat to their liquidity and solvency. This fact is a sign of the originality of the research.

The structure of the paper is: theoretical part; aim; methodology and data; results and discussion; and conclusion. The theoretical part is a summary of theoretical information from scientific articles, government sources, and from authors focused on liquidity in their research. In chapter aim, methodology and data are displayed, along with essential information and results about the research. The next authors describe the results of the Cash, Quick, and Current ratios and discuss similar research. At the end of the article, authors sum up the results of the research and present the limits of the research.

1. Theoretical part

At the end of 2019, a pandemic of the infectious disease COVID-19 broke out, which slowly began to affect the whole world. The disease is caused by the SARS-CoV-2 virus, which spreads in droplet form when coughing, sneezing, or even talking. This disease originates in China, in the city of Wuhan. However, the spread of such a serious disease did not only bring health problems for humanity, but it was also an obstacle for the world in many ways [1]. An identified new infectious disease (COVID-19) with human-to-human transmission has turned into a global pandemic. Countries around the world have implemented some sort of lockdown to slow and contain the infection. The restrictions due to COVID-19 are having drastic effects on the social and economic fronts [2]. The COVID-19 pandemic has created widespread health and economic uncertainty [3]. COVID-19 has become one of the most contagious diseases in human history. The coronavirus has created serious threats to global mental health, resulting in crisis management challenges and international health concerns. As of September 9, 2021, more than 223.4 million cases of COVID-19 have been reported worldwide, including 4.6 million deaths and more than 200 million recovered patients, making the COVID-19 outbreak one of the deadliest pandemics in the history of mankind. Aggressive public health implementations have supported various preventive security strategies to contain and minimize the transmission of the COVID-19 disease. The current COVID-19 health crisis has affected all important economic sectors and developed crisis management issues [4]. The year 2020 has already witnessed that the outbreak of COVID-19 had an extraordinary impact on the world. Countries

and cities around the world have taken drastic measures to try to stop the spread of the virus, leading to a sudden shutdown of major economic activities [5]. Since the start of the COVID-19 pandemic, national and international travel restrictions have been put in place to reduce human mobility, making tourism one of the areas most affected by the pandemic. The pandemic adversely affected many microeconomic factors (households and firms), causing a macroeconomic downturn. Naturally, governments are trying to maintain production and employment by offering financial packages to reduce the negative economic effects of the pandemic [6]. With the imposition of restrictions and measures to prevent the spread of the COVID-19 pandemic, in addition to a wide range of mental health problems, there was a drastic drop in liquidity and a significant spillover effect on almost the entire global economic system [7]. Forced lockdowns and business closures in response to the COVID-19 pandemic have led to economic crises around the world, drawing attention to entrepreneurship and its importance to economic recovery [8]. The market has reacted differently during the COVID-19 pandemic compared to previous disasters such as the Great Depression of 2008 and the Spanish flu [9]. The challenges that companies face in the tourism industry due to the outbreak of the COVID-19 pandemic are both short-term and long-term. In the short term, it is necessary to ensure sufficient liquidity to reopen activities, and in the long term, it is necessary to be prepared and react to disruptive movements that may arise in tourist demand [10]. Tourism and hospitality are highly profitable industries in the 21st century. As a result of the COVID-19 pandemic, the way tourism organizations operate has changed dramatically. The outbreak of the pandemic caused enormous liquidity problems for companies, which also affected the tourism sector [11].

With the first confirmed case of COVID-19 in Slovakia in March 2020, it was necessary to take the necessary measures. In the course of hours, days, and even minutes, it was necessary to make decisions that would primarily protect the health of the residents. One of the first steps was to declare a state of emergency, close schools, and declare a state of emergency. When the pandemic did not subside and the virus spread more and more times faster, it began to appear that it would be necessary to act quickly and in such a way that decisions were oriented towards the future, and that when making decisions, care should be taken that the situation in the form of a pandemic of such dimensions will not subside quickly, and with a high probability, the economy of each and every state will suffer greatly. The pandemic of the viral disease COVID-19 had a great impact on the world economy and also on the employment of the population of the Slovak Republic. In order to survive, business companies reduced the number of employees, which increased the number of unemployed people. The first aid from the state for employees, the self-employed, and entrepreneurs who were affected by the pandemic and anti-pandemic measures to such an extent that they had to limit their work or business activities were contributions replacing employees' wages up to 80% of average earnings, but at the same time up to a maximum of 1 100 €. The measures to prevent the spread of COVID-19 included the suspension of classes at all types of schools for a period of at least 14 days, restrictions on access to the country and the ability to travel, border controls, mandatory quarantines, and restrictions on the possibility of operating shopping centres, restaurants, and various centres and facilities that mainly offered services for final consumers. Later, the government's decisions were tightened, a state of emergency was declared, and shops were closed except for food, pharmacies, internet services, etc. Not only economically weaker developed countries suffered, but also those that are among the most developed. The establishment of measures related to the quarantine of the population had an impact on the economic decline and the beginning of the economic crisis. The adopted measures of the countries partially, or in some cases, in full, affected business activity. Demand decreased, thus the value of sales also decreased, and this also affected the business entity's economic results. The Slovak Republic had long-term anti-pandemic measures, which caused Slovakia to belong to the countries whose economies were

most affected. These measures affected business entities in different ways. There were measures across the board that applied to all entities and then measures exclusively for entities that are in the trade, transport, accommodation and catering, and other services sectors. The accommodation and catering industries were hit to the greatest extent, the activities of which were banned in full during the first wave of the pandemic. Accommodation and catering belong to the sectors that were restricted among the first, but the mitigation and relaxation of these measures for the given sector were among the last. The pandemic had various impacts on the business economy of the Slovak Republic, which we can quantify with the indicators of gross production, added value, profit, number of employees, and the number of newly established or closed business entities [12].

Countries financially support tourism in terms of loans and liquidity. Tax breaks and low interest rates also supported investment in tourism [6]. Businesses were forced to optimize costs and often had to reduce the number of employees due to a lack of funds. To help entrepreneurs, the Slovak government adopted measures to eliminate the adverse effects of the pandemic on the business economy. However, while companies recovered from the first wave of the pandemic, after the end of the measures came the second wave of the pandemic, the impact of which on individual sectors of the corporate economy was different [13]. The COVID-19 pandemic has set a new framework and new challenges in the business sector. Companies are facing a possible economic shutdown as COVID-19 puts pressure on the business performance of companies across all sectors, directly impacting revenue, profitability, and liquidity. During the pandemic, many companies experienced lower revenues, resulting in lower cash flow and delayed debt collection. Liquidity for companies is suddenly becoming very difficult around the world as the coronavirus pandemic rapidly escalates. Companies can operate without profitability in the short term, but without immediate liquidity, they are doomed to bankruptcy. Cash flow is crucial in the days of the pandemic, so companies should manage cash in the best possible way to ensure liquidity. The importance of cash flow has also been recognized by governments, which have intervened with various measures, especially in the area of liquidity, to help companies overcome the situation related to the COVID-19 disease [14].

Due to the adverse effects of the COVID-19 pandemic on the hotel sector, much academic attention has been devoted to research on pandemic crisis management. Studies have focused on everything from sales and marketing to human resource management, but financial management, pandemic crisis management, and hotel resilience have been largely overlooked [15]. Deteriorating corporate balance sheets may require government intervention to prevent liquidity problems from turning into solvency problems [16]. However, supporting microfinance as market aid and pandemic recovery should be a source of concern, not comfort [17]. The COVID-19 pandemic has led to a slowdown in economic activity worldwide, with a particularly negative impact on the tourism sector. The adoption of international travel restrictions to contain the spread of the COVID-19 epidemic has effectively brought much of the global tourism industry to a standstill. Governments have introduced a range of economic stimulus packages designed to mitigate the negative effects of the pandemic, including its impact on travel and tourism [18]. The hotel industry is one of the economic sectors most negatively affected by COVID-19. Its recovery depends on the ability to control the pandemic and on the macroeconomic effectiveness of the policies adopted by public institutions to strengthen the general recovery of the economy. In this context, it is imperative that hotel industry stakeholders assess the economic impact directly attributable to the development of the COVID-19 pandemic, along with the impact that economic policies may have to support the industry [19]. According to Cisco and colleagues [20], the optimal liquidity values range from 0.2 to 0.5 for cash ratio (L1), from 1.0 to 1.5 for quick ratio (L2), and for current ratio (L3), the optimal range of values is from 1.5 to 2.5.

The aim of this study is to describe the impact of the COVID-19 pandemic on a selected sector of the national economy. In the Slovak Republic, it was quite evident how business entities suffered as a result of the government's strict measures to prevent the spread of this viral disease. The functioning and operations of some entities were partially affected, and some had to be completely closed and their operations interrupted.

According to the statistical classification of economic activities of the European Communities (NACE), the research focused on Section I, Accommodation and Catering Services, which was the most affected by a number of measures, and specifically on Division 56, Food and beverage service activities.

The reason for focusing specifically on SK NACE I was the fact that, in most cases, this sector is dependent on direct consumption, which was affected and largely limited by the crisis caused by the pandemic of the viral disease COVID-19. Liquidity ratios and Friedman's non-parametric test were used to achieve the objective and conduct the research.

2. Aim, methodology, and data

The content of the research is the examination of individual types of liquidity achieved by the NACE I division 56 industry from 2016 to 2021 and the evaluation of the impact of the pandemic of the viral disease COVID-19 on the following indicators:

$$\text{Cash ratio} = \frac{\text{cash and equivalents}}{\text{short term liabilities}} \quad (1)$$

$$\text{Quick ratio} = \frac{\text{cash and equivalents} + \text{short term receivables}}{\text{short term liabilities}} \quad (2)$$

$$\text{Current ratio} = \frac{\text{current assets}}{\text{short term liabilities}} \quad (3)$$

The results of the liquidity indicators that were analysed were also statistically validated. The objective is to identify distinct years within each group of years by employing Friedman's non-parametric test. $\alpha = 0.05$ will be the level of significance utilised in the statistical verification process. The following hypotheses will be tested:

H_0 : There is no statistically significant variation in the median values of financial indicators from year to year.

H_1 : There is a substantial difference in the median values of at least two financial indicators, and their levels vary considerably from year to year, indicating that time has a statistically significant impact on the financial indicators' development.

If the significance value (Sig.) is more than the alpha level (α), the null hypothesis is not rejected. Conversely, if the significance value is less than the alpha level, the null hypothesis is rejected. Rejecting H_0 and accepting H_1 would demonstrate substantial disparities in the evolution of indicators between the studied years. Post hoc analysis can be used to monitor differences between pairs of years by comparing the Adj. Sig. values in the pairwise comparison table to the α value of 0.05, calculated using the Dunn-Bonferroni correction. When the adjusted significance level is 1, there are no differences seen between the year groups. The research required examining the periods before the pandemic (2018 and 2019) and comparing them to the time of the coronavirus pandemic (2020 and 2021).

The Orbis database from Bureau van Dijk (Moody's Analytics Company) is the primary source of input information for research conducted between 2016 and 2021. The data were organised according to the essential information and factors that define the core of the investigation. We possess data on 321 firms for study.

3. Results and discussion

The findings of business entities in the specified industry were categorised into three categories based on the ideal value intervals. The first group comprises industry subjects with indicator values below the lower limit of the optimal range; the second group consists of business entities that achieve optimal results within the range; and the final category includes subjects that surpass the upper limit of the optimal value.

Table 1: Frequencies of categories of the Cash ratio

	to 0.2	from 0.2 to 0.5	above 0.5
2021	100.0 %	0.0 %	0.0 %
2020	100.0 %	0.0 %	0.0 %
2019	100.0 %	0.0 %	0.0 %
2018	100.0 %	0.0 %	0.0 %
2017	100.0 %	0.0 %	0.0 %
2016	100.0 %	0.0 %	0.0 %

Source: own research

Tab. 1 shows the percentage of occupation in individual categories. The immediate liquidity, otherwise the liquidity of the 1st degree, of the analysed industry was below the lower limit of the optimal interval; that is, the business entities of the entire analysed industry are in the first category of distribution. In no analysed year did the value of financial accounts exceed 20% of the value of short-term foreign resources, which is proof that even the COVID-19 pandemic did not affect the immediate liquidity of the analysed industry.

Table 2: Summary of the Cash ratio hypothesis test

Summary of the hypothesis test				
	Null hypothesis	Test	Sig.	Decision
1	The distribution of variables L1_2021, L1_2020, L1_2019, L1_2018, L1_2017 and L1_2016 is the same.	Friedman test of dependent samples.	1.000	Accepting the null hypothesis.
Asymptotic values are shown. The significance level is 0.050.				

Source: own research in SPSS

Tab. 2 is a summary of the hypothesis test. The value of Sig. It is 1.000, which is higher than the significance level α , and based on this fact, the null hypothesis is accepted. A statistical examination using the Friedman test concluded that COVID-19 did not have a significant impact on immediate liquidity.

Table 3: Frequencies of categories of the Quick ratio

	to 1	from 1 to 1.5	above 1.5
2021	63.2 %	11.8 %	24.9 %
2020	62.6 %	13.1 %	24.3 %

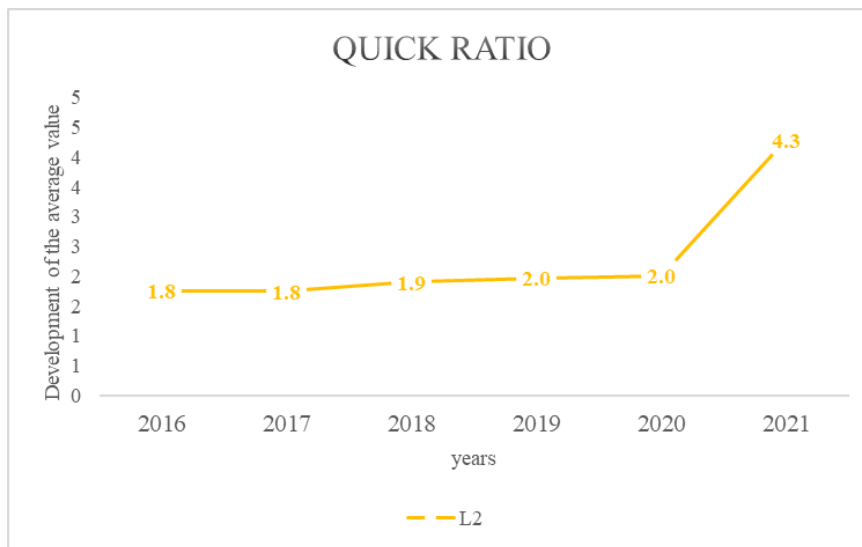
2019	66.0 %	11.5 %	22.4 %
2018	67.0 %	11.5 %	21.5 %
2017	69.2 %	9.7 %	21.2 %
2016	71.0 %	9.3 %	19.6 %

Source: own research

Each division category in Tab. 3 has a certain percentage of business subjects. Liquidity of the 2nd level, ordinary, has the largest occupation in each year of the group of those business entities whose value of the ordinary liquidity indicator is below the lower limit of the optimal interval; the second most occupied group is the one in which there are enterprises that have exceeded the upper limit of the optimal interval; and the fewest business subjects of the analysed industry were in the category of the interval of optimal values.

In the category up to 1, the number of enterprises decreased year-on-year from 2016 to 2020, and the increase occurred only in 2021, by 0.6 percentage points compared to 2020. The same trend was also observed in the group of business entities whose current liquidity exceeded the upper limit of the optimal interval, namely 1.5. We can see a positive growth trend in the number of enterprises in the analysed industry in the category of the interval of optimal values of current liquidity. From 2016 to 2020, the number of subjects achieving optimal results increased. The change occurred in 2021, when there was a decrease of 1.3 percentage points compared to 2020.

Figure 1: Development of the average value of Quick ratio in 2016-2021



Source: own research

Figure 3 is a graphic representation of the average values of the current liquidity indicator at the 2nd level during the analysed years. The positive thing is that in no year does the indicator have a value lower than 1, because current assets would not be sufficient to cover short-term liabilities. In none of the years, the average value of the industry was in the optimal interval but exceeded it. This means that current assets exceed the amount of short-term liabilities several times more than is optimal. The average value of the indicator for the industry rose in 2021, which indicates the fact that there was a change during the COVID-19 pandemic, but its outbreak did not affect its development.

Table 4: Summary of the Quick ratio hypothesis test

Summary of the hypothesis test				
	Null hypothesis	Test	Sig.	Decision
1	The distribution of variables L2_2021, L2_2020, L2_2019, L2_2018, L2_2017 and L2_2016 is the same.	Friedman test of dependent samples.	0.000	Rejection of the null hypothesis.
Asymptotic values are shown. The significance level is 0.050.				

Source: own research in SPSS

In this case, too, a statistical investigation was carried out using the Friedman paired test. In this case, the null hypothesis was rejected, and the alternative hypothesis was accepted, which states that the values of at least two indicators are different, and their level varies significantly from year to year.

Table 5: Frequencies of categories of the Current ratio

	to 1.5	from 1.5 to 2.5	above 2.5
2021	69.5 %	12.5 %	18.1 %
2020	70.4 %	10.6 %	19.0 %
2019	71.7 %	11.5 %	16.8 %
2018	73.8 %	11.2 %	15.0 %
2017	73.2 %	11.5 %	15.3 %
2016	75.7 %	11.8 %	12.5 %

Source: own research

Tab. 5 divides the business entities of the selected industry into three categories based on their achieved value of total liquidity. Total liquidity, level 3, has the most numerous category up to 1.5. When compared to 2016, in 2017 there was a decrease in the number of business entities in this category; in 2018, the number of businesses in this category increased by 0.6 percentage points; and since 2019, the number of business entities has decreased year-on-year. The second most numerous is the category over 2.5 t. j. above the upper limit of the optimal interval, in which the number of enterprises increases year-on-year except for 2018 and 2021. The least occupied category is the category of optimal values, in which the number of business entities decreased from 2016 to 2018. In 2019, the value of the indicator increased by 0.3 percentage points, decreased by 0.9 percentage points in 2020, and increased to 12.5% in 2021.

Figure 2: Development of the average value of Current ratio in 2016-2021



Source: own research

Figure 4 graphically shows the average value of the total liquidity of the analysed industry. Between 2016 and 2020, the average value of the indicator for the industry was in the range of optimal values. When comparing the years 2019 and 2020, there was no change; that is, the outbreak of the pandemic had no effect on the value of this indicator. In 2021, during the pandemic of the viral disease COVID-19, there was an increase to a value of 4.5. Current assets whose value is 4.5 times short-term liabilities are used to cover short-term liabilities.

Table 6: Summary of the Current ratio hypothesis test

Summary of the hypothesis test				
	Null hypothesis	Test	Sig.	Decision
1	The distribution of variables L3_2021, L3_2020, L3_2019, L3_2018, L3_2017 and L3_2016 is the same.	Friedman test of dependent samples.	0.000	Rejection of the null hypothesis.
Asymptotic values are shown. The significance level is 0.050.				

Source: own research in SPSS

The conclusion of a statistical investigation using the Friedman test is the rejection of the null hypothesis and the acceptance of the alternative hypothesis. The development of total liquidity was significantly different in individual periods.

The liquidity indicators of the industry in NACE I division 56 were also examined statistically. Table 7 shows individual groups of years of pairwise comparisons and an evaluation of the significant impact of the pandemic of the viral disease COVID-19 on these indicators. If the value of Adj. Sig. is smaller than α , there are significant differences between the group of years examined. If the value is higher than the level of significance, the existence of significant differences has not been confirmed, and in the event that Adj. Sig. = 1, groups are almost without difference. The impact of the pandemic is best confirmed by comparing it with the year before its outbreak. Due to the fact that the outbreak of the pandemic was most reflected in the years 2020 and 2021, the evaluation of the research focused mainly on those pairs of years that included these years. However, the impact of the pandemic on the pairs of years 2019–2020 and 2019–2021 was evaluated the most.

Table 7: Assessment of the impact of COVID-19 on the liquidity of the selected sector

		Adj. Sig.		
		L1	L2	L3
2020	2016-2020	-	0.000	0.000
	2017-2020	-	0.000	0.000
	2018-2020	-	0.005	0.229
	2019-2020	-	0.086	0.823
2021	2016-2021	-	0.001	0.000
	2017-2021	-	0.054	0.058
	2018-2021	-	1.000	1.000
	2019-2021	-	1.000	1.000
Impact of the COVID-19		-	no	no

Source: own research

Tab. 7 shows an overview of the resulting values of the variable Adj. Sig. between individual pairs of years of selected indicators. It is important whether significant differences were confirmed for the pairs of years 2019-2020 and 2019-2021 (resp. covid years to 2018). No values were recorded for Level 1 liquidity because the null hypothesis was not rejected. Level 2 and 3 liquidity was not significantly affected by the COVID-19 pandemic. For the pairs of years 2018-2020 and 2018-2021, the liquidity of the 3rd stage is the same as for the pairs of years 2019-2020 and 2019-2021. Significant differences were found in the liquidity of the 2nd degree in the pair of years 2018-2020, and on the contrary, in the pair of years 2018-2021, there are no significant or no differences in this pair of years. However, the results of the study show that the outbreak of the COVID-19 pandemic did not have a significant impact on the liquidity indicators of the industry NACE I division 56.

Financial liquidity and business efficiency (i.e., a firm's ability to use available resources to achieve specific sales goals) are important for the hotel industry [21]. The profitability, leverage, tangibility, and liquidity of firms before COVID-19 are key factors in their financial health in the presence of this exogenous and extremely negative shock. In addition, a contextual macroeconomic factor, the interest rate, which has been introduced as a proxy for external financial constraints, plays a key role in the impact of liquidity and debt on the financial health of firms. With higher interest rates, firms had accumulated liquidity during the pre-pandemic years, making them more resilient to the shock; in contrast, with lower interest rates, a history of limited leverage and tangibility contributed to hospitality firms being more resilient in 2020 [22]. Regarding the moderating effect of economic policy uncertainty and liquidity, it was found that the negative impact of economic policy uncertainty on capital investment was less pronounced for firms with greater liquidity [23]. The hospitality sector has been one of the worst-hit industries due to the onset of the COVID-19 pandemic, followed by nationwide lockdowns and curfews. In India, the estimation results show that net asset turnover, liquidity, foreign earnings intensity, and age have a significant positive effect on profitability [24]. In the tourism sector, hospitality represents the largest share of the sector's income. For the past few years, before the COVID-19 pandemic, the number of hotel companies and available rooms has been growing. The hospitality industry also bets on diversification and the quality of its services. One of the indicators that competently measures short-term sustainability is the company's liquidity level, which demonstrates its ability to meet short-term financial obligations. This type of indicator is useful because it provides relevant information not only for managers but also for banks, creditors, and investors [25]. Research on the impacts of COVID-19 on the hospitality industry has been extensive, but no study has focused on developing financial performance metrics that reflect the impact [26]. Current liquidity is among the key factors affecting the capital structure of SMEs in the hospitality sector [27].

Conclusion

As part of the analysis, attention was paid to liquidity ratio indicators, which are an important source of information for business entities in the analysed industry. The resulting values and findings of the analysis were also verified by statistical testing so that the informative value of the findings had more weight. Level 1 liquidity for the industry NACE I division 56 was zero; that is, the industry was below the optimal interval. The average results of Tier 2 liquidity were higher than the optimal interval values in 2019, 2020, and 2021. In 2019 and 2020, the value of the coefficient was 2, and in 2021, it was up to 4.3, which is above the upper limit of the optimal interval. For level 3 liquidity, the ideal ratio results are in the range of 1.5 to 2.5. In 2019 and 2020, the industry was in the optimal interval, and the value of the 3rd degree liquidity ratio was 2.2. The increase occurred in 2021, when the value of the total liquidity coefficient was 4.5, which is the same as with the liquidity of the 2nd degree, well above the upper limit of the

optimal interval. Level 1 liquidity would be helped by an increase in the value of financial accounts, which would also be reflected in level 2 liquidity in 2019 and 2020, bringing it into the range of optimal values. In this case, as it happened in 2021, with 2nd and 3rd degree liquidity, it would be appropriate to reduce the value of current assets.

Statistical testing using the Friedman test did not reject the null hypothesis for Level 1 liquidity, meaning that immediate liquidity was not significantly affected by the COVID-19 pandemic. Friedman's test, however, revealed significant differences in liquidity between the 2nd and 3rd degrees. When looking for differences between the pairs of years, differences were noted in the pair of years 2018–2020 for normal liquidity; significant or no differences were found in the pair of years 2018–2021. When multiple pairs were compared, it was found that the pandemic of the viral disease COVID-19 did not have a significant impact on current liquidity, as no significant differences were confirmed between the "covid" period and the previous period (see Tab. 7). Current liquidity was not significantly affected by the COVID-19 pandemic in the pairs of years 2019–2020 and 2019–2021. The 2018-2020 and 2018-2021 pairs have level 3 liquidity in total, the same as the 2019-2020 and 2019-2021 pairs. Total liquidity was not significantly affected by the COVID-19 pandemic in the years 2019–2020 and 2019–2021. After multiple pairwise comparisons of all pairs, it was found that the pandemic caused by the viral disease COVID-19 did not have a significant impact on overall liquidity either. No significant differences between the "covid" period and the previous period were confirmed (see Tab. 7).

The limits of the research are that it focuses only on liquidity indicators in one sector in the Slovak Republic. Future research can focus on other indicators in other sectors in other countries and also on specific categories of business entities. In the future, research may expand on these shortcomings.

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