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FACULTY OF ENGINEERING

Department of Engineering Management and Enterprise

„New Trends and Challenges in Management – Management of Global Business Processes”

ABSTRACT BOOKLET

Debrecen, 27 – 28 March 2025

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27 March 2025 (Thursday)

PLENARY SESSION

Gender Bias in AI: Manifestations and Consequences

Anna Paraskevopoulou - associate Professor of Management, Faculty Athena Swan Lead and Faculty Lead for Safe and Inclusive Communities RII in the Faculty of Business and Law at Anglia Ruskin University

Abstract
Purpose
The study examines whether age intersects with gender and race during the initial stage of the hiring process and affects access to vacancies outcomes and wage sorting.
Design/methodology/approach
In order to answer the research question, the study collects data from four simultaneous field experiments in England. The study compares the labour market outcomes of younger White British men with those of older White British men and women, and with those of older Black British men and women. The study concentrates on low-skilled vacancies in hospitality and sales in the private sector.
Findings
The results of this study indicate that older White British men and women, as well as older Black British men and women, experience occupational access constraints and are sorted into lower-paid jobs than younger White British men. The level of age discrimination is found to be higher for Black British men and women. In addition, Black British women experience the highest level of age discrimination. These patterns may well be in line with prejudices against racial minority groups and stereotypical sexist beliefs that the physical strengths and job performance of women decline earlier than those do for men.
Practical implications
If prejudices against older individuals are present, then anti-discrimination legislation may be the appropriate response, especially for racial minorities and women. Eliminating age discrimination in selection requires firms to adopt inclusive human resources (HR) policies at the earliest stages of the recruitment process.
Originality/value
This research presents for the first-time comparisons of access to vacancies and wage sorting between younger male racial majorities and older male racial majorities, older female racial majorities, older male racial minorities, and older female racial minorities. In addition, the driven mechanism of the assigned differences is explored. Because the study has attempted to minimise the negative employer stereotypes vis-à-vis older employees, with respect to the employees' motivation, productivity, and health, such prejudices against older individuals may be considered taste-based discrimination.

Supply Chain Network and Corporate ESG Performance: Polycentric or Monocentric?

Dr. Renatas Kizys, associate professor in Finance & Deputy Head (Research), Department of Banking & Finance, Southampton Business School, University of Southampton

We examine the relationship between supply chain networks, Environmental, Social, and Governance (ESG) performance, and financial outcomes. The motivation for this research stems from the increasing significance of ESG factors in corporate strategies, coupled with the limited understanding of how supply chain network characteristics impact both ESG and financial performance. Our analysis examines the direct effects of supply chain network size and structure on ESG scores and financial performance, while also exploring the indirect impact through ESG performance. Additionally, we evaluate the influence of the California Transparency in Supply Chains Act of 2011 on corporate sustainability efforts.

We hypothesise that larger and more centralized supply chain networks positively affect corporate ESG performance, particularly in environmental metrics, and enhance financial outcomes, especially return on sales (ROS). We also explore how these networks influence financial performance indirectly via improved ESG scores. Using a dataset of over 16,000 firm-year observations from 3,028 U.S. publicly traded companies, our findings indicate that larger supply chain networks generally lead to better ESG scores, with particular emphasis on environmental indicators. While the financial impact is mixed, network centrality is shown to significantly improve certain financial metrics, such as ROS. This study contributes to the literature by linking supply chain management practices with ESG and financial performance, providing novel insights into the role of supply chain structure in corporate sustainability. The results have important implications for firms seeking to optimise their supply chains to balance sustainability goals with financial success.

Healthcare system efficiency in Slovakia and the Czech Republic using DEA (2000 – 2020)

doc. Ing. Peter Pažitný, MSc, PhD - leader of the Institute for Healthcare Services Management at Prague University of Economics and Business, Faculty of Management

Abstract

This presentation evaluates the efficiency of the healthcare systems in Slovakia, Hungary, and the Czech Republic over the period 2000–2020 using Data Envelopment Analysis (DEA).

In Slovakia, the analysis reveals persistent inefficiencies compared to other OECD and EU countries. The country consistently ranks among the least efficient healthcare systems due to weak health outcomes, high infant mortality, and low life expectancy. Structural issues such as excessive hospital bed capacity, suboptimal allocation of pharmaceutical spending, and unpredictable state funding contribute to these inefficiencies. The DEA results confirm that Slovakia's healthcare system requires significant policy

interventions, particularly in financing, hospital network optimization, and preventive care.
Hungary faces challenges similar to Slovakia, particularly in terms of healthcare funding and patient outcomes. The country struggles with a high burden of preventable diseases, low life expectancy, and a significant urban-rural divide in access to medical services. Despite attempts to reform hospital financing and primary care, inefficiencies persist due to systemic underfunding and workforce shortages. The DEA results indicate that while Hungary has made progress in specific areas, such as public health programs, further structural reforms are needed to enhance efficiency and equity in healthcare delivery.
The Czech Republic demonstrates higher efficiency relative to Slovakia and Hungary. Its healthcare system benefits from a well-established insurance-based model, better financial sustainability, and a more balanced distribution of healthcare services. However, DEA results indicate that the Czech Republic's efficiency has been gradually declining over time. While it ranked among the more efficient systems in the early 2000s, its relative performance has worsened in recent years, likely due to increasing healthcare expenditures without a corresponding improvement in health outcomes.
The presentation concludes that while the Czech Republic performs relatively well, its efficiency has been declining, and Slovakia and Hungary must address their healthcare inefficiencies through targeted reforms. Improving financial sustainability, optimizing hospital networks, and strengthening preventive care are critical steps toward enhancing healthcare efficiency in the region.

Keywords: Healthcare efficiency, Data Envelopment Analysis (DEA), Slovakia, Hungary, Czech Republic, OECD, health policy, healthcare reform

Effects of Satisfaction with PV Systems, Advertising, Competition, and Subsidy on Energy Security and CO2 Emissions

Prof. Dr. Abbas Al-Refaie - fellow at the Department of Industrial Engineering, School of Engineering, University of Jordan

Abstract
Rooftop photovoltaic (RPV) systems, products, and components are energy-efficient technologies that are critical to the transition toward energy sustainability. Typically, the quality of RPV products and services can significantly affect adopter's satisfaction and willingness to install RPV systems. Moreover, government support is needed to motivate the willingness to install RPV systems through feed-in-tariffs (FiT) and subsidy policies and expand the application of clean energy-efficient technology. To address these issues, the aim of this study is, therefore, to develop two system dynamics models to (1) predict the impacts of adopters' satisfaction with PV systems through Word-of-mouth (WOM), advertising, and competition on energy goals including the number of PV installations, generated electricity power, and the reduction of CO2 emissions and (2) assess effects of quality of service, complaint reduction, performance ration, payback period and warranty on energy goals. For model (1), results revealed that the predicted cumulative PV

installations is 262 MW, the cumulative generated power (kWh) (= 42.5 GWh) will reach 452 GWh, and the cumulative CO2 emission reductions may reach 262 million kg CO2. For the second model, the predicted cumulative RPV installations, generated power, and CO2 emission reductions are 147 MW, GW, 115.6 MWh, and 73.2 million Kg, respectively. Risk assessment and optimization were performed to maximize the three objectives under uncertainty of key variables in both models. In conclusion, the proposed models should provide great assistance to manufacturers, suppliers, and energy policy planners in deciding the adequate actions and developments to boost the development, design, and adoption of PV products and systems in residential buildings.

Consumers Buying Habits in the Post-Crisis Context: a Mixed Methods Qualitative Research

Prof. Dr. Dan-Cristian Dabija - Professor at Babeş-Bolyai University and member of the Academy of Romanian Scientists

The recent crises of last years have led to remarkable changes in consumer behavior around the world, giving rise to new as well as existing patterns and practices. This research analyzes the changes in the retail sector in the post-crisis context, using a mixed-methods approach that combines qualitative analysis of focus group data with quantitative analysis techniques, such as: Term Frequency-Inverse Document Frequency (TF-IDF) analysis to identify key concepts; K-means clustering to extract group behavioural patterns; principal component analysis (PCA) and sentiment analysis for pinpointing and identifying the key dimensions of changes in consumer behaviour in food retailing.
The results show an accelerated use of technology in shopping, a reassessment of consumer priorities and changing expectations of the shopping experience. The results also allow the delineation of four distinct clusters; they reveal the emergence of new consumption patterns characterized by accelerated digitalization, increased concerns for hygiene and changes in product selection criteria. The sentiment analysis shows clear differences in the perception of these changes and provides an important basis for the adaptation of consumers to the new life situation in the post-crisis context. The research contributes to the understanding of sustainable transformations in consumer behaviour and provides practical implications for adapting retail marketing strategies.

Selected aspects of sustainability in machine design and materials processing operations on the example of comminution

Weronika Kruszelnicka PhD - Associate Professor at the Department of Renewable Energy Sources Engineering and Technical Systems, Faculty of Mechanical Engineering, Bydgoszcz University of Science and Technology

Abstract
The assumptions and goals of sustainable development set a specific framework for the development of machines, devices and industrial processes. The specific requirements that need to be taken into account during design involves particularly rational use of materials and energy, possibly highest processing efficiency, reduction of environmental impact, recyclability of components or high agreement with the circular economy concept. Comminution process is one of the most popular processing operation that is used in many technological processes from food and feed industry, cosmetics industry, energy and mining industry, building industry, recycling industry etc. The challenge that need to be overcome is still the high energy consumption and low predictability of particle size and energy demand of the comminution. The grinding process and its technological conditions depend on the properties of the materials being ground, and the effects obtained in terms of efficiency and quality, and homogeneity of comminution product depend on the interdependence of the material properties and the design features of the mill used. To include the sustainability approach in the comminution processes it is important then to consider the interrelations between three levels of comminution system: phenomenological level including the material properties, machine design level and the process level that include the operational parameters and efficiency indicators. In this study the different aspects of reaching the sustainability in the comminution process including energy consumption, environmental impact and product quality was discussed. The interrelation between comminution system levels were presented and the assessment indicators of the comminution system were analyzed. The approach showed that in the design of the comminution process the interrelation between comminution levels and the whole life cycle of the process need to be taken into account.

Interoperability in the Context of Industry 4.0 and Digital Production

José Mendes Machado PhD habil - Deputy Director of MEtRICs Research Center and Associate Professor at Mechanical Engineering Department of University of Minho

Digital Production is one of the keys on the I4.0 concept. In Production companies, the integration of cyber-physical systems at different levels — such in design, normal operation and maintenance — remains a challenge, with significant progress still needed in both: academia and, more notably, in the industrial sector. Among these areas, interoperability of cyber-physical systems appears to be one of the most demanding, particularly in relation to another key pillar of Industry 4.0: the Industrial Internet of Things. This interoperability can be analyzed from two main perspectives: vertical and horizontal integration. This talk focuses on exploring integration and communication layers within networked environments, based on the architectures of the Reference Architectural Model Industry 4.0 (RAMI 4.0) and the Industrial Internet Reference Architecture (IIRA). It examines, too, the Open Platform Communications - Unified Architecture (OPC UA) as a potential approach to addressing this challenge. The discussion takes a multidisciplinary approach, drawing on expertise in automation, control systems, distributed control architectures, and the physical components under control (the plant). Additionally, the talk highlights both the potential and the limitations of OPC UA as a solution for achieving vertical and horizontal integration of cyber-physical systems.

27 March 2025 (Thursday)

SUSTAINABILITY I SESSION

Chairs: Dr. Viktória Mannheim, Dr. habil. Brigitta Zsótér

Exploring Consumer Preferences for Bottled Water - a Discrete Choice Experiment in the UK

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Péter Balogh, professor, University of Debrecen, Faculty of Economics and Business, Institute for Methodology and Business Digitalisation, Department of Quantitative Methodology

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Aliz Vuk, PhD student, University of Debrecen, Faculty of Economics and Business, Institute of Economics

Abstract

Consumers have several options in some countries when faced with less environmentally friendly packaging (for example, water in a single-use plastic bottle). These include ignoring environmental concerns and continuing to shop around, looking for products with environmentally friendly packaging, or even donating to charities. With this in mind, the aim of our research is to examine consumer preferences for bottled water, taking into account the role of environmental attitudes in decision-making. To explore the issue in more depth, we conducted a discrete choice experiment in the UK. The experiment considered four attributes (type of packaging, price, origin, possibility to donate to charity), based on which we designed our experimental design (32 hypothetical decision situations, arranged in 4 blocks, with 3 hypothetical bottled water and one "do not want to buy" option per decision situation). For the data analysis, we performed random parameter logit modelling, where we also added latent variables to our model that measured consumers' level of environmental awareness. Based on the model estimates, we found that biodegradable packaging, domestic origin and charitable donations (whether for environmental or social purposes) have a positive effect on consumers' preferences for bottled water, while price increases have a negative effect. The coefficients estimated for the latent variables also show that as the level of environmental awareness increases, the preference for biodegradable packaging increases and the likelihood of avoiding the purchase of bottled water increases. Looking deeper into the level of environmental awareness, we conclude that higher levels of materialism are associated with lower levels of environmental awareness. The research provides valuable insights for policy makers on how consumers perceive environmentally friendly and less environmentally friendly packaging.

Keywords: consumer preferences, bottled water, discrete choice modelling, latent variable

The Market Challenge of the Hungarian Meat Industry Marketing and Innovation

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Boglárka Brumár, student, University of Debrecen, Faculty of Economics and Business

Abstract

In recent years, the food industry has been facing new challenges related to consumer demands. New trends are replacing the old familiar ones, affecting the consumption of meat products and the acceptance of processed products. In the Hungarian context, it is also noteworthy that consumer behaviour is particularly price-sensitive. In this new market environment, meat industry operators, including companies developing stuffed meat products, need to engage in marketing activities that will enable them to sell their products successfully. The aim of this research is to highlight the factors that determine this process from the point of view of consumer preferences and the players in the sector. The results of the research show that the majority of consumers consume meat products on a weekly or daily basis. In terms of diet, there is an even split between fresh and processed products and mixed consumption. In terms of meat preferences, the vast majority of consumers prefer to consume the well-known and traditional meat products: chicken, beef, pork and fish. Few people include meat products (rabbit, duck, goose, game) as specialities of their diet. A similar trend can be observed for attitudes towards stuffed meat products, where the taste and product are typically dominant in purchasing decisions. This suggests that domestic consumers continue to consider meat products as an important factor in their diet. However, it is precisely because of this fact that operators in the product field need to adopt a marketing strategy that takes account of consumers' price sensitivity, their conservative attitude and the fact that they identify the product group as a staple food. Thus, in the case of product development by introducing a new flavour or changing a key product characteristic, it is important to introduce and communicate it in a considered way, as this will make consumers more willing to incorporate it into their purchasing decisions.

Keywords: Innovation, marketing, meat industry, supply chain

The Situation and Features of Food Waste in Hungary

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Viktória Vida, associate professor, University of Debrecen, Faculty of Economics and Business

Abstract
Food wasting is significant social and natural issue which leads hundreds of thousands food wasting annually. In households, catering industries and trade units lots of foods ends in the garbage through the making proccess and also after eating. The biggest reasons for the waste is over shopping, unproper storing, the misunderstanings about the expiry dates and estetic expectations. The sustainable food consumption and the conscious shopping have key roles to reduce the problems while the local food saving projects and compostings helps to reduce the quantity of trash. The more conscious food using not only economically important move but also environmental protection. The food wasting are creating crucial economical, social and enviromental effections like increasing carbon dioxide emissions, famine and significant financial issues.

Keywords: food waste, sustainability, consumer awareness, zero waste

Consumer Perception of Food Safety Risks

Brigitta Zsótér, associate professor, Faculty of Engineering, University of Szeged, Interdisciplinary Research Group in Economics and Social Sciences, Szeged, zsoterb@mk.u-szeged.hu

Márta Gyöngyik, Faculty of Engineering, University of Szeged, Interdisciplinary Research Group in Economics and Social Sciences, Szeged

György Hampel, collage professor, Faculty of Engineering, University of Szeged, Interdisciplinary Research Group in Economics and Social Sciences, Szeged

Abstract
The aim of our research was to identify which food safety risks consumers are most concerned about, in particular chemical residues, genetically modified organisms (GMOs) and mycotoxins. The results show that respondents are most concerned about chemical residues in food, followed by the presence of GMOs, while mycotoxins are the least of the concerns. Surprisingly, a significant proportion of respondents had not heard of mycotoxins before completing the questionnaire, which may have contributed to their ignorance of the risks. Although GMOs are banned for food production in Hungary, consumers are more aware and fearful of them than of mycotoxins, which have been shown to have adverse health effects and are more common in popular whole grain products than in foods made from traditional white flour. Marketers of organic and whole grain products often encourage consumers through their marketing activities, ignoring the potential risks, which raises moral concerns. As a result of our research, we believe it is important that consumers should be aware not only of the benefits but also of the potential risks so that they can make informed choices about foods that do not compromise their health. The results of the research show that raising consumer awareness and communicating food safety risks properly is essential for responsible consumer behaviour.

Keywords: consumer behaviour, health consciousness, healthy foods, product marketing, food safety risks

Choice Complexity and Pro-Environmental Behavior

János Szenderák, assistant professor, University of Debrecen, Faculty of Economics and Business, Coordination and Research Centre for Social Sciences, szenderak.janos@econ.unideb.hu

Abstract
The range of sustainability policies has expanded significantly in recent decades. Despite the growing attention to the increasing environmental pressure, only a handful of policies have effectively reduced emissions. Interventions aimed at altering consumer behavior have generally had a limited impact and have not resulted in meaningful changes in behavior. Different fields, including psychology, economics, and sociology, provide various explanations for why consumer behavior has remained relatively unchanged. These explanations often differ based on whether the focus is on the individual's role or the influence of the surrounding environment. Recent trends increasingly recognize the complexity of decision-making and the cognitive biases that can affect this process. Sustainable consumption cannot be evaluated solely at the product level; instead, the overall combination of goods consumed has to be considered. Consequently, consumers have to make overly complex decisions in a multifaceted environment. However, consumers are often unwilling or unable to engage in significant cognitive calculations before making decisions, and various forms of simplification become an integral part of the decision-making process. Behavioral economics and sociology have explored these aspects in different ways. The former primarily examines the aspects of individual decision-making, while the latter emphasizes the importance of environmental constraints, including social practices and norms. It is essential to acknowledge and consider these cognitive constraints in policy-making since information-based interventions dominate the field of sustainability. However, the effective transfer and utilization of information are unclear, even in the case of the fundamental policy tools. By identifying appropriate intervention points, we can enhance the effective use of information, avoid information overload, and better target behaviors to significantly reduce environmental impact.

Keywords: sustainability, choice, consumer

Willingness to Separate Waste in a Secondary School Community

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Róbert Kurdi, Associate Professor, Sustainability Solutions Research Lab, University of Pannonia
Zsuzsanna Banász, Associate Professor, Department of Economics, University of Pannonia

Abstract
An important criterion for sustainability is the recycling of waste through selective collection. In Hungary, as of 01 July 2023, the government has handed over waste management to a concessionaire, which places great emphasis on selective waste collection. The aim of the study is to explore the motivating and demotivating factors of selective waste collection. The subject of the research is a community of a reputable secondary school in a Hungarian county seat. The data used for the analysis derived from a primary questionnaire survey, which resulted in an evaluable sample of 207 respondents.
The research aims to answer the following research questions (Q) in relation to the selective collection of paper, plastic, glass and used cooking oil waste in the community under study:

- (Q1) How can the community's willingness for selective waste collection be summerized?
- (Q2) What are the main (de)motivating factors for selective waste collection?
- (Q3) How can the profiles of individuals at the two extremes of the willingness to collect selective waste be characterized?
- (Q4) Are demographic characteristics (gender; age; respondent's place of residence: type of municipality or dwelling; working or student in school; year in case of students) influencing the willingness to collect waste separately?

Analyses are carried out using descriptive statistics and relationship analyzes (Cramer's V, Kendall's Tau). The results can be used in practice by decision-makers in the field of communication on selective waste management, providing them with guidance on which demographic profiles require more or less motivation to engage in selective waste collection within the high school community. Some limitations of this research will be addressed in future research. As none of the demographic characteristics examined strongly influence attitudes towards selective waste collection, future focus group interviews with community members could be used to explore what actually determines the willingness to collect waste separately. The extended questionnaire, with the reasons identified during the interviews, is planned to be completed in several municipalities.

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Keywords: environment, waste management, selective waste, secondary school community, questionnaire survey

The Role of Life Cycle Management in the Construction Industry

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Anita Terjék, senior research fellow, ÉMI Nonprofit Kft.

Abstract
Sustainability and reducing environmental impacts are increasingly crucial in the construction industry, mainly due to the sector's high resource demand and pollutant emissions. Life Cycle Assessment (LCA) and Environmental Product Declarations (EPD) for construction products play a key role in achieving these goals while increasing competitiveness. However, only a few construction products are manufactured in Hungary, while more of the products marketed have an environmental certification or EPD. Domestic certification is mainly limited to concrete elements, bricks, insulation and SIP products. Knowledge of the environmental characteristics of construction products is paramount in the design and development phase, especially in complying with energy performance requirements. Without this, the need to apply LCA becomes increasingly essential. Life cycle assessments – primarily life cycle costing (LCC) and carbon footprint calculations – are now an expectation in public procurement, sustainability assessment of new construction projects and green certification requirements.

The green transition and the rise of the circular economy increasingly require environmental certification of construction products. These certifications are based on criteria that aim to reduce the construction industry's environmental impact, produce sustainable and environmentally friendly construction materials, and minimize emissions. The article will present the current state of LCA application in the construction industry and the development opportunities for life cycle management (LCM) for more sustainable construction practices.

Keywords: LCA, LCM, EPD, construction products, sustainability

Slimmed down Manufacturing Success: Lean Solutions and Corporate Results

Judit T. Kiss, associate professor, University of Debrecen, Faculty of Engineering, Department of Engineering Management and Enterprise

Abstract
Globalization and technological development require companies to react faster and faster to their market environment while consumer needs and expectations also constantly change. To maintain competitiveness, companies need strategic thinking, flexibility and continuous improvement, whether it is product development, operational processes or

customer relationship development. At the same time, companies are already expected to meet social expectations and pay attention to their environmental performance and social responsibility. Therefore, examining how companies can improve their performance in a constantly changing market environment is interesting. During the research, we sought to answer the question of whether the application of lean practices affects the performance of companies, especially in terms of environmental performance. When examining the model for the data obtained through the questionnaire survey, we concluded that companies applying lean management tools can contribute to protecting our environment. Based on the results, a positive significant relationship can be revealed, meaning that companies characterized by lean production take better care of their environment and pay more attention to environmental protection, i.e. reducing waste, increasing the use of renewable energy, and increasing recycling.

Keywords:
lean manufacturing, corporate performance, sustainability, circular economy, green production

MANAGEMENT AND ORGANISATION SCIENCE I SESSION

Chairs: Dr. Éva Gergely, Dr. Norbert Mátrai

Management and Work Addiction

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Edit Barizsné Hadházi, associate professor, University of Debrecen, Faculty of Economics and Business, Institute of Management and Organization Sciences, Non-independent Department of Management Sciences

Abstract

In a state of work addiction, the individual's work may become so excessive that it threatens their health, social relationships and life chances. In addition to the individual effects, we must also look at the consequences of work addiction in organisations. Work addiction is linked to management, however broadly or narrowly we think of management. In this presentation, I will attempt to illustrate the possible links between work addiction and management, using three different interpretations of management. First, I will present the results of a PRISMA study on management as a discipline, which was carried out by reviewing nearly 250 publications. Second, management as leadership in an organization and the leadership styles that emerge, as well as the manifestations of leaders, are linked to work addiction. Thirdly, I will look at the possible links under management as a field of human resource management in relation to work addiction. The results show that for any of the above interpretations of management, a link between management and work addiction emerges and, at the same time, a liability is also established. Work can now become dangerous for individuals and organisations if it becomes compulsive and excessive. Among other things, work addiction has an impact on individual and organisational performance, efficiency, teamwork, organisational conflict, reduced satisfaction or even increased motivation to quit. It can be concluded that managers play a key role in the management of work addiction in an organisation, because while the impact of transformational, servant and ethical leadership styles on work addiction is ambiguous, laissez-faire styles increase the incidence of work addiction in an organisation, and abusive leadership styles decrease it. The presentation also reveals that the most researched area in relation to work addiction is workplace health and engagement, but there are areas such as turnover and generational issues where further research is needed.

Keywords: PRISMA study, leadership style, work addiction, human resource management

The Leader as Influencer

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Csilla Juhász, Associate Professor, University of Debrecen, Faculty of Economics, Institute of Management and Organization Sciences

Abstract

The rise of social media has fundamentally transformed the tools for building and maintaining personal and corporate brands. Leaders today are not only responsible for achieving organizational goals but have also become key figures in shaping their company's credibility and public perception. Leadership personal branding and the emergence of leaders as influencers show a strong connection to the long-term success and competitiveness of organizations. This study analyzes the role of leaders as influencers, with a particular focus on how they utilize the opportunities provided by social media to consciously build their personal brands. The role of influencers in fostering authentic and personal connections, as well as influencing consumer decisions, is highlighted, especially in the case of leaders with medium to large followings. A leader's presence on social media can strengthen corporate image, foster brand loyalty, and deepen consumer engagement. Based on relevant literature and case studies, the research explores how leaders' digital skills and social media strategies contribute to the success of personal branding and how this, in turn, impacts the organization's image. The study places special emphasis on the relevance of influencer marketing, which today serves not only as a promotional tool but also as a key element of consumer relations and organizational communication.

Keywords: leadership, influencer, CEO brand, social media, personal branding

Offboarding experience - Can quitting be an experience?

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Abstract

Today's organisations face a big challenge in terms of the attention they pay to the employees leaving their organisation during the termination period. The exit of an employee is a complex process in which both parties involved have an important role to play. A crucial part of the offboarding process is the exit interview, during which the employee can talk about positive and negative experiences with the organisation in a confidential atmosphere, which he or she may not have dared to do before. These conversations can provide the organisation with a lot of useful information that may even deter further exit intentions. Conducting an exit interview is not the end of the offboarding

process, as the results should be used in the future to increase employee satisfaction. Of course, there is a huge challenge in conducting a professional exit interview, if you fail to create an honest atmosphere in which the employee is genuinely willing to open up, the session will end inconclusively. Furthermore, it does not matter who is conducting the interview or what their skills and competencies are. Beyond the interview, there are other benefits to be gained from paying close attention to the people who leave the organisation. We can protect the reputation of the company and even make the former employee more willing to recommend your organisation if he or she had a positive experience during the offboarding. I would like to use an organisational case study to show how the dismissal process can be an experience for the employee. What kind of atmosphere and preparation is needed for effective interviews. It will also provide an insight into the factors behind the dismissal in a particular organisation. Not only did employees decide to leave because of inadequate remuneration, but employee conflicts and an inadequate workplace climate were also frequently mentioned.

Keywords: offboarding, exit interview, offboarding process, experiences

The Relationship of Thomas-Kilmann Conflict Management Strategies with Assertiveness and Gender Composition of Negotiators

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Abstract

The aim of our research is to examine the relationship between assertiveness and the outcome of negotiation situations. We hypothesize that higher assertiveness contributes to the negotiation outcome, i.e. to the achievement of a win-win situation.

To this purpose, the outcomes of N=210 pairs, i.e. 420 individuals, were analysed. In the task, first-year students of the Faculty of Economics at the University of Debrecen had to solve an integration negotiation situation in 10 minutes, in which they had to agree on the details of a trip (accommodation, meals, type of programme) according to the given conditions. The couples' goal was to reach an agreement while maximising their individual utility, as reflected by the score next to the chosen option. There was a Pareto efficient solution to the task. Based on the individual score obtained and the difference in scores (R), we separated Thomas-Killmann problem-solving, compromise-seeking, subordinating and competing conflict management strategies. In addition, we further subdivided compromise seekers into fair-minded and "fair-minded seekers" according to whether members' scores were equal (R=0) or less than 10 (R<10). In our study, we investigated whether higher levels of cooperation are associated with higher assertiveness (K1) and how does the gender composition of the couple (K2) influence the outcome of the negotiation?

Our results show that there is no clear linear relationship between cooperation and assertiveness. Women's assertiveness was significantly lower than men's, but they were more likely to be fair (R=0), while men were more likely to seek fairness only (R<10). There was a higher proportion of competitive/subordinate pairs among male-female pairs. However, men were clearly more chivalrous here, with women scoring higher by an average of 20 points in 10 out of 14 cases, while these subordinate men (and also subordinate women) had lower assertiveness than their partners. However, the picture is not so clear for same-sex couples. The difference for female competing/subordinating couples was clearly smaller than that for mixed or male couples, the latter being the highest, averaging 27 points. But while the assertiveness of the subordinate members of female pairs was on average higher by 9.35 points, the assertiveness of the subordinate members of male pairs was 7.5 points lower than that of their partners.

Keywords: conflicts, assertiveness, negotiation, Thomas-Kilmann

Practical Experiences in the Application of the DMAIC Method

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Abstract
In recent years, the automotive manufacturing industry has undergone significant transformations shaped by technological advancements, sustainability expectations, and the dynamics of the global economic environment. Key challenges facing the sector include the rise of electromobility, the development of autonomous technologies, and maintaining the resilience of supply chains. These emerging trends not only present opportunities but also introduce substantial quality management challenges. Quality management plays a pivotal role in preserving and enhancing competitiveness in the automotive industry. For products such as electric motor shafts, manufacturing defects can critically impact their lifespan and functionality. At the same time, manufacturers must focus not only on technological advantages but also on sustainability and reliability.
The Six Sigma methodology, particularly its DMAIC process, serves as an effective tool for quality improvement. In my thesis, I apply this methodology in a real industrial setting through a case study, highlighting how it provides a structured framework to address often complex problem-solving processes. My objective is to evaluate whether a quality management tool, already proven in large corporations, can be effectively adapted to the small and medium-sized enterprise (SME) sector.
During the research, I focus not only on practical implementation but also on observing and analyzing the interactions among team members and between operators at workstations. This aspect is critical because the effectiveness and organizational integration of various quality management tools largely depend on their acceptance by all participants.

In the literature review, I examine the role of the DMAIC methodology within the broader context of quality management, seeking connections with findings from other related publications.
As I progress through the methodology's steps, I summarize my findings and provide recommendations to the automotive supplier on improving quality. Simultaneously, I offer a detailed and illustrated insight into the production process of an oil pump shaft, enriching the study with practical observations.

Keywords: DMAIC, Problem Solving, Quality Improvement

On the Stage of Data: The Future of Theatres in the Age of Data-driven Operations

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Abstract
In the context of intense digital transformation, data offers a range of opportunities for actors in the creative and cultural sector, including theatres. The opportunities that data can provide theatres include a deeper understanding of audience preferences, increased audience engagement, support for the development of plays, shaping of cultural policy and even innovation of business models.
Numerous positive examples can be found in the business world of the potential benefits of data-driven operations; however, it is important to note that the objectives of theatres are usually different from those of a traditional business. The main objectives of theatres include education, discussion of social issues, reflection, the dissemination of culture and the increase of access to high quality theatre. However, access to and analysis of the data is usually limited by the sporadic nature of theatre-goers, the lack of socio-demographic characteristics and the fact that, in the case of group ticketing, only the data of the person who bought the ticket is available. Moreover, theatre market research focuses mainly on existing audiences, so that the preferences of potential audiences are often unknown, limiting the possibilities to attract new audiences.
In order to realise the potential benefits, it will also be necessary to structure data, develop formalised data collection and analysis methodologies, develop the IT background and skills needed for data-driven operations, and introduce tools to support data visualisation and communication. In addition, it is important to focus on addressing data ethics and data protection, which are key to maintaining viewer trust.
The presentation discusses the potential of data-driven operations in theatres, with a particular focus on the obstacles encountered and how they can be addressed, based on a literature review and semi-structured interviews with theatre managers, actors and experts.

Keywords: culture, theatre, digital transformation, data-driven, innovation

ECONOMICS AND FINANCE SESSION

Chairs: Dr. László Török, Dr. Domician Máté

Dunaferr's Strategic Changes, Steel-Conscious Strategy

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Abstract

The research focuses on corporate organizational transformation and the related competencies, resilience, and competitiveness, examined through the case of the Dunaferr Group, formerly known as Dunai Vasmű. The justification for this study lies in the company's significant economic and social impact on the region, influencing its labor market dynamics and overall development.

ISD Dunaferr Zrt., previously known as Dunai Vasmű, serves as a pivotal case study in analyzing the structural transformation of socialist large enterprises following the political and economic transition. The research analyzes the company's transformation through the lens of strategic management theories, identifying the driving forces behind organizational and competitive strategy changes.

To maintain Dunaferr's competitiveness, the implementation of innovative management strategies, modern corporate governance practices, and adaptive organizational approaches was necessary. The concept of the "Dunaferr Metamorphosis" has been a focal point in academic discourse and professional conferences, as it exemplifies the challenges of transitioning from a planned economy model to a market-driven economic environment.

The company's transformation offers a unique insight into both the successful and problematic aspects of economic system change. Its history is particularly relevant as it originated as a socialist planned economy investment with distinctive organizational structures, making its restructuring a complex strategic and operational challenge.

The transformation process is illustrated through detailed empirical data and case studies, highlighting the functioning of both past and present corporate governance systems. The introduction of new production and sales mechanisms, along with the transformation of corporate culture, posed significant challenges for the organization while also impacting the region's employment structure and economic development. The study aims to provide an in-depth analysis of these processes and explore their long-term implications.

Keywords: corporate transformation, strategic management, competitive strategy, organizational transformation, economic transition

Examining the Relationship between Economic Growth and Resource Efficiency in EU Countries

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Abstract
Products and services that meet individual and community needs are impossible without raw materials. This study takes a novel approach by integrating economic dynamics and raw material consumption indicators in the European Union (EU). The study uses different econometric methods to analyze the relationship between GDP (gross domestic product) and EU raw material consumption (RMC) between 2014 and 2023. Among the results, the panel data analysis model shows that the EU's resource productivity improved over the period under review while material intensity decreased significantly. These trends have contributed considerably to the relative decoupling of material consumption from GDP over the past decade. The results of the K-center cluster analysis highlight regional economic disparities within the EU. The results of the correlation analysis show that EU member states differ significantly in their efficiency of raw material use. However, five member states are highly exposed to high levels of raw material use. The divergence calculation results show that while some countries use raw materials extremely efficiently to produce GDP, others achieve low efficiency.

Keywords: economic growth, resource use, European Union

The Importance of Sino-Hungarian Economic Cooperation in Hungary

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Abstract
China and Hungary, as important elements of Sino-European economic relations, have engaged in extensive cooperation in various fields such as trade, investment and technology. Within the framework of the One Belt, One Road strategy, the two countries have established a new list of joint investment and development projects. This cooperation not only has a positive effect on the Sino-European trade policy, but also promoted the Sino-Hungarian trade policy. The article presents the areas of Sino-Hungarian cooperation, explores further areas of cooperation between China and

Hungary, and analyzes the impact of Sino-Hungarian economic cooperation on trade policy, identifying key areas of mutual benefits and common interests. In order to ensure the stability and sustainable growth of cooperation, the article proposes several measures, including strengthening political communication and coordination, deepening trade and investment cooperation, and continuing to promote green economic cooperation. These measures will promote the in-depth growth of Sino-Hungarian economic cooperation and promote the continuous development of Sino-European trade policy.

Keywords: Sino-Hungarian, economic cooperation, strategy

The Economic Role of Hospitality in the North Great Plain Region

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Abstract
Based on current statistical data, the study formulates the characteristics of the sector at the national economic level, e.g. the performance of accommodation and hospitality, its share of GDP, the number of beds and guest nights, the number of people employed in commercial accommodation, changes in gross average earnings, etc., and points out the main characteristics of the development of the Northern Great Plain region. The sector's performance in recent years has been significantly affected by the drastic decline caused by Covid-19 and the war situation that broke out in 2022. In the changed domestic and international economic environment, the sector's performance shows a fluctuating trend. There was significant labor migration to other sectors in the sector, and many small businesses ceased operations due to the multiple increase in energy prices. Based on the statistical data, by 2023 the sector's performance had already reached or exceeded the high level before the 2019 crisis in several areas. Besides the capital, Debrecen is the biggest winner of the international tourism boom, with a significant increase in the number of business tourists thanks to the economic recovery.
Debrecen's tourism in 2022 already exceeded its performance in 2019, the year before the pandemic. Tourism in the city showed an upward trend: in 2023, the number of overnight stays increased by 5.2% (577 399) and the number of guests rose by 4% (213 134), making 2023 the new peak year for tourism in Debrecen. The tourism developments of recent years, such as the renewal of the Aquaticum Debrecen Strand, the opening of the Sziget-blue theme park, the emergence of international hotel chains or the airport's flight developments, offer tourists arriving in the city quality services that not only help them to enjoy a meaningful stay, but also increase the length of their stay and thus the number of guest nights.

In addition to domestic visitors, Debrecen is attracting the highest number of leisure visitors from neighbouring countries, such as Romania, Slovakia and Germany, and the number of business visitors is also increasing.
Over the past ten years, the state has supported 129 major investments in Hajdú-Bihar county alone, worth more than HUF 4,000 billion and creating more than 22,000 jobs. All this means new challenges for the region in the future in the fields of health tourism, sports events, professional conferences, organisation of cultural events and sports facilities, etc.

Keywords: tourism, economic growth, employment, overnight stays

Performance Evaluation of Hungarian Companies Using the DEA Method

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Tünde Orsolya Nagy, lecturer, University of Debrecen, Faculty of Economics and Business, Institute of Accounting and Finance

Abstract
Performance evaluation is a key factor in measuring and developing the efficiency of companies. The aim of this study is to analyze the performance of Hungarian companies using the Data Envelopment Analysis (DEA) method. DEA is a non-parametric, multidimensional analysis tool that allows measuring the relative efficiency of companies by taking into account different inputs and outputs. During the research, we conducted an analysis based on data from companies operating in the Hungarian food industry sector. According to our results, the DEA method serves as an effective tool for comparing the performance of companies and helps in identifying weak points. The results of the analysis can contribute to increasing the competitiveness of companies and determining industry trends and benchmarks.

Keywords: performance evaluation, DEA, corporate efficiency, competitiveness, industry analysis
JEL codes: C44, M20

SUSTAINABILITY I SESSION

Chairs: Dr. Tünde Jenei, Éva Diószeginé Zentay

Overview of Green Accounting Regulations and Practices in Hungary

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Abstract
Environmental changes are a global problem that requires a global solution. Recognizing the importance that the environment plays in our survival is compelling companies, organizations, and governments to create awareness among the masses about the importance of the environment and its well-being. Changes in the environment have a negative bearing on the environment and have the potential to slow down the economic growth. Green accounting (also known as sustainable accounting or environmental accounting) has emerged as a measure of sustainable income level which refers to combined environmental and economic accounting at national and corporate levels. GA promotes activities aimed at a sustainable future for businesses, including, for example, green procurement, green investments and R&D. Green or environmental accounting is a new branch of accounting that provides for accounting the environmental impact. Unlike conventional accounting, green accounting accounts for the environment and its well-being. It factors environmental costs into the financial results of operations. It accounts for long-run effects of economic activity on the environment. This presentation provides a brief overview of the Hungarian green accounting regulation and its practical applications.

Keywords: sustainability, environmental accounting, green accounting, environmental costs

Integrating Organisational Development Methods for the Practical Implementation of Green HRM

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Abstract
This article examines the integration of organisational development methods in implementing green human resource management (GHRM) practices. As environmental sustainability is becoming increasingly important to organisations worldwide, GHRM has become a strategic approach to promoting green behaviours and outcomes through

human resource practices. This paper provides a comprehensive overview of GHRM concepts, theoretical frameworks and practical applications. The core of the research focuses on various organisational development tools and change management models that can facilitate the introduction and implementation of GHRM practices. These include Kotter's 8-step change model, Lewin's change management model, and innovative training and development programmes such as the World Café method and action learning. The paper discusses practical tools for sustainability management, including sustainability SWOT analysis, sustainable business models and sustainability-balanced scorecards. The research highlights the importance of employee engagement and green workforce development in achieving organisational sustainability goals. By integrating OD methodologies with GHRM practices, organisations can enhance their environmental performance, improve employee morale and gain competitive advantage in an increasingly environmentally conscious business environment. This comprehensive review provides valuable insights for researchers and practitioners seeking to understand and implement effective GHRM strategies through organisational development approaches.

Keywords: GHRM, sustainability, OD methodology, environmental awareness

Sustainable Marketing - International Good Practices

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Abstract

Nowadays, one of the most expected values from companies is compliance with some or all aspects of sustainability. Good practices from the perspective of sustainability, both conscious and appearing in the basic philosophy of the enterprise, can be discovered in both domestic and international corporate practice, however, for reasons of competitiveness, their presentation, further development, and implementation of new ones into business management are essential even in the age of ESG and oversupply. International experts (beyond academia) are continuously collecting and summarizing the most important and current trends for companies, which we examined in this research.

In the research, pieces of advice, and lists of authors – primarily practitioners – were collected, selected, and systematized over one year, which we summarized during the dissemination using document and content analysis. More than 200 documents were included in the research, of which those focusing most on marketing issues were processed and evaluated.

The results showed that the issue of packaging, the formulation of the right message, the appropriate treatment of stakeholders, and the avoidance of greenwashing are still critical, if not even more important due to public opinion and regulatory systems. In addition, the study touches on two additional communication trends that can negatively

affect the sustainable corporate image, thereby hindering the growth of reputation, which are social-washing and health-washing. The most important lesson of the study is that for long-term success, in its communication company must highlight the values that it can represent, since nowadays, reputation destruction can occur very quickly in the online space, and only the strongest brands can survive.

Keywords: sustainablity; marketing; washing; good practices

The Effects of the Hungarian ESG Legislation on HR Managers

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Abstract
The increasing importance of Environmental, Social, and Governance (ESG) considerations in corporate strategy has led to significant legislative developments across Europe, including Hungary. The recently introduced Hungarian ESG legislation imposes new compliance requirements on organizations, particularly affecting human resource (HR) management. This study aims to explore the impact of these regulations on HR managers, examining their evolving roles, responsibilities, and challenges in implementing ESG-related policies.
Our research employs a mixed-method approach, combining qualitative insights from semi-structured interviews with HR professionals and quantitative data collected through a questionnaire-based survey. The qualitative component focuses on how HR managers perceive the regulatory changes, the internal challenges they face, and the strategic adjustments required to ensure ESG compliance. The quantitative survey measures HR professionals' awareness, preparedness, and attitudes toward ESG integration within their organizations.
Preliminary findings indicate that while HR managers acknowledge the strategic importance of ESG compliance, many experience uncertainty regarding implementation, particularly in the areas of social responsibility, employee well-being, and diversity and inclusion policies. Additionally, compliance with reporting obligations presents administrative burdens, requiring HR professionals to collaborate closely with legal and sustainability teams. The study highlights the need for targeted training programs and clearer regulatory guidance to support HR managers in navigating these changes.
By providing empirical evidence on how ESG legislation influences HR management practices in Hungary, this research contributes to a broader understanding of the intersection between sustainability policies and workforce management. The findings offer practical recommendations for HR professionals, policymakers, and business leaders to enhance ESG implementation and compliance strategies.

Keywords: ESG, Sustainability, Human Resources Management

Application of Soft Computing in Sustainable Indicator Development: Calculation of LCA Values and Range of EVs

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Abstract
The technological development of electric vehicles (EVs) aims to reduce emissions and mitigate environmental impacts associated with production and operation. Advances in EV materials, raw material processing, and end-of-life waste recycling not only offer significant environmental benefits but also contribute to substantial CO2 emission reductions. Soft computing techniques, including fuzzy logic and neural networks, are effective tools in emission reduction and climate policy, particularly under changing and uncertain conditions such as EV charging and energy consumption. These techniques enable systems to handle uncertain and dynamic data, such as the life cycle assessment (LCA) values of EVs and the distance traveled per charge. This study aims to develop a sustainable indicator for EVs using the fuzzy logic method, providing the public with information to make sustainable decisions. The fuzzy logic calculations were performed in MS Excel, utilizing pre-determined LCA values (ESM/PSM engines) and range data from personal calculations. By assigning text output values to each product carbon footprint (PCF) and performance value using fuzzy logic, the results demonstrate that fuzzy outputs for 400-450-500 CO2e kg PCF values and 450-500-550 km/charge capacity values yield "sustainably adequate" indicator value outputs, supporting the sustainable product selection.

Keywords: Fuzzy logic, soft computing, LCA, sustainable indicator, EV, emission reduction, product carbon footprint

Identifying Determinants of Corporate Green Initiatives in the MENA Region

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Abstract
Navigating the intricate puzzle of implementing green initiatives while contending with various challenges, the Middle East and North Africa (MENA) region emerges as a crucial economic hub, striving to harmonize sustainability with progress. This research aims to identify and assess the principal determinants of firm-level green initiatives and investments at the corporate level in the MENA region. Through a combination of quantitative analysis and qualitative interviews, the research identifies key findings. The research design involved an analysis of a comprehensive sample comprising 5,484 companies derived from the EBRD EIB-WBG Enterprise Surveys. Additionally, in-depth

interviews were conducted with three experts to gather valuable insights. The statistical analysis of the probit regressions uncovers the considerable influence of defined variables, namely technology, financial performance, firm size, board political affiliations, and sector influence, on driving sustainability initiatives within companies. In contrast, the impact of gender representation on the boards of companies appears to be relatively less significant in relation to sustainability outcomes. The qualitative analysis highlights sustainability challenges, the role of government, and the importance of long-term thinking and sustainable education. The findings of this study could be used to inform policy decisions, corporate strategies, and future research on corporate sustainability practices in the region emphasizing the need to address gender disparities, enhance governmental support, and foster sustainable education in the MENA region.

Keywords: Management, Corporate, Sustainability, Determinants, MENA, Policies, Initiatives

Renewable Energy and CO_2 Emissions: A Comparative Study of EU Countries

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Abstract

The transition to renewable energy is crucial for mitigating climate change and achieving global sustainability goals. The 2015 Paris Agreement set ambitious targets to limit global warming, emphasizing the need to reduce carbon emissions and shift toward cleaner energy sources. Within the European Union (EU), countries have adopted varying approaches to decarbonization, influenced by their geographical location, natural resources, economic development, industrial structures, and energy policies.

By analyzing recent statistical data of EU countries, this research aims to determine whether more developed economies, with greater resources for renewable energy investments, show stronger progress in reducing emissions than less affluent EU nations. The study also examines the role of policy frameworks, technological advancements, and historical energy dependencies in shaping national emission trends.

Understanding these dynamics is essential for shaping effective climate policies at both national and EU levels. While wealthier countries may have more opportunities to invest in green energy, the success of the energy transition depends on ensuring that all member states, regardless of economic status, can contribute to a sustainable future. Identifying best practices and addressing structural challenges will be key to meeting the EU's long-term climate targets. This research highlights the importance of tailored strategies that support equitable progress toward a low-carbon economy, reinforcing the EU's role as a global leader in climate action and demonstrating how international cooperation can accelerate meaningful environmental change.

Keywords: renewable energy, CO_2 emission, decarbonisation, EU

LABOUR MARKET, EDUCATION AND TRAINING SESSION

Chairs: Dr. T. Judit Kiss, Prof. Dr. Imre Kocsis

The Influence of Satisfaction Factors on Employee Satisfaction of a Diverse Workforce Local Authorities

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Abstract
Background: Local authorities have a diverse composition of workforce in terms of skills (skills set diversity). Further to this skills diversity in the workforce, there is also diversity in terms of positions, which dictate career progression or otherwise. In light of these pertinent factors, would it therefore not be possible that the diverse workforce, with different set of skills (skilled) or none (unskilled), their satisfaction is influenced by differing satisfaction factors. Which begs the question of how the tangible and intangible satisfaction factors influence employee satisfaction of the diverse workforce. In particular, is there a combination of these factors that can assure employee satisfaction.
Objectives: The paper seeks to investigate (1) the effect of tangible and intangible factors on employee satisfaction of skilled employees (2) the impact of tangible and intangible factors on employee satisfaction of unskilled employees (3) whether the cohorts of employees are affected the same way by the employee satisfaction factors (4) whether there is mix of tangible and intangible factors that best achieve employees' satisfaction for each cohort of employees.
Methodology: A systematic literature review approach is utilized for this study. Studies that emphasized the relation between employee satisfaction as relating to skill set diversity and employee satisfaction in general are the interest of this paper.
Findings: It is hoped to be proved by this study that tangible and intangible employee satisfaction factors impact, amid differently, employee satisfaction of skilled and unskilled employees. Also develop a mix matrix of tangible and intangible factors affecting each cohort of employees.
Research Implications: The limited literature on employee satisfaction as relating to workforce diversity presents an opportunity for more investigations into the interrelations between employee satisfaction with the diversity concepts such as age, gender, skills, to mention a few.

Keywords: Employee Satisfaction; Satisfaction Factors; Workforce Diversity

Enhancing Students' Soft Skills Using AI in LSP Courses

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Abstract

Besides linguistic skills, language for specific purposes (LSP) courses provide ideal grounds for developing employment or entrepreneurial skills. Within these labour market competencies, soft skills enjoy special importance, as they are not attached to a specific job. These non-domain skills include decision-making, emotional intelligence, adaptability, planning, organisation, collaboration, problem-solving, negotiation, presentation, intercultural and IT skills, which employers increasingly seek when recruiting new staff. The presentation explores the transformative role of AI in developing the essential soft skills of business and management students following a constructivist school of thought methodology. The aim of this presentation is to foster the development of soft skills, attract attention to the ethical application of AI technologies, and support their integration in the curriculum in a productive manner. We are convinced that the use of AI tools contributes to effective lesson planning and interactive activities, creating a supportive learning environment. The onsite discussions, debates and reflective practices create excellent speaking opportunities, provide room for communication practices, develop critical and entrepreneurial thinking, analysis and collaboration skills, and promote imagination, making learning more engaging and impactful. Role-playing and gamification effectively cultivate problem-solving, communication, collaboration and leadership skills. Cloud-based collaboration tools, project management softwares, video conferencing platforms and virtual collaboration projects enable real-time discussions and brainstorming sessions, allowing students to collaborate effectively despite the physical distance. By integrating these technologies into LSP courses, educators can create an up-to-date learning environment that harmonises with the demands of the 21st-century labour market while improving students' soft skills effectively. In this new platform of learning, instructors should adopt new roles: they are expected to be moderators and coaches and not information providers.

Keywords: soft skills, artificial intelligence, LSP, language teaching

Development of Soft Skills in the Advanced Engineering Courses and in the Basic Courses – a Case Study

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István Balajti, associate professor (retired), University of Debrecen, Faculty of Engineering

Abstract
In a recent research, the authors developed a method to improve some engineering soft skills and applied it in the context of advanced undergraduate engineering courses. The results and conclusions of the educational experiment are discussed on the basis of individual and focus group interviews. A main conclusion was that the efficiency of personality development concentrated in the last semesters of education is not effective enough due to students' lack of experience in this area. In order to improve the method, the timeframe was extended to the earlier stages of education. The adapted elements of the method in basic subjects such as engineering mathematics are presented.

Keywords: soft competecy development, engineering education

The Youth Guarantee Programme, its Past, Present and Future in Hungary

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Abstract
The Youth Guarantee programme is a European Union initiative that aims to help reduce youth unemployment.The idea of the Youth Guarantee programme arose in the decision-makers of the European Union after the economic crisis of 2008, which seriously affected young people, who are already a disadvantaged group in the field of the labour market. In 2013, the European Council adopted the Youth Guarantee programme, according to which all young people under the age of 25 must be given the opportunity for employment, further education or professional training within four months of leaving the education system, thereby facilitating their placement on the labour market. In Hungary, the programme came into effect in 2014, and since then it has been implemented continuously. In my analysis, I present the development, past, present and current situation, future prospects of the programme, referring to the scientific sources that published the related results.

Keywords: Youth, employability, labor market, training, wage subsidies, mobility support

How Gen Z Is Shaping the Future of Workplace Wellbeing

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Keywords: Generation Z; Future workforce; Employee wellbeing; Career trends

Generation Z in Higher Education and the Job Market: the Role of Conscious Life Planning, Motivation and Innovation

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Abstract

The unique educational experiences and labour market expectations of Generation Z require new strategies for educational institutions and organisations. This generation sees self-actualisation, personal development and a commitment to a sustainable future as their most important motivating factors, which fundamentally shape their expectations and needs in both education and the world of work. The study will describe the specific characteristics of this generation, with a particular emphasis on the role of conscious life planning, which is essential to achieve their long-term professional and personal goals. It will also highlight the effectiveness of university coaching and mentoring programmes in developing orientation and self-awareness. The focus of the study will be on university coaching and mentoring programmes as a means of enhancing self-awareness, career orientation and long-term professional motivation. Research will highlight how these programmes can be integrated into education systems and the process of entering the job market. The study will also explore the opportunities and challenges of intergenerational cooperation, emphasising the long-term impact of coaching and mentoring in renewing organisational culture. University coaching and mentoring not only underpins generational success, but can also make a significant contribution to the development of innovative organisational strategies that support sustainable development.

Keywords: generation Z, awareness, coaching, education, job market

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28 March 2025 (Friday)

SUSTAINABILITY II SESSION

Chairs: Dr. Tünde Jenei, Dr. Herta Czédli

Sustainability in Surface Pre-treatment to the Phosphating of Steel Parts with Various Additives

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Tamás István Török, Professor Emeritus, University of Miskolc, Institute of Chemical Metallurgy and Foundry Engineering

Abstract

In the automotive industry, a coating system contains up to six layers which is applied to the surface of steel components. The exterior layer is a transparent layer, beneath which is a colored coating, possibly with metal particles, and the coating system also includes a primer layer. The primer layer is an electro-deposited (ED) cathodic electrophoretic (KTL) coating. Below the KTL paint coating there is a phosphate conversion layer, which is an activating thin layer, whose thickness is not typically measured on its own and is usually composed of titanium or zinc compounds.

Various demands have emerged regarding to the conversion layer, with chromates and heavy metals, as well as heavy metal sludge, being pushed into the background due to their environmental impact. Additionally, there are requirements concerning energy consumption. Phosphating agents with various additives may offer a solution, as they can create a ferrous phosphate or aluminum phosphate conversion layer on the surface, depending on the base metal type.

On Q-panels (steel plates), I have created a ferrous phosphate conversion layer using a phosphating agent containing various additives. Literature also mentions accelerators related to phosphating, primarily in zinc phosphating, where a crystalline phosphate layer forms on the surface of the substrate. In tricationic zinc phosphating, the phosphating agent contains heavy metals (Mn, Ni, Zn), and Ni, as a carcinogen, is listed on the REACH list. During ferrous phosphating, I primarily investigated a very thin, nanolayer-thick conversion layer formed using a molybdate-additive phosphating agent. SEM images showing the morphology did not reveal crystalline characteristics, but the EDS analysis of the amorphous-like deposits showed that P, O, and Mo are evenly distributed. Based on the atomic percentage compositions of O, P, Mo, and Fe provided in the eZAF table, it can be stated that the dominant components of the surface are oxygen-containing phosphate and molybdate precipitates.

The literature does not mention the Mg-nitrate additive phosphating agent; however, based on my experiments, it can be stated that with the addition of Mg-nitrate at concentrations of 0.105 g/L and 0.210 g/L to the phosphating solution, a conversion layer was formed on the steel substrate surface, which provided good results in the corrosion test after KTL coating. According to the results of the corrosion test conducted according

to ISO 9227, on the KTL-coated Q-panel, the degree of under-rusting along the cross-scratch was found to be a maximum of 2 mm.

The phosphating agent with Mg-nitrate accelerator does not contain heavy metals, and the results from the experiments are promising.

Keywords: additives, sustainability, phosphating, accelerators, conversion layer

Sustainability Assessment of the Injection Moulding Process from an Environmental Management Perspective

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Viktoria Mannheim, Associate Professor, University of Debrecen, Faculty of Engineering, Department of Engineering Management and Enterprise

Abstract
Injection moulding technologies have received particular attention in recent years, accounting for more than 30% of plastics processing. At the same time, life cycle assessment is increasingly being used to analyse the environmental impact of different plastic product technologies.
Life cycle assessment (LCA) is a method that examines the environmental impacts of a process, product or service over its entire life cycle. The most optimal LCA approach is cradle-to-grave; from the extraction of raw materials through the product manufacturing and use phases, to the end of life.
In my research, I investigate the injection moulding process of polyethylene bottles by life cycle assessment, setting up and testing several scenarios. I apply the life cycle assessment methodology according to the recommendations of ISO 14040, ISO 14044 and ISO 14067. In the injection moulding technology studied, I simulate the production of 28.5 kg of polyethylene product from high-density polyethylene granules, which is practically 100 pcs of 3 dl bottles in a single shift. The main objective is to determine the values of material and energy use, emissions and each environmental impact category for different scenarios. During my calculations with the GaBi 9.2.1 thinkstep LCA software, I keep several 9R strategic aspects in mind in order to set up a more optimal scenario.
My research results show that if I apply the looping method to the production process (scenarios II and III), the environmental impacts are lower than for the case without looping method (scenario I). In the case where the looping method is applied not only to the production rejects but also to the cooling water that forms the grey water stream (scenario III), a more intensive reduction of environmental impacts is observed, in particular for marine, freshwater and human ecotoxicity. However, the change in global warming potential and fossil abiotic depletion is also striking. The latter value is 97% for scenario I and 78% for scenario III compared to the total effect.

Consequently, the return of plastic scrap and greywater into the manufacturing process represents the most favourable solution both in terms of environmental impact and resource utilization.

Keywords: sustainability; life cycle assessment; injection moulding; environmental impacts

Sustainable Urban Well-being: the Environmental and Human Aspects of Urban Habitats and Lifestyles

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Zsolt Varga, associate professor, University of Debrecen, Faculty of Engineering, Department of Civil Engineering

Abstract

By 2050, 75% of the population is expected to live in cities, and urban infrastructure will grow in parallel. In addition to the many social and economic benefits of urbanisation, there are also serious environmental problems that affect the quality of life, health and well-being of urban dwellers. Maintaining, improving and optimising urban quality of life and well-being is a complex process. Indicators of environmental quality are receiving increasing attention today, as the state of the urban environment, the availability and quality of green spaces determine the competitiveness and attractiveness of a municipality and the health of its inhabitants. Harmonious land use is the basis for successful ecological urban planning. In Hungarian cities, a wide spectrum of community dynamics can be observed in relation to the inhabitants and the urban organisms that interact with them. The analysis of trends in human-environment interaction in urban environments also highlights the direct and indirect health-related impacts of climate change. For urban populations disconnected from the natural environment, available and accessible green spaces are increasingly popular as they have a positive impact on health and mental well-being. Sustainability depends on maintaining the balance of the ecological-natural system and creating a mosaic of spaces that allows for self-development. Important components of the urban ecosystem include urban natural habitats, parks, private gardens, urban balconies, balconies, roof terraces, etc. For modern 21st century city dwellers, creating a green environment is an increasing challenge, especially where space is very limited and in many cases only a few square metres of balcony or, in the absence of a balcony, a single flower box, can provide the opportunity to connect with the living environment and create their own urban green micro-habitat. In this context, we considered aesthetic, microclimatic and human health benefits and investigated the biodiversity-ecosystem service- climate regulation linkages of micro-sample areas-balconies in the city centre of Debrecen from the human aspects.

Keywords: Sustainable urban wellbeing - urban habitats, environmental and human aspects of urban living

The Impact of the Cement Industry in Hungary and Baranya County in the Context of the Just Transition Fund

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Pongrácz Attila, associate professor, University of Szeged

Abstract
As a new instrument of Cohesion Policy, the Just Transition Fund (JTF) was introduced in the 2021-2027 programming period as the first pillar of the Just Transition Mechanism under the European Green Deal. Its primary objective is to support the European Union's transition to climate neutrality by 2050. The fund focuses on providing assistance to regions facing significant social and economic challenges in transitioning to a climate-neutral economy. The JTF specifically targets regions and sectors most affected by the transition, particularly those with a high dependence on fossil fuels such as coal, peat, and oil shale, as well as carbon-intensive industrial processes. While the fund does not directly finance the transition to climate neutrality, it plays a crucial role in facilitating the process. In Hungary, three counties—Baranya, Borsod, and Heves—are eligible for support under the JTF. This study focuses on Baranya County, which qualifies as a beneficiary region due in part to the presence of the cement industry.
Historically, Baranya County was among the top five most prosperous counties in Hungary, primarily due to its mining sector. However, following the decline of the mining industry, the local economy failed to undergo successful restructuring. In terms of per capita investment, Baranya significantly underperforms compared to the national average, with a continuing downward trend. The Territorial Just Transition Plan has identified the cement and limestone industry as the county's largest source of CO_2 emissions.
This research explores the market impact of key players in the cement industry as central stakeholders of the JTF. It examines the multinational corporations operating in Baranya County, analyzing their size, international significance, and business operations. Furthermore, it assesses the impact of this industrial segment, as well as the implications of the supplementary mining royalty and CO_2 tax regulations, on both the national and county-level economy and construction segment.

The Need and Methodological Framework for Pre-scoring of Suppliers in Relation to ESG Disclosure

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Abstract

For organisations who are subject to ESG regulation, be it from the European Union (CSRD, Corporate Sustainability Reporting Directive, 2022/2462) or the Hungarian one (ESG Act, Act CVIII of 2023), the analysis of the supply chain and their involvement in the ESG disclosure process, is a key focus. The reporting organisation must have a wealth of information on its suppliers, which they provide on a self-declaration basis. One issue in ESG reporting is the availability and reliability of information from suppliers. Our work addresses the question of how a preliminary ESG assessment of suppliers can help the reporting company, which can be carried out by the company itself. In our work, we provide methodological guidance on how a company can assess its suppliers in a simple and reproducible way, according to criteria that are consistent with ESG logic, in order to understand the ESG risks posed by suppliers.

Keywords: ESG, scoring, supplier, ESG act, risk management

The Right and Role of Stakeholders in Relation to ESG Disclosure

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Judit Futó, lecturer, University of Debrecen, Faculty of Economics and Business, Institute of Economics

Abstract

The consideration of stakeholders in organisations is not a new issue, as the need to identify, assess and involve them has arisen in a number of areas since the emergence of stakeholder theory. Stakeholders have a particular importance in the case of corporate environmental, social and sustainability activities, if we see, among others, of the relevant international standards, such as the ISO 14001 standard for environmental management systems, or the ISO 26000 standard for social responsibility guidelines, or even the GRI standards for sustainability reporting. However, today it is also important to look at what the ESG framework (legal environment) says and expects in terms of stakeholder engagement and cooperation. In our work, we will explore the definitions and expectations of the CSRD (Corporate Sustainability Reporting Directive, 2022/2462), the ESRS (European Sustainability Reporting Standards, 2023/2772) and the Hungarian ESG

law in relation to stakeholders. In our research, we investigate how stakeholders are represented in the published reports of a sample of Hungarian companies who are covered by the Hungarian law of ESG, focusing on the evaluation criteria, which are following stakeholder identification and stakeholder's role in the materiality analysis.

Keywords: interested party, stakeholder, ESRS, ESG

MANAGEMENT AND ORGANISATION SCIENCE II SESSION

Chairs: Prof. Dr. Edit Szűcs, Dr. Klára Bíró

The Role and Challenges of Quality Assurance in the Light of Model Change

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Edit Gizella Szűcs, full professor, University of Debrecen, Faculty of Engineering, Department of Engineering Management and Enterprise

Abstract

The model change in Hungarian higher education in 2020 brought significant changes in the operation of institutions, which also brought the review of quality assurance systems to the fore. The new maintenance structure and the introduction of performance-based funding emphasise the importance of quality assurance principles as key to raising the quality of education and ensuring student satisfaction. The aim of the presentation is to illustrate the role and challenges of quality assurance in the model-changing Hungarian higher education institutions, highlighting the case study of the University of Debrecen.

The research examines the use of quality assurance systems such as Total Quality Management (TQM) and EvaSys software for collecting and analysing student feedback. The presentation will highlight the impact of quality assurance principles in different areas of university operations, such as measuring teaching performance, monitoring student satisfaction and identifying opportunities for improvement.

The second part of the presentation will focus on the difficulties of integrating quality assurance systems, in particular the low rate of student participation in feedback processes and the problems of adapting to the new maintenance structure. The aim is to suggest possible improvements that could contribute to raising the quality of education and increasing the competitiveness of institutions.

Finally, the presentation will highlight how the proper implementation and continuous improvement of quality assurance systems can contribute to the sustainable development and international competitiveness of Hungarian higher education.

Keywords: Student satisfaction, Evasys, Quality policy, Strategic management, Accreditation

The Relationship between Leadership, Organization and Quality Management

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Edit Gizella Szűcs, full professor, University of Debrecen, Faculty of Engineering, Department of Engineering Management and Enterprise

Abstract
The research is based on a systematic literature review, revealing the close relationship between quality management, leadership, and organizational performance. The findings highlight the crucial role of leadership and its strong connection to organizational culture in ensuring the success of quality management. The analysis also confirms that quality management systems and frameworks, such as ISO and the EFQM model, effectively support strategic planning and sustainability, providing guidance for modern organizations. The results emphasize the significance of digital transformation and knowledge management, while also identifying future research directions that can contribute to enhancing organizational productivity.

Keywords: quality management, leadership, organizing, organizational culture, sustainability

Improving Quality and Reliability through Compliance

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Abstract
The research demonstrates the role of compliance risk management frameworks in improving quality management, risk reduction, and reliability. It highlights how systematic compliance processes (e.g., risk assessment, incident management, monitoring) contribute to better business outcomes. Based on a literature review and case studies, we examine the application of compliance frameworks. The research examines the integration of reliability-centric maintenance (RCM), risk-based maintenance (RBM), and compliance management systems (CMS). The risk and reliability-centered maintenance methodology eliminates redundancies, reduces engineering workload by 45-50%, and achieves significant financial savings. Although CMSs help reduce violations and promote a culture of compliance, their effectiveness depends on complementary factors such as management attitude, organizational culture, and advanced information systems. Compliance frameworks improve quality and reliability by helping to identify risks, foster discipline in operational processes, and ensure compliance with regulations. Key benefits include enhanced information flow, clear lines of responsibility, and a culture of accountability. This improves resource utilization and eliminates redundancies. When implemented effectively, compliance frameworks contribute to consistent quality, ensure sustainable practices, and are key to increasing operational reliability and reducing various business vulnerabilities. The research demonstrates how business processes can be improved through compliance risk management.

Keywords: compliance risk management, quality management, reliability-centered maintenance

Risk Assessment Based on Pairwise Comparison - a Potential Development for PRISM Method

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Abstract
The disciplines of decision theory and risk assessment have become nowadays inseparable pairs in the world of practical risk management. The family of pairwise comparison techniques is constantly expanding, and today the number of risk assessment methods that also use pairwise comparisons has also increased significantly, which allow us to make more comparable and ultimately more accurate conclusions about operational risks. Failure Mode and Effect Analysis (FMEA) is a risk assessment methodology that can be considered fundamental in terms of both scientific and practical applications, while Partial Risk Map (PRISM) can be considered as a young risk assessment methodology. The common feature of both methods is that they can be well combined with methods based on pairwise comparisons and that certain combinations also have substantial practical relevance.
In this paper, I would like to briefly summarize the significance of pairwise comparison methods in risk assessment processes where there is significant space available for the evaluator's subjective opinion formation. I will briefly introduce the possibilities offered by the Guilford method, the AHP (Analytic Hierarchy Process) and the BWM (Best-Worst Method) methods and the ways of combining them with the partial risk map method (PRISM). My aim is to show what possibilities, advantages and disadvantages each methodological combination has, under what environmental conditions which combination is worth applying during practical analyses, where the most important advantages of the methods can be felt, compared to other methods. In cases where practical application results are already available, I will try to provide a deeper practical insight into these.

Keywords: risk management, FMEA, PRISM, Guilford, AHP, BWM

The Change of Motivation in the Hungarian Northern Great Plain Region

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Abstract
Forcing someone to subordinate their own needs to an organization and make efforts for it is called motivation. I assumed that the toolkit of employee motivation has not changed significantly over the years. My research focused on employee motivation in the Hungarian Northern Great Plain region. Although this is the second most populous region, this does not imply uniform development. It is likely that employees in tourism, mining, organizations related to electric vehicle production, or even in the food industry are motivated by different factors. The changes observed in the economy and society are diverse, raising the question of whether they have altered the applied and applicable motivational strategies. Has the 21st century influenced how leaders and employees perceive motivation? I am fortunate to be able to repeat my motivational research periodically since the early 2000s. Our survey uses questionnaires and professional interviews to examine how leaders and subordinates perceive the motivational tools we provide. By comparing the perspectives of employees and managers, we can identify which factors show discrepancies and to what extent.
We have collected results from organizations engaged in various economic activities within the region. Based on the conducted research, it can be stated that the motivational tools used by the examined organizations have not fundamentally changed in recent years. Financial incentives and job security alternate as the most dominant motivational factors. Labor market fluctuations, such as labor shortages or surpluses, complicate the situation. Expectations between employees and employers also shift.
At times, employees desire a humane leader, while at other times, job stability and a steady income are their primary concerns. Over time, it seems that there has been no fundamental change in applied motivation - only the methods may appear new.

Keywords: motivation, motivation management, HR

Analysis and Assessment of Hungary's Fiscal, Monetary Policy and Administrative Responses to the Effects of the Russian-Ukrainian Conflict

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Abstract
On 24 February 2022, Russian units crossed the administrative borders of Ukraine from several main directions in a special military operation. This had several direct and indirect consequences. In addition to the short and long-term economic effects, there were a number of social and geopolitical impacts that have had and continue to have an impact on the economies of neighboring countries, European trade, and the global market. The economic impacts of the Russia-Ukraine conflict and the response to it have been the result of sanctions measures, economic and market restructuring, funding of relevant humanitarian assistance - see the refugee shoulder - and various EU protection assistance.

The justification and timeliness of the choice of topic is justified by the Russian aggression since 2022 and the geopolitical and economic changes that have taken place since then.
The aim of the paper is to present the economic impact of the Russian-Ukrainian conflict, the market consequences of the sanctions regimes, the effects on unemployment, tourism, agriculture, energy security (energy prices, markets, supply chain), fiscal (budgetary) and monetary policy. In response, describe the steps taken to stabilize the economy through monetary and fiscal instruments, the causes affecting economic growth, the applicability of some methods of economic protection, and new theoretical and practical tools emerging in economics.
The author pays particular attention to analyzing the effects on the Hungarian economy, characterizing trade, financial (interest rates, lending, investment), country risk (exchange rates, yields), other sectors of the supply and production chain, and assessing the fiscal and monetary policy options employed, the general characteristics of solidarity activities, economic relations, the Hungarian government's aid and assistance programs, the measures taken by the Magyar Nemzeti Bank, the discourse of Hungarian economists, the (public) administration, economic and social analysis of the proposed packages of measures.
To this end, the rapporteur will examine and evaluate reports from the European Central Bank and the Magyar Nemzeti Bank, statements by various European Union bodies and the Hungarian government, legal measures, documents, research results from economic research institutes, international and Hungarian literature, and analyze infographics and data from the European Union website.

Keywords: conflict; fiscal and monetary policy; administration; economic policy, public administration

The Role of Airlines in Sports Sponsorship

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Csaba Hédi, associate professor, University of Miskolc

Abstract
The close relationship between global sporting events and airlines has long been recognized as a strategic alliance that helps increase the brand value of both parties. Sports sponsorship as a marketing tool enables airlines to broaden their target audience, increase their brand awareness and deepen their customer relations.
The start of airline sponsorship in sports roughly coincides with when sports really became a business.
When it comes to sports sponsorship, airlines are in a unique position as their products and services are directly linked to the global nature of sporting events.
In this thesis, we examine the sponsorship perception and methods of the most important participants in this industry in the field of sports. finally, we try to draw conclusions about

how profitable it is for these business actors to carry out sponsorship practices in the field of sports.

Keywords: sports sponsorship, airline, brand building, solution systems, sports economy

The Revenue Distribution Mechanisms of UEFA's Club Competition Systems

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Abstract
The European football competition systems organized by UEFA are undergoing significant transformation, influenced in part by the announcement of the European Super League in 2021. Although the Super League concept was not realized due to protests from fans and stakeholders, UEFA was compelled to implement reforms. Changes were introduced in the 2024/2025 season to the structure and revenue distribution systems of the Champions League, Europa League, and Conference League. The aim of this paper is to provide a detailed analysis of the financial processes within these systems, with a particular focus on the payments allocated to participating clubs. In my opinion, sports fans are generally unaware of the distribution mechanisms, and this paper seeks to address that gap.

For my research, I conducted secondary data collection based on the UEFA Club Financial Report and official UEFA briefings. I examined the systems of the Champions League, Europa League, and Conference League with respect to the 2023/2024 season and the new structure for the 2024/2025 season. This paper pays special attention to how the evolving competition structure impacts the share allocated to clubs.

My findings indicate significant differences in the revenue distribution systems across the various competitions. Participants in the Champions League, Europa League, and Conference League receive revenue from four primary sources provided by UEFA: participation fees, performance-related payments, coefficient-based distribution, and market pool revenues. The variable coefficients, as well as the broadcasting market share of a club's home country, affect the size of the clubs' revenues. These four pillars were transformed for the 2024/2025 season into three, with the reworking of coefficient and market pool revenues. In the Champions League, clubs can access more than four times the amount available to those in the Europa League. The amount available in the Conference League is significantly lower, almost one-ninth of the Champions League payments.

In conclusion, UEFA's evolving competition systems and revenue distribution mechanisms will continue to have a significant impact on the financial situation of European football clubs. The rethinking of the competition structure has also led to an

increase in the number of matches, and clubs and players have limited capacity in this regard. The reforms were partly driven by external pressure, so further changes can be expected in the future, which could even lead to the establishment of a competition system similar to a European Super League.

Keywords: UEFA, Champions League, revenue distribution, competition reform, European Super League

INNOVATION, DIGITALIZATION, STRATEGY AND LOGISTICS SESSION

Chairs: Dr. István Budai, Dr. Szabolcs Kiss

The Overview of Electromobility in Hungary – Focus on Debrecen and Its Region

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Abstract
In recent years, alternative transportation solutions have gained increasing prominence worldwide, significantly influencing consumer car purchasing habits. As a result, electric vehicles have become key players in the global automotive market, primarily due to their role in reducing harmful emissions.
In my presentation, I will explore the main factors driving the spread of electric cars, their market trends, as well as their advantages and disadvantages. One of the most crucial factors behind this growth is the significant technological advancements achieved by automakers in recent years, making both vehicles and production processes more efficient.
I will highlight the developments that have improved the performance, range, and manufacturing costs of electric cars. Special attention will be given to Debrecen, where substantial investments have been made in the industry, contributing to technological progress and the expansion of sustainable transportation.

Keywords: electromobility, innovation, sustainability, electric driving, BMW

The Most Important Factors Influencing the Minimalization of Transport Costs of a Company Settling Down in a Given City

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Abstract
A company's operation involves quite a few costs, which can vary depending on the given industry and scope of activity. The general cost structure is mostly the same for all companies, as material costs are 30-40%, personnel costs are 20-30%, transport and logistics costs are 30-40%, while other costs are 20-25%. These proportions may vary by company type, but the general trend is that production, labor and transport costs make up the largest part of the cost structure (marketing, research and development and financial costs have a smaller share). It is important for companies to continuously

monitor the costs that represent a larger proportion and, if necessary, optimize them in order to remain competitive and maintain their profitability. It can therefore be seen that transportation costs are one of the most critical factors in the operation of a given company. The majority of the costs incurred today are due to changes in fuel prices, route optimization, vehicle fleet efficiency and the use of digitalized logistics systems. Of course, the continuous change in the rate of inflation and proper compliance with environmental regulations pose challenges for companies. That is why it is advisable to examine, through specific examples, what new solutions are appropriate for operating companies (including the possibilities of involving electric vehicles in transportation). In my research material, I present the possibilities for reducing the transportation costs of a given company in today's fast-paced world, while the company can maintain or even further increase its operational efficiency (or reduce its environmental burden). Since transportation costs are important in a company's life not only because of the direct costs, but also because they are crucial for competitiveness, optimizing logistics costs is crucial to the success of companies.
Keywords: costs, logistics, transport, digitalization, optimization, competitiveness

Reducing the Changeover Time of Die-cutting Machines with Lean Methods, or the Implementation of SMED in the Printing Industry

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Abstract
In our research, we sought an answer to the fact that savings can be achieved without major automation or investment in machines, only by reviewing the transition process, redistributing work tasks and rationalizing tasks.
Among the printing industry activities, the focus of the investigation was the cutting processes. The development was based on inadequate utilization of the cutting equipment. During our work, we first recorded its current state and the activities during the transition.
Starting from the current situation, based on the observations, solutions promoting change are defined, which, in consultation with the company's experts, are implemented as countermeasures, depending on feasibility and effectiveness, after the selection of the appropriate direction.
In connection with the process development, their practical introduction was successfully contributed to the rapid transition SMED with the help of the involvement of the employees. We also carried out profitability studies of the process development, on the basis of which it can be stated that the development will pay off in the short term.

Keywords: lean, smed, printing industry, die cutting

Strategic Challenges in the Dairy Sector

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Dániel Péter Kovács, PhD students, University of Debrecen, Faculty of Agricultural and Food Sciences and Environmental Management

Abstract

Globally and in the EU, one of the biggest challenges for the dairy sector is sustainability, which is becoming a basic requirement in both milk production and processing, primarily due to its own ESG and Carbon reduction commitments. The situation is further complicated by the extent to which economic efficiency, labor shortages, concentration, and regulatory uncertainties can be influenced in the future with the help of precision technologies and artificial intelligence, and how all this is reflected in the strategy of the sector and the farms.

Keywords: climate change, ESG, precise farming

Strategic Management of Road Freight Transport: Challenges and Development Directions in Hajdú-Bihar and Bihar Counties

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Beáta Bittner, associate professor, University of Debrecen, Faculty of Economics and Business, Institute of Economics

Abstract

Effective strategic management is a key aspect of the way companies operate, responsible for the functioning, optimisation and competitiveness of the whole system in rapidly evolving markets. The present study focuses mainly on strategy in relation to road freight transport in the counties of Hajdú-Bihar and Bihar. It aims to examine the factors that may have a significant impact on it, to show how road freight transport statistics have evolved in these areas in recent years, to describe the challenges and changes, and to present the macro and micro environment using PEST analysis. The macroeconomic analysis has highlighted the significant negative impacts on road hauliers in some areas, both in terms of the number of businesses and the volume of goods transported.

Keywords: strategy, logistics, road freight transport, transport, PEST analysis

LABOUR MARKET SESSION

Chairs: Dr. Judit T. Kiss, Dr. Andrea Munkácsi

Differences in Adult Education between the USA, the EU and Hungary

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Abstract
This paper explores the structural, cultural, and policy differences in adult education across the USA, the EU, and Hungary. While all three entities recognize lifelong learning as a crucial component of workforce development and social inclusion, their approaches differ significantly. This comparative analysis highlights how historical, economic, and institutional contexts shape adult learning systems and identifies best practices and areas for improvement in fostering accessible and effective adult education.
We focus for American IPC, JEDEC, ESDA, European ESD and Hungarian FAR system.

Keywords: IPC, ESD, adult learning, certificate

Career Aspirations of Young Students

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Abstract
There are different generations in today's labour market, with different expectations of work, employers and the working environment. The emergence of Generation Z in the labour market presents new challenges and opportunities for employers, education systems and economic policymakers. This generation is very different from previous generations, having grown up in the digital world and, thanks to the internet, being the first truly global generation. They have grown up in a culture where instant access to information, the natural use of technology and the ability to adapt to a rapidly changing environment have become essential skills. Today, it is clear that these young people think in fundamentally different ways, thanks to their environment and their constant interaction with it, their information processing processes. This is also true of their expectations and preferences in the workplace. While previous generations were more concerned with stability and long-term career development, Generation Z prefers flexibility, fast career development and autonomy at work, and they attach great importance to the workplace atmosphere. They tend to use their own intuition to guide their career choices. In our research, we investigated the labour market behaviour, work-

related attitudes and entrepreneurial propensity of Generation Z students new to higher education. We looked at the motivational factors and aspects that influence their career choices, their attitudes towards entrepreneurship and the competencies they consider essential for successful career development. Our research shows that the majority of young adults want to work in a domestic environment, but many are also open to short-term work experience abroad. We also sought to understand the challenges faced by employers and educational institutions in integrating Generation Z into the labour market and the strategies to respond effectively to these changes.

Keywords: career, employment preferences, generation z, entrepreneurship

Exploring the Opportunities and Challenges of Technological Development in the Field of Health Education

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András István Kun, Associate Professor University of Debrecen, Faculty of Economics and Business, Institute of Management and Organization Sciences

Klára Kalasné Bíró, Associate Professor, University of Debrecen, Faculty of Economics and Business, Institute of Health Economy and Management

Abstract

It has long been known that technological advancements can smooth out or diminish certain gender-specific differences. It is also a well-known saying that games prepare us for life. In healthcare, one of the most promising technological changes is robotic surgery, which can balance or reduce the significance of gender-specific differences. Our study aims to investigate these gender differences during the use of the equipment and whether manual hobbies provide an advantage in using the robotic surgical machine.

In our research, we examined the skills required for surgery, particularly robotic surgery. We paid special attention to covering a wide spectrum of medical students within the sample framework. The study included lower-year students without practical experience and training, as well as upper-year students who had participated in various surgical courses. We were also curious whether different manual activities, such as computer or console gaming, handicrafts, or playing musical instruments, as demographic background variables, could provide an advantage in performing the tasks.

The importance of the topic lies in the fact that healthcare worldwide faces human resource problems. Aging societies exacerbate the burden on healthcare and doctors. Training surgeons requires six years of general education, followed by an additional five years, meaning that a first-year student today can become a surgeon in eleven years at the earliest. Considering the statistical data that 40% of active doctors in Hungary will reach retirement age within ten years and the long training period, special attention must be paid to the efficient training of doctors, which must also keep pace with Industry 4.0.

Our hypothesis that advanced technology can equalize gender differences in physical abilities cannot be dismissed. Regarding our other research question, whether students with prior experience in manual dexterity activities perform better in robotic surgery exercises, our results indicate that the answer is no.

Keywords: Technological advancement, healthcare, skills, education

Evaluation of Labor Market Impacts of Technological Change among Economics Undergraduates

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Abstract

Technological advancement is comprehensively reshaping the labor market, fundamentally influencing job contents, employment opportunities, and the relationship between work and private life balance. Technological change particularly raises critical questions for young individuals planning their careers.

In our research, we used an experimental method involving 520 students from the Faculty of Economics and Business at the University of Debrecen. Using self-report surveys, students evaluated three labor market effects of technological advancement (creative, displacement, complementary), along with statements regarding employment, job roles, and work-life balance. After randomized grouping, some participants received descriptions focused on labor market conditions, while others received detailed information related job roles, followed by repeated measurements.

The results indicated that students most positively assessed the complementary effect, which pertains to support and optimization of work processes. Flexibility in work conditions also received favorable ratings, as did the increasing demand for higher qualifications. However, evaluations related to job creation and employment opportunities remained lower. After the professional descriptions were provided, perceptions slightly improved - for example, the evaluation of job creation increased from 5.38 to 5.95 (on a scale from 1 to 10). Respondents were optimistic regarding work-life balance, particularly about future flexibility in workplace locations. The positive appraisal of work-friendship balance suggests confidence in technological advancement's role in enhancing human relationships.

Future research should involve deeper analysis of the specific sectoral impacts of technological changes and examine the responses of diverse socio-demographic groups. An additional recommendation is the development of educational programs aimed at expanding technological competencies, which could facilitate students' adaptation to labor market changes.

Keywords: technological change; (job) creating effect; (job) destroying effect; (human labour) complementary effect

Labour Market Expectations from a Supply Chain Perspective

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Kirchner Barbara, Alumni, Corvinus University Budapest

Abstract
Due to its dynamic nature, supply chain management (SCM) is facing new challenges every year, such as rapid technological, social and economic changes, COVID and the increasing penetration of artificial intelligence. Closely linked to these changes is the transformation of the labour market, characterised by increasing competition, labour shortages and rising expectations of employees towards employers. At the same time, companies have an increasing need for a well-educated, efficient workforce that can adapt quickly to these changes and thereby increase their competitiveness. In our research, we investigated the expectations of employers in large companies with at least 250 employees in or around Budapest, operating in certain areas of the SCM. Using a mixed methodology, we monitored and analysed hundreds of job advertisements, participated in 3 face-to-face job interviews and synthesised our experiences to arrive at the following results.
In the SCM labour market, companies – to increase their own performance and hence competitiveness – are seeking to recruit workers with the skills and abilities to adapt easily to their rapidly changing and evolving industry. The information from the interviews suggests that soft skills, in particular, are often given higher priority than experiential knowledge. The four most important skills are language skills (92%), IT skills (75%), communication skills (66%) and problem-solving skills (42%). But autonomy, team player attitude, precision, organisational skills, analytical thinking, proactive attitude, systems thinking, flexibility, negotiation skills, results-oriented approach, accuracy and interpersonal skills also make the list of the most important skills. We believe that as artificial intelligence and automation take hold, competency expectations will continue to change as companies strive to keep pace with modernisation. As technology evolves, soft skills such as creativity, flexibility and the ability to quickly learn new technologies will become essential in the world of work, and Rádi (2024) believes that the ability to work with AI and human collaboration will be the most important competency that will give companies a competitive edge.

Keywords: labour market, expectations, fresh graduates, competencies, supply chain, higher education

SUSTAINABILITY II SESSION

Chairs: Dr. Viktória Mannheim, Dr. Ádám Novotny

Technical and Environmental Analysis of Filling, Labeling, Film Wrapping, and Palletizing Beverages in a Selected Company

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Abstract

The paper presents a technical and environmental analysis of the filling, labelling, wrapping, and palletizing of beverage bottles within one enterprise. The technical aspects of the processes were analysed in terms of efficiency, level of automation, and potential areas of optimization. The environmental analysis conducted using the SimaPro 9.6.0 program allowed to indicate which of the stages of the technological process constitutes the greatest negative burden on the environment and how changing the type of heat-shrinkable film for packaging grouped bottles contributes to reducing the harmfulness of the studied process. The study results allowed us to obtain practical recommendations for improving the sustainability of production within the studied enterprise.

Keywords: environmental analysis, technological process, LCA

What is the Impact of Green Technologies on the Performance of SMEs?

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Abstract

Global population is expected to increase significantly in the near future. It is therefore inevitable that global warming, deforestation, water pollution, biodiversity loss, excessive waste generation, and the use of chemicals will result in a decrease in productivity and availability of goods and services, at a time when their production will have to be increased. As a consequence, firms and industries receive special consideration, as they are considered to be the most responsible for perpetuating these problems, but they can also provide appropriate solutions. All businesses can have a significant impact on the environment regionally and globally. In developing economies, small and medium-sized businesses (SMEs) account for the majority of businesses, contribute a large number to national GDP and generate significant jobs, but they face fundamental problems that

adversely affect the sustainability of their businesses. They try to increase their performance and efficiency with consideration of environmental effect as a result of growing awareness of sustainability. A key objective for these firms is to implement green technology to become more sustainable in order to reduce negative externalities, meet governments' green requirements and satisfy consumers' demands. According to existing literature, green technology impacts the performance of firms. In this paper, we examined the relationship between dynamic capabilities, green technology and SMEs performance. These information can be used to determine the performance level of the SME, as an important part of economics, through green technologies. Further, it allows governments to draft policies that encourage companies to use green technologies and firms to implement green practices more efficiently.

Keywords: green technology, SME, performance, sustainability

Life Cycle Analysis of Different End-of-Life Scenarios for Wind Power Plant

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Weronika Kruszelnicka, Associate Professor, Bydgoszcz University of Science and Technology

Abstract

The intensive development of industry observed in the last century has caused an increased demand for energy in the world. The main source of energy in the global perspective remains fossil fuels, although they are being replaced by renewable sources and alternative fuels. Wind energy is currently one of the pillars of the renewable energy sector in Europe. Over the last 20 years, the number of wind energy installations, installed capacity and share in meeting energy demand have increased. This is due to the wide availability of wind resources, but also the lack of direct emissions to the air during the conversion of wind energy into electricity. However, wind energy is not completely emission-free. Emissions that burden the environment appear in the life cycle of these facilities, especially at the stage of production and post-consumer management of materials and components that make up power plants. The problem that the wind energy sector is currently struggling with is the post-consumer management of wind farm components and the selection of an appropriate end-of-life strategy that would be economically justified, but also from the point of view of reducing the consumption of raw materials, energy and environmental impacts in the life cycle. In relation to large-capacity wind farms, three end-of-life strategies are currently used: decommissioning, life cycle extension and repowering. In this paper, the life cycle analysis of wind turbines was performed, taking into account the three mentioned strategies, in order to indicate the potential benefits of implementing each of them. The analysis included determining the amount of carbon dioxide emissions at each stage of the life cycle, identifying materials

and components with the greatest environmental impact. The analysis showed that extending the life cycle through appropriate management of wind turbine modernization can contribute to reducing emissions in the life cycle.

Keywords: decommisioning, repowering, modernization, LCA

Life Cycle Management for Sustainable Food Packagings

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Liina Laumets, junior researcher, Tallinn Technical University

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Abstract

Berries, particularly blueberries, are highly popular due to their status as a superfood, attributed to their numerous health benefits. The health advantages of blueberries come from bioactive compounds that give the fruit its bluish-red colour, including anthocyanins, proanthocyanins, leukoanthocyanins, flavonoids, and their derivatives. Efforts are also underway to promote sustainability in blueberry packaging, focusing on choosing suitable materials. Ideal packaging should ensure the safe delivery of the fruit to consumers while maintaining product quality, addressing environmental concerns, and promoting circularity. The environmental impact of four different packaging materials was assessed using a comparative cradle-to-grave life cycle assessment. The materials evaluated included polypropylene (PP) as a control, a cardboard package (CB), a cardboard package with a cellulose lid (CBC), and a punnet made from rice straw topped with polylactic acid (RPLA), a bio-based plastic. The evaluation considered all environmental impact categories, utilizing GaBi 10.6 software and the CML 2016 method. Special attention was given to various end-of-life scenarios. This presentation summarizes the environmental impacts of the four packaging options, which will be analyzed as part of the cooperation agreement between the Estonian University of Life Sciences and the Hungarian LCA Center.

Keywords: Life Cycle Assessment; Life Cycle Management; Food packaging; Sustainability; Blueberries

Determinants of Electric Vehicle Purchase Intentions in Hungary

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Gedei Zalán, trainee, MBH Bank

Abstract
This study investigates the factors influencing Hungarian consumers' intention to purchase battery electric vehicles (BEVs) using Rogers' Diffusion of Innovations Theory, supplemented with variables such as environmental consciousness and social influences. A quantitative survey (N=110) assessed the impact of relative advantage, compatibility, complexity, trialability, observability, as well as environmental awareness and social norms on BEV adoption. The results show that relative advantage and social pressure have the strogest positive impact on purchase intentions. However, greater environmental awareness does not necessarily translate into stronger intentions, highlighting the dominance of economic and practical factors. Key barriers of adoption include high initial costs, range anxiety, and limited charging infrastructure, amplified by a lack of familiarity with EVs. Addressing these challenges through expanded charging networks, increased public awareness, and test-driving opportunities can boost adoption. This research offers valuable insights for policymakers, automakers, and other stakeholders seeking to promote sustainable transportation in Hungary, emphasizing the importance of practical and economic solutions to accelerate the transition to electric mobility.

Keywords: electric cars, consumer behaviour, Rogers' innovation diffusion theory, innovation adoption

25 Years of Eco-Innovation Research: Evolution, Key Trends, and Future Challenges

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Dr. Zoltán Gabnai, lecturer, University of Debrecen, Faculty of Economics and Business, Institute of Economics; HUN-REN-DE High-Tech Technologies for Sustainable Management Research Group

Edit Gizella Szűcs, full professor, University of Debrecen, Faculty of Engineering, Department of Engineering Management and Enterprise

Abstract
The European Union recognizes environmental sustainability and innovation as key drivers of economic growth, competitiveness, and environmental protection. To monitor progress in this area, the European Commission launched the Eco-Innovation Index in 2010, managed by the Directorate-General for Environment (DG ENV). The index tracks the performance of EU Member States in eco-innovation, evaluates their contributions to sustainable development, and helps identify best practices and lagging regions to support evidence-based policymaking.
This study, conducted in connection with the 2024 update of the index, analyzes the evolution of eco-innovation research over the past 25 years. Using bibliometric analysis

with the Biblioshiny application, the study examines data from Scopus and Web of Science to identify key trends and developments in the field.
The results reveal collaborative networks among authors, institutions, and countries, highlight the most influential journals in eco-innovation research, and trace the evolution of thematic areas over time. These insights offer valuable guidance for researchers, policymakers, and future scholars by mapping influential contributions, emerging research directions, and potential policy applications.

Keywords: eco-innovation, bibliographic analysis, biblioshiny, trends, development

DIGITALIZATION and INNOVATION SESSION

Chairs: Prof. Dr. Domicián Máté, Zsolt Buri

Gamification and Competence Development in Cyberspace in the Workplace

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Csukonyi Csilla, lecturer, University of Debrecen, Faculty of Humanities, Institute of Psychology

Abstract

The development of technology and digitalisation affects most aspects of our everyday lives. Even the workplace is not an exception. New opportunities arise, and new requirements need to be met. To look at an example of unique ways to work like remote working requires digital competencies and virtual collaborative and problem-solving skills.

As a result of the digitalisation process in organisations, gamification can be said as one of the phenomena that is attracting increasing attention at both national and international levels. It is said to be a powerful tool to motivate employees and help them find satisfaction in their work. It is important, however, to look at what makes a gamified system meaningful and to understand what makes gamification a double-edged blade. There are key factors like Play, Exposition, Choice, Information, Commitment and Reflection that should be implemented adequately to ensure a meaningful gamification system in an organization.

We will also look at the challenges that leaders face in the virtual environment as they are leading online problem-solving teams. To develop virtual leadership competencies, initiatives have been taken in the past involving simulations and video games as well. Some examples of these initiatives involve Virtual Leader, Infiniteams, World of Healthcraft and Full Spectrum Warrior, also taking a look at VR examples. The pros involve trying out and practising different leadership styles in a safe environment, trying out decision-making and problem-solving in different situations, cons include the fore-programming of these tasks, similarity of the situations and also transparent solutions.

In conclusion, we summarise further research directions and research questions that could be useful in this area.

Keywords: gamification, competence development, cyberspace, workplace, work and organizational psychology

Human Factor Issues of Autonomous Driving

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Győző Kurucz, senior lecturer, University of Debrecen, Faculty of Humanities, Institute of Psychology

Abstract

Concerns about autonomous vehicles are one of the major challenges of present and future technological developments. There are increasing expectations that autonomous vehicles will help solve safety issues in traffic, and transportation problems of the elderly, and will enhance the quality of public transport. On the other hand, there are serious concerns about information and software safety, legal aspects, and economic consequences, as well. Traffic Psychology has gained several decades of empirical results on road user behavior. These results highlighted human behavioral "errors" in various fields. Many studies focus on cognitive fields like attention, workload, memory, monotony, or stress tolerance. It has also been revealed that attitude and personality factors play an important role in our driving behavior.

We would like to give you an overview of the most concerned issues and problems of autonomous vehicles, which can be discussed from a psychological aspect, as well. Researchers are often interested in the willingness to use AVs, and the ability to predict acceptance and intention to buy. Behavioral intention, generally, can be predicted by attitudes, which was proven in autonomous vehicle research. These attitudes and intentions are highly affected by age, gender, personality, or attitudes toward technology. Furthermore, it is revealed that our feelings, hopes, concerns, or trust impact our behavior when driving or using autonomous vehicles. This can result in attentional problems, maladaptive reactions to unexpected events, or even misuse of autonomous vehicles.

We hope that these issues can help engineers better understand human behavior and human factor problems connected to human behavior.

Keywords: autonomous vehicles, human factor, traffic psychology

Robotisation in the Visegrad Four According to Macroeconomic Indicators

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Abstract

This research comprehends a theme that present people, regardless of their skills or their job title, cannot simply bypass. It is not sufficient only to acknowledge the existence of highly developing technologies, tools and methods, even in the case of a community of a company engaged in a sector of industry. People are showing more and more curiosity

about automation and the effect of it, mainly because it assists to the changes taken place in their formal working processes, and also in recent global economic conversions. The scale-shifting of industrial eras can be demonstratively seen within the borders of the Visegrad Four, as these countries constitute an economic unit that showed increasing performance in R&D, education and work during the studied period of 24 years from 1998 to 2021.
The aim of this research is to find connections between the growing numbers of robot installations in the V4 and such macroeconomic indicators like GDP, trade, wages, the education level of the employed besides much more factors that play important roles in the development of the V4's economy and industry.
Statistics never lie – if the correct data is provided, while using the right model. My preferred software for data analysis was Stata 13, in which I ran a simple OLS regression, and used more complex models afterwards: specifically Fixed and Random Effects models. It was indispensable to run a Hausman-test to compare FEM and REM in order to acknowledge the final model of the study. Additionally, descriptive statistics was used to help maintaining the enthusiasm.

Keywords: robots, economy, industrial revolutions, V4, GDP, R&D, FDI, education, wages, hours worked, trade, HDI, output

Revealing the Potential of Artificial Intelligence: Opportunities, Risks, and Ethical Implications in Automation and Robotics

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Abstract
The rapid advancement of artificial intelligence (AI) is reshaping businesses, governance, and individual lives, sparking widespread debate on its benefits, risks, and ethical implications. While AI enhances decision-making, efficiency, and innovation, it raises major concerns about privacy, job displacement, bias and security threats. Global corporations invest billions into AI to maximize profits, while governments utilize it for national security and public services. Simultaneously, alarming scenarios emerge, with AI being misused, spreading misinformation, and challenging regulatory frameworks. This study explores the impact of AI applications on businesses, individuals, and governments, focusing on their advantages, associated risks, and ethical considerations. Addressing these challenges requires collaboration to shape AI to foster innovation while protecting ethical values and societal well-being.

Keywords: Artifical intelligence, Automation, AI ethics

Limitless Possibilities with Platform Design

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Abstract
How are platform organizations changing the traditional economy? Who will be successful in building platform organizations? What leadership and management skills and tasks does the digital business era require today?

Keywords: platform organisations, network, scalability, flexibility, future of ecosystem, innovation, data-driven

Supporting Sustainable Start-ups: Analyzing the Success Factors of Incubators in Indonesia

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Ni Made Esiyanti, PhD Student, University of Debrecen, Doctoral School of Management and Business
Ádám Novotny, associate professor, Károly Eszterházy Catholic University

Abstract
This study investigates the role of incubators in promoting sustainable innovation among start-ups, using licensing and patent applications in a developing economy context. Business Incubators are vital for the success of start-ups by providing resources, networks, and guidance to facilitate continuous innovation and economic development. Unlike previous studies that have typically provided broad assessments of incubator benefits, there needs to be more quantitative analysis regarding the socio-economic impact of specific supports, such as human capital, external expertise, and targeted funding in the entrepreneurship ecosystem. The study employs a quantitative regression analysis using Heteroscedasticity and Autocorrelation Consistent (HAC) corrected models to explore start-ups within Indonesian incubators. The results indicate that having full-time staff, qualified incubator personnel, and dedicated budget allocations for sustainability significantly enhances license and patent applications. The study concludes that incubators can enhance their effectiveness by concentrating on specialized and sustainable support mechanisms. This approach offers a framework for increasing patentable innovations that align with Sustainable Development Goals (SDGs). The crucial takeaway is the necessity of a tailored approach in incubator support to promote impactful and sustainable innovation.

Keywords: Sustainable Start-ups, Business Incubators, Entrepreneurship Ecosystem, Innovation and Patents, Socio-economic Impact

What is the Impact of Digitalisation on Agricultural Employment?

Edit Veronika Kovács, PhD student, University of Debrecen, Faculty of Economics and Business, Institute of Economics, nagyeditvera@gmail.com

Abstract
Today, traditional agricultural activity is no longer sustainable. According to the FAO, the world's population will increase to 9.6 billion by 2050. This initiates processes that affect agricultural activity in several ways. Global challenges that also affect agriculture are increasingly prompting those active in the primary sector to act. As a result, automation, robotics, sensory observation, monitoring, tracking and digitization are increasingly coming to the fore in the field of agriculture. As a result of special mechanization, more and more products can be produced, optimizing production processes and reducing environmental impact. Digital technology can be used to increase efficiency and competitiveness in agriculture. In this way, sustainable and competitive food production can be created, contributing to reducing the negative effects of agriculture on the environment.

Keywords: impact of digitalization, agricultural labour, sustainability

MANAGEMENT and ORGANIZATIONAL SCIENCE / CHANGE MANAGEMENT I SESSION

Chairs: Dr. Andrea Emese Matkó, Éva Diószeginé Zentay

Artificial Intelligence Applications to Boost Management and Sustainability of Companies

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Abstract

Artificial intelligence (AI) is increasingly pivotal in reshaping corporate management and driving sustainable business practices, with generative AI and expert systems emerging as key enablers. Generative AI tools, such as automated content creation and predictive scenario modeling, empower organizations to accelerate decision-making while reducing operational costs. For instance, AI-driven platforms streamline sustainability reporting by synthesizing environmental data into actionable insights, enabling companies to align with global frameworks like the UN Sustainable Development Goals (SDGs). Similarly, AI-powered chatbots enhance stakeholder communication by delivering real-time responses to ESG-related inquiries, fostering transparency and trust.

Expert systems, designed to emulate human expertise in niche domains, optimize resource allocation and risk management. In supply chain operations, these systems analyze historical and real-time data to predict disruptions, recommend eco-friendly sourcing alternatives, and minimize waste. A notable example includes retail giants using AI to balance inventory levels with demand forecasts, cutting excess production and lowering carbon footprints. Additionally, AI-augmented compliance tools monitor regulatory changes across jurisdictions, ensuring adherence to evolving sustainability standards without manual oversight.

The integration of generative AI and expert systems also supports circular economy initiatives. For example, generative design software assists engineers in creating products with recyclable materials, while AI-driven lifecycle assessments identify opportunities for energy efficiency. However, challenges such as data privacy concerns and the need for cross-industry collaboration persist. Case studies highlight that firms adopting these technologies achieve dual benefits: operational agility and measurable progress in sustainability metrics like reduced emissions and resource conservation. Future adoption hinges on developing sector-specific solutions that balance innovation with ethical governance, positioning AI as a cornerstone of sustainable corporate strategy.

Keywords: Artificial Intelligence, Management, Innovations

Future Digital Workplaces and AI Coworkers

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Csukonyi Csilla, lecturer, University of Debrecen, Faculty of Humanities, Institute of Psychology

Abstract

Artificial tools and agents being used in work settings is becoming the new standard in many sectors. Therefore it is important to prepare for challenges that this change will present for organizations. Thanks to the spread and growing popularity of online jobs and home-office settings, traditional work environment and ergonomics face a transition to the digital and cyberspace. Moreso than the physical surrounding of the employees, the computers and software they use are also evolving. Avoiding the usage of any artificial intelligence agents is quickly becoming an impossibility. Therefore, organizations must make preparations and should work out training and sensitivity trainings for their employees to help them adapt to the new demands of digital workplaces and artificial coworkers. With one of our experiment, we simulated a situation in which a modelled cooperation was carried out between a humanoid robot and a human participant. To explore one of the aforementioned new challenges, we manipulated this short work situation in the following way. Before the cooperation was carried out, the participant was instructed to turn off the robot after their task was finished, but exactly when the participant was about to turn it off, the robot stated, „Please, don't turn me off. I'm afraid of the dark.". This simulation represents a very common situation, when an artificial agent's behaviour is anthropomorphised to be more social and approachable. Our results suggest that in reality, these behaviours could confuse and discourage people. Aside from this phenomenon, numerous other behaviours and settings could present serious challenges in the future.

Keywords: AI, robot, digitalization

The Power of Impression Management

Edit Barizsné Hadházi, associate professor, University of Debrecen, Faculty of Economics and Business, Institute of Management and Organization Sciences, barizsne.hadhazi.edit@econ.unideb.hu

Abstract

Researchers have been studying the topic of impression management (IM) since the 1980s. Much like political behavior, IM is about influencing others. However, in this case, the influence is not about what others should do, but about what others should think of us. This image of ourselves in others' minds can be important not only for us as leaders but also as subordinates - just think of a job interview. In fact, IM is a part of our everyday lives, even if we do not consciously use these tactics. However, we should be aware that

there are many forms of impression management. The aim of this presentation is to review the concept of impression management and to present well-known techniques. We will also discuss the factors that influence the extent to which people use these tactics. Additionally, we will present the measurement methods developed by researchers working in this field. During the presentation, we will also highlight the findings from empirical research in this area to date.

Keywords: impression management, IM techniques

Conscious Change Leadership

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Abstract
SMEs must navigate highly dynamic environments; however, relatively few leaders rely on sustainability-focused literature or training programs that support change management. My goal is, on the one hand, to examine what determines leaders' intention to develop in this area and, on the other hand, to assess whether leaders participating in training programs are more successful than their peers. Based on correlation analysis and t-test results, while younger leaders show a stronger intention to develop compared to their older counterparts, neither age nor the number of years spent in leadership positions significantly influence this intention. However, there is a positive and significant correlation between development intention and an increase in ownership percentage. A thought-provoking result is that those who have studied change management do not perceive the most significant specific change in their organization's life as more successful, but they do rate the organization's overall change capability more favorably.

Keywords: change management, leadership training

How People can be Influenced? Recipes for Involving.

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Abstract
Let's look at a few models and procedures that help us in today's changing world. Lean management tools. How does it help? It ensures the sustainability of continuous improvement by involving the entire range of employees.
Change management: How does it help? The models are guides in implementing change, and in all cases, they recommend involvement as the key to overcoming resistance.
EFQM: How can it be implemented? A globally recognized framework in change management and performance improvement. It emphasizes the involvement of

stakeholders.
CSR: How? Effective business practice with the involvement of stakeholders.
I have listed only a few examples, highlighting the key to their application is involvement. But How? In fact, these different models and methods do not provide an answer to this. What is certain is that using any new method causes a change in the life of the organization, which in turn brings about resistance in people.

Keywords: people management, leadership style, involvment

The Role of Quality 4.0 in Business Process Management

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Abstract
Quality 4.0 has introduced transformative digital technologies such as artificial intelligence, the Internet of Things, and Big Data into quality management, redefining traditional practices. This research explores the integration of Quality 4.0 into Business Process Management (BPM) through Business Process Reengineering (BPR), focusing on how this synergy addresses global management challenges, enhances process efficiency, and fosters innovation. Through a systematic literature analysis, the study identifies tools, methodologies, and frameworks using academic databases, keyword analysis, and citation mining to capture relevant literature. These are further examined through thematic analysis, keyword frequency analysis, and network mapping to uncover trends and gaps. The paper's main research question is: What is the role of Quality 4.0 in enhancing BPM? The paper will highlight key trends, gaps, and barriers in integrating Quality 4.0 into Business Process Management (BPM) and Business Process Reengineering (BPR). It will examine keywords describing the current state of research, identifying what they mean to areas where digital transformation has successfully enhanced process efficiency and where significant challenges remain. Furthermore, the paper will offer actionable recommendations for both organizations and academia. For organizations, the focus will be on aligning Quality 4.0 with existing BPM practices to foster continuous improvement. For academia, the paper will highlight areas for further research, particularly in developing methodologies and frameworks to better support Quality 4.0 integration into global business processes. In exploring and aligning Quality 4.0 principles with BPM and BPR, this research contributes to theoretical understanding and practical applications, addressing the complexities of globalized operations and dynamic customer demands.

Keywords: Business process management; Quality 4.0; Quality management; Business process reengineering

John Deere's Agile Product Development: Implementation of Management Tools and Techniques

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Abstract

The paper focuses on current dynamic business practices, businesses are applying lean and agile principles to cope with the growing consumer demands and stay competitive. This research paper talks about John Deere, an established manufacturing company, that applied lean and agile tactics to remodel the software development process. Furthermore, the paper cites how the agile principles aided the company to accommodate the market demands by keeping an eye on the competitive edge. Also, it will showcase the implementation of agile shift by John Deere and shed light on the boosted production efficiency, quality, and innovations on conventional production systems.

Agile methods were used to overcome the difficulties faced by production companies. It covers the Scrum Framework, and the Lean Principles and implements continuous integration and deployment. This presents a way that polishes the process and improves teamwork. To sustain agile practices in the company, emphasis has been given to cultural shifts. The paper focuses on the skills such as diligent learning, communication, and collaboration that should be embraced.

The research paper draws attention to cases like faster time to market, better quality, stronger teamwork, and happier employees, all of which are included in the agile principles. In conclusion, the paper includes how an enormous established manufacturing company adapted to agile practices. Furthermore, this paper displays the agile and lean approach and how it can improve product development. Therefore, this paper strives to assist the companies in achieving the similar.

Keywords: Agile principles, Scrum framework, Lean Management, Product Development, Project ManagementAgile principles, Scrum framework, Le

MANAGEMENT and ORGANIZATIONAL SCIENCE / CHANGE MANAGEMENT II SESSION

Chairs: Dr. András Kun, Lubna Qais Anwer Owais

Examining the Impact of Performance Measurement Systems (PMSs) on the Performance of the Jordanian Industrial Estates' Companies

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Abstract

With growing competition in today's business environments, organizations rely on Performance Measurement Systems (PMSs) to address challenges, assess progress, and enhance performance. While PMSs have been extensively researched, their impact on organizational performance remains a topic of debate, particularly in developing countries like Jordan, where relevant research is scarce. This study investigates the effects of Comprehensive PMSs (CPMSs) on financial and non-financial performance of the companies in the Jordanian Industrial Estates. Using Partial Least Squares Structural Equation Modeling (PLS-SEM), the study analyzes empirical data to test proposed hypotheses regarding the impacts of these systems on organizations' performance. The findings confirm that CPMSs significantly and positively influence overall organizational performance, organizational effectiveness, and both financial and non-financial performance. These results highlight the critical role of CPMSs in improving organizational outcomes, supporting their adoption for strategic decision-making. However, given the limited research on PMSs in developing economies, further studies are needed to explore contextual influences and long-term implications.

Keywords: Performance measurement systems; Financial performance; Non-financial performance; Organisational effectiveness

Recognising and Managing the Overly Dominant Risk Factor

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Abstract

A normal distribution can be created if the central limit theorem is applied. In this case, a sufficiently large number of risk factors, independent of each other and with similar potential effects, compensate each other in most cases. Thus, extremely bad or good

outcomes are very rare, as the risk factors are either completely negative or completely positive. Where the distribution function of the outcomes is not normal, one or more risk factors have a dominant effect relative to the others. This may be due to the dependence of these factors on other factors or to the fact that these factors themselves have an excessively large effect potential. By reducing the relevant risk exposure or increasing independence, a normal distribution can be restored. If the non-normal distribution is due to a very small number of risk factors, there is no dominant risk factor. In the case where there is insufficient data to generate a distribution function, the presence of dominant risk factors can be detected by comparing the effect potentials of risk factors and examining their independence from each other. In this case, a similar approach can be used to restore the balance among risk factors. In essence, diversification of activities of different types is a means of creating or restoring the associated normal distribution. Therefore, diversification can also be captured as an activity to reduce over-dominant risk factors. This incorporation of normal distribution analysis into risk management can greatly help to reduce risk, whether in financial or other areas.

Keywords: normal distribution, central limit theorem, risk, diversification

Analyzing the Learning Curve in the Space Industry: Insights from SpaceX Rocket Launches (2006–2024)

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Abstract

The present study examines the presence of learning curves within the private space industry, specifically focusing on SpaceX, by analyzing publicly available data on its rocket launches. The analysis employs two models using different dependent variables. In the first model, the dependent variable is the annual average time required for launches. In the second model, the dependent variable is the time elapsed between consecutive launches. The first approach reduces potential distortions caused by intra-year factors, which is necessary because non-learning-related factors (e.g., order fluctuations, weather conditions) strongly influence the time between launches in the private space industry. These factors, however, are assumed to exert less bias when analyzed on an annual basis. The second approach allows for a larger sample size but is more susceptible to distortions. The calculations draw on a database that is independent of rocket type and a separate dataset focusing exclusively on the Falcon 9, SpaceX's most frequently launched rocket. The analysis encompasses launch data from 2006 to 2024 to ensure the inclusion of complete years in the models.

In the multivariate analyses, the independent variable is the cumulative number of launches, while supplementary data serve as control variables, including intra-year period (on a quarterly or monthly basis), launch site, orbital trajectory, landing site, and landing success. The statistical analysis employs multivariate logarithmic regression,

where the functional form reflects the power-law nature of the learning curve, converted into a logarithmic model.
The key generalizable finding of the analysis is that the classical learning curve is indeed observable within the private space industry. However, a non-generalizable result is that the calculated progress ratio for the examined company—indicating a significantly faster learning rate—differs markedly from the commonly assumed average of around 80%, ranging instead between 50-60%.

Keywords: learning curve, space industry, SpaceX, rocket launches

Systematic Analysis of the Relationship between Organisational Citizenship and SMEs

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Abstract
This research explores the intricate interplay among national culture, organizational culture and doing international business, aiming to uncover the nuanced ways in which cultural dynamics shape international business relations and their outcomes. After this analysis the organizational and national cultural specifications of a Liberian and a Hungarian small enterprise were compared to discover the key differences of their organizational cultures. Our objective was to explore organizational culture encompasses an in-depth examination of types of organizational cultures and their multifaceted manifestations. Specifically, the study investigates how organizational culture can influence decision-making, and in what way it can underscore the profound significance of organizational culture in business operations. By examining real-life case studies and empirical research, the study provides valuable differences between Liberian and Hungarian businesses and identifies successful strategies employed in different cultural contexts. Through our analysis and practical insights, this research highlights a valuable contribution to the understanding and management of cultural dynamics in the business arenas.

Keywords: organizational culture differences, organizational culture encompass, international business operation, cross cultural challenge

Advancing Emergency Call Management: A PRISMA Review of Romania's Location Technologies

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Abstract
Effective emergency call management relies on precise location technologies to optimize response times and resource allocation. This study systematically examines the evolution of Romania's emergency call location technologies using the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) methodology. The research explores the transition from basic Cell-ID tracking to more advanced solutions, including Advanced Mobile Location (AML), the Call 112 mobile app, and Geolocation services. It also investigates the impact of these technologies on response time efficiency and overall public safety. Furthermore, the study reviews key regulatory developments, such as the 2023 government decision to improve location accuracy for all mobile devices, a measure aimed at enhancing emergency response effectiveness across the country. Findings indicate that Romania's 2020 implementation of AML positioned the nation among the leading European countries in emergency localization, significantly improving the efficiency of response services. However, the research also addresses several challenges, including concerns related to data privacy, system interoperability, and the continuous need for technological updates to maintain the accuracy and reliability of emergency call location systems. Through a comprehensive analysis of Romania's advancements, this study provides valuable insights into the best practices for strengthening emergency response systems, improving public safety communications, and ensuring a more efficient, responsive emergency management framework that could serve as a model for other countries facing similar challenges.

Keywords: 112, PRISMA, Cel Id, AML, Geolocation, Call 122 App, E-call

Food Consumption Behaviour beyond the COVID-19 Pandemic: Urban versus Rural Differences

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Abstract

The COVID-19 pandemic has dramatically altered consumption patterns and behaviours, changing the way how consumers used to shop. Both urban and rural consumers faced different challenges regarding their access to foodstuff during the pandemic, some of the patterns remaining inherent also in the New Normal. Therefore, this paper aims to investigate the differences in consumer behaviour regarding grocery shopping, in rural versus urban area, during the recent COVID-19 pandemic versus the New Normal. Data was collected by means of an online questionnaire applied on Romanian consumers and was later analysed using the Mann-Whitney U test. Significant differences in foodstuff consumption patterns and behaviours of urban versus rural consumers during the COVID-19 pandemic versus in the New Normal could be highlighted.

While the income of people living in urban areas significantly differs from those living in rural areas, the number of online orders from the two living environments does not reflect the same pattern. During the COVID-19 pandemic, respondents living in rural areas were able to manage the challenges and the stress, to approach life positively and proactively and to find the best solutions for difficult food procurement situations, in contrast to those living in urban areas. On the other hand, in the New Normal, the preferences of consumers from the two living environments, regarding online shopping process and frequence, are similar, even for grocery purchasing. The research provides a significant perspective on distinct behaviours of Romanians from urban and rural areas, during the recent pandemic, respectively in the post-COVID era, with the focus on their grocery purchasing preferences. Managers could promote their online shopping platforms in both living environments, endorse the shopping experience as a socializing activity within the community and develop loyalty programmes and personalized offers to maintain the costumer engagement.

Keywords: COVID-19 pandemic, urban, rural, foodstuff, consumer behaviour