



Structured Abstracts of 'Driving Innovation: Digital Transformation and Emerging Technologies in Business' session

Circular Economy in Modern Hungarian Agriculture

Jenő Balla¹, Tamás Dusek²

¹Széchenyi István University Doctoral School of Regional- and Business Administration Sciences, Hungary, Győr, ballajeno@agroteh.hu

²Széchenyi István University Doctoral School of Regional- and Business Administration Sciences, Hungary, Győr, dusekt@sze.hu

Background and introduction: The research examines an innovative manure management and energy production method that supports circular farming. Agriculture faces sustainability challenges, requiring waste reduction and efficient food production. Biogas technology plays a key role by converting animal manure and plant residues into energy while reducing greenhouse gas emissions. In Hungary, large livestock farms generate significant manure, posing environmental and economic challenges. The study analyzes biogas efficiency, evaluates an innovative project in Hajdúböszörmény, and explores solutions for reducing carbon and methane emissions. Findings may promote sustainable agricultural technologies and regulatory compliance while decreasing energy dependence.

Objective: The goal of circular farming is to utilize agricultural by-products while reducing waste and environmental impact. Biogas plants play a key role in this process by converting animal manure and plant residues into biogas, which can be used to generate heat and electricity. The remaining material after fermentation serves as organic fertilizer, which can also be used for heating and nutrient replenishment, thereby reducing the need for synthetic fertilizers. This study examines the topic on a scientific basis using a specific innovation.

Methodology:

1. Literature review. Analysis of domestic and international literature related to the topic. Processing of previous research and case studies in the field of biogas production and manure management.
2. Empirical data collection. Analysis of the operating data of the biogas plant operating in Hajdúböszörmény. Examination of manure management processes and measurement of the amount of biogas generated during fermentation.
3. Experimental studies. Comparison of different manure management and fermentation technologies. Analysis of the composition and energy content of biogas using laboratory tests.
4. Economic and environmental impact analysis. Examination of the cost-effectiveness of biogas production. Evaluation of the impact on reducing greenhouse gas emissions.

Results: It offers a new approach to environmentally friendly energy production, providing a solution for manure disposal and compliance with related regulations. The developed on-site process operates with specialized machinery that reduces the energy dependence of agricultural facilities and mitigates greenhouse gas emissions.

Conclusions: The research highlighted that biogas technology plays a key role in circular farming by reducing waste and greenhouse gas emissions while producing sustainable energy. Innovative manure management methods can enhance agricultural energy independence and improve soil fertility. Future developments and research can further increase the efficiency and economic viability of this technology, supporting the transition to more sustainable agricultural practices.

Limitations and future research directions: Future research aims to develop biogas technology and circular farming. A key focus is improving biogas production efficiency through new fermentation technologies and optimized microbial cultures. Sustainable manure management methods, such as nutrient recycling from fermentation residues and composting, should be explored. Reducing

greenhouse gas emissions and improving biogas storage are also crucial areas. Integrating energy systems, like combining biogas with solar energy, can enhance energy independence. Additionally, analyzing the economic and social impacts is essential for promoting sustainable agricultural models and ensuring long-term viability.

Keywords: innovation, sustainability, briquette, energy dependence, manure management



Digitalization strategies of companies in different cultures: An empirical survey of comparing Thai and Hungarian enterprises

Zoltan Szegedi¹, Ilona Papp², Aweewan Panyagometh³, Sid Suntrayuth⁴

¹Széchenyi István University, Hungary, Győr, szegedi.zoltan@sze.hu

²Széchenyi István University, Hungary, Győr, pappi@sze.hu

³International College of National Institute of Development Administration, Thailand, Bangkok, aweewan.m@nida.ac.th

⁴International College of National Institute of Development Administration, Thailand, Bangkok, sid.s@nida.ac.th

Background and introduction: Within the framework of ODDEA (Overcoming Digital Divide in Europe and Southeast Asia, a Horizon 2020 (EU) financed research of a consortium of 4 CE European and 3 SE Asian Universities) we have started a comparison of four Thai and four Hungarian medium sized companies on their current practices and their strategic views of digitalization. They were independent start-ups up to enterprises on the Stock Exchange. One of them maintained a franchise business. The size varied between 200 – 8000 empl

Objective: The objective of the research was

1. to measure the current state of digitalization on the main business processes
2. to understand the differences of the driving forces
3. to compare the approach to the topic on the different layers of company management.

Methodology: Based on a newly developed, structured interview guideline (developed as a pilot) we have contacted strategic leaders of the companies and had personal interviews with them of about 60 minutes. We have interviewed 4 Thai firms in February 2025 and 4 Hungarian firms in April-May 2025. The form of the research was frameworked by structured interview guidelines. All of the interviews were recorded, and transferred into txt files, followed by a qualitative analysis and comparison (cross check).

Results: All of the selected companies had an established ERP and were relatively advanced on digitalizing one or more of their main processes. It can be assumed that companies in both cultures have similar problems and similar views toward the future. Cultural and legal difference (such as average age of employees, somewhat less "GDPR"-like restrictions, etc.), are probably advantageous for the Thai companies. As a byproduct, the interviews will help us to start with the elaboration of a teaching cases

Conclusions: The above observations enable us to formulate hypotheses regarding strategy cautiousness and directions of digitalization accordingly. The companies came from the industries of Manufacturing, Sales/Distribution and Service. We are eager to discuss the results with other researchers of the conference.

Limitations and future research directions: We have focused on selected midsize companies. We have excluded small firms (with no ERP system), but also multinational enterprises, where strategies will be engineered by their global company headquarters. Consequently, the results have limited practical usability. Nevertheless, they present interesting benchmarks for researchers and strategic leaders for midsize companies of both regions. To get more precise results, one need to continue the interviews.

Keywords: digitalization, industry 4.0, ERP, business process automation, org. impact, driving forces and motivation, strategy

Evolving Roles: Social Media Communication in the age of AI

Sara Deidda¹, Elisabetta Gola², Sarolta Ács³, András Szeberényi⁴

¹University of Cagliari, Italy, Cagliari, sara.deidda@unica.it

²University of Cagliari, Italy, Cagliari, elisabetta.gola@unica.it

³Budapest Metropolitan University, Hungary, Budapest, saci.acs@gmail.com

⁴Budapest Metropolitan University, Hungary, Budapest, aszeberenyi@metropolitan.hu

Background and introduction: Artificial Intelligence is no longer just a support tool but a structural element reshaping corporate digital communication. On Social Media, where creativity and speed are decisive, its presence has redefined both workflows and professional roles. The Social Media Manager, fully responsible for content ideation and execution, is now asked to combine traditional skills with new competences that involve prompting, supervising, and integrating outputs from artificial systems.

Objective: This evolution opens up critical questions: how does the boundary between human and machine creativity shift when AI enters everyday practice? How can professionals maintain authenticity and trust from users in a space where automated content is increasingly recognizable? And what new forms of responsibility emerge in relation to transparency and intellectual property? To address these issues, this paper combines two perspectives: a literature review, and an empirical analysis on Meta suite.

Methodology: The paper adopts a qualitative and empirical approach. After a review of the literature on assisted creativity, digital marketing, and the social perception of AI-generated content, the analysis turns to Meta's ecosystem (Facebook, Instagram, Messenger, Meta Business Suite, Ads Manager, and Edits) focusing on the AI-driven features introduced in 2025.

Results: This changing context demands new skills, from prompt engineering to the critical management of AI-generated materials, and a deeper understanding of how to clearly communicate when content has been shaped by algorithms. The line between human-made and AI-generated content continues to blur, and the credibility and authenticity of a brand increasingly depend on the professional's ability to integrate these tools without losing emotional impact or a proper tone of voice.

Conclusions: It invites a critical reflection on human-machine collaboration in digital communication, and on how we might preserve meaning, creativity, and trust in an increasingly hybrid ecosystem.

Limitations and future research directions: This research may be limited by the rapid evolution of AI tools, subjective measures of trust, and the lack of longitudinal data. Future studies should explore cross-sectoral differences, long-term user perceptions, and the impact of disclosure strategies. Investigating AI literacy and co-creation practices will also be key to understanding how professionals can ethically and effectively integrate AI into social media communication.

Keywords: Digital Communication; Artificial Intelligence; Social Media Manager; Social Networks, Authenticity



Synthetic Trust: Exploring Audience Perception of Authenticity and Engagement Toward AI-Driven Influencers Across Lifestyle and Healthcare Sectors

Sarolta Acs¹, András Szeberényi², Elisabetta Gola³, Sara Deidda⁴

¹Budapest Metropolitan University, Hungary, Budapest, saci.acs@gmail.com

²Budapest Metropolitan University, Hungary, Budapest, aszeberenyi@metropolitan.hu

³University of Cagliari, Italy, Cagliari, elisabetta.gola@unica.it

⁴University of Cagliari, Italy, Cagliari,

Background and introduction: As AI-generated influencers gain traction in digital communication, their ability to foster trust and authenticity varies across sectors. This study compares audience perception of virtual influencers in lifestyle and healthcare contexts. The central research question is: How do AI-driven influencers affect consumer perception and engagement across different professional sectors?

Objective: The aim of this research is to examine how AI-generated influencers are perceived across distinct sectors by analyzing audience engagement, sentiment, and trust indicators. By comparing a lifestyle-focused and a healthcare-focused virtual influencer, the study seeks to understand how sector-specific norms shape the effectiveness and credibility of AI-mediated communication.

Methodology: A mixed-methods approach was used, combining a systematic literature review (2016 - 2025) with qualitative content analysis. Two AI influencers - Milla Sofia (lifestyle) and Wanda (healthcare) - were selected. Ten Instagram posts per influencer were analyzed for engagement metrics, sentiment, and trust indicators to compare audience perceptions across sectors.

Results: VIs often excel in credibility and visual appeal but face challenges in emotional connection. In healthcare, VIs like Wanda show promise in promoting preventive behaviours and building trust, though their reach remains limited. Lifestyle virtual influencers like @millasofiafin demonstrate high engagement and positive audience reception, highlighting their effectiveness in visually driven sectors. Integrating virtual and human influencers enhances campaign effectiveness across sectors.

Conclusions: This study shows how AI influencers impact trust and engagement differently across healthcare and lifestyle sectors. Lifestyle influencers like Milla Sofia leverage aesthetics and emotion, while healthcare figures like Wanda must build credibility in sensitive contexts. Results highlight the need for tailored strategies, balancing innovation with authenticity.

Limitations and future research directions: This study is limited by a small sample size and only one AI influencer per sector, which may not represent the full diversity of virtual personas. Sentiment and trust were measured qualitatively via comment analysis, lacking experimental or survey data. Future research should expand the dataset and use mixed methods, such as interviews and behavioural experiments, to validate and deepen these findings.

Keywords: Artificial Intelligence, Branding, Influencer, PR, Virtual Influencer

How AI transforms marketing education and marketing jobs - an in-depth interview exploratory research

Tamás Iványi¹

¹Budapest University of Technology and Economics, Hungary, Budapest, hello@ivanyiiphd.com

Background and introduction: Artificial intelligence (AI) is revolutionizing marketing, but uncertainty regarding new tools is common among Hungarian professionals. The potential of AI in data analysis, personalization, and automation is immense; however, the extent and manner of domestic adaptation pose specific challenges. This research aims to understand these dynamics in the Hungarian context, exploring the current state and future prospects of AI integration into marketing strategy and research.

Objective: The primary objective of the research is to explore how various Hungarian marketing stakeholders – academics, students, agency professionals, SME marketing managers, and AI solution providers – perceive the role of artificial intelligence in the field of marketing. A further aim is to identify the main challenges, opportunities, ethical considerations related to AI integration, and the necessary skills for future marketers.

Methodology: The study employed a qualitative research methodology in the form of in-depth interviews. Semi-structured interviews were conducted with representatives from five main stakeholder groups. Question modules were based on a predefined research plan, focusing on AI's role in marketing.

Results: The findings highlight the transformative impact of AI on all the stakeholders. Key challenges identified include high costs, lack of expertise, data quality issues, ethical concerns, and difficulties in tool selection. Necessary skills mentioned include analytical and critical thinking, as well as prompt engineering.

Conclusions: Human-AI collaboration, continuous learning, an ethical approach, and practical training are crucial for successful future adaptation of AI for all the mentioned stakeholders. SMEs and the education sector require special attention to increase AI readiness and to have an up-to-date AI knowledge.

Limitations and future research directions: The sample cannot be considered representative of the entire Hungarian marketing profession, but it helps to understand the current situation in a deeper way as it was part of an exploratory research. Future research can give a better understanding through large-scale interviews, quantitative surveys, and specific corporate case studies.

Keywords: artificial intelligence, generative AI, marketing, education



Success factors of digital solution implementation

Borbála Szedmák¹, Roland Szabó²

¹Corvinus University of Budapest, Hungary, Budapest, borbala.szedmak@uni-corvinus.hu

²Széchenyi István University, Hungary, Győr, roland.szabo@sze.hu

Background and introduction: Digitalization is one of the greatest challenges and opportunities of our time. While digitalization offers numerous advantages, organizations also face significant difficulties in implementing digital solutions, making it essential to examine the factors that lead to success or failure.

Objective: The aim of the paper is to investigate the success factors of implementing digital solutions. Digital solutions encompass a broad array of internet-based, communication, and other digital technologies, and tools. The main DSs, namely enterprise resource planning (ERP), customer relationship management (CRM), business intelligence (BI), document management systems (DMS), workflow management (WF) and robotic process automation (RPA) are analyzed.

Methodology: To answer the research question, a systematic literature review and qualitative research were conducted. The process resulted in 214 Scimago Q1-ranked articles, which were analyzed. Based on these articles, 52 further publications were included. Afterwards, we conducted semi-structured interviews. A key criterion for expert sampling was that participants had multiple years of leadership and DS implementation experience. Theoretical saturation was reached after 10 interviews.

Results: Our research summarized the success factors of DS implementation into three key categories: technology, technology–organization fit, and management competence. This study comprehensively examines DSs—using a systematic literature review and qualitative interviews—to define the key factors and supplement them by highlighting Hungarian specifics. The interviews complementing the systematic literature review also highlight several issues that are internationally interesting.

Conclusions: Our research provides guidance to digitizing organizations by identifying and interpreting the success factors (and main pitfalls) of DS implementation.

Limitations and future research directions: The limitation of our study is that our search was restricted to Q1 articles within the Scimago "Business, Management and Accounting" category, and we examined six DSs. Future research directions should include investigating success factors for other newly emerging solutions and systems, as well as examining how artificial intelligence (AI) integrates into DSs and how this affects success factors.

Keywords: business intelligence, ERP, document management system, software robot, workflow system



generAtIon - Exploring Generational Differences in the Perception and Use of Artificial Intelligence

Gábor Keresztes¹, Nikolett Németh², Katalin Mészáros³

¹University of Sopron, Hungary, Sopron, keresztes.gabor@uni-sopron.hu

²University of Sopron, Hungary, Sopron, nemeth.nikoletta@uni-sopron.hu

³University of Sopron, Hungary, Sopron, meszaros.katalin@uni-sopron.hu

Background and introduction: The rapid development of artificial intelligence (AI) is fundamentally transforming everyday life, the economy and society worldwide. Generations have different attitudes towards AI, influenced by their technological socialization, trust, and ethical perspectives. Generation Z tends to be more open and adaptable, while older generations are more cautious (Kaur et al., 2023). Considering generational differences is crucial for the social acceptance of AI implementation (Zhou et al., 2022).

Objective: This study aims to examine the perception and use of artificial intelligence among the Hungarian population, with a particular focus on generational differences. The research will examine the use of AI in work and private life, the frequency of use, issues of responsibility, and its potential impact on the labour market and human development.

Methodology: During the primary research (n=374), quantitative data collection was conducted across different age groups. The study aimed to explore generational attitudes, knowledge, and usage patterns through both online and in-person questionnaires. The sample can be considered representative concerning the proportional distribution of the generations. A standardised questionnaire was used to ensure comparability and objective analysis.

Results: Based on the research findings, it can be concluded that Generation Z and Y in the sample are more familiar with both the advantages and potential drawbacks of AI than older generations. Younger respondents believe that AI can bring rapid progress to humanity, while older individuals are more sceptical. The majority of respondents think that humans should remain responsible for decisions made by AI. Most participants also concerned that AI may threaten jobs and pose a potential risk to humanity.

Conclusions: In conclusion, even if the social perception of AI in Hungary does not reveal substantial generational disparities, notable tendencies can be observed: younger generations tend to perceive artificial intelligence primarily in terms of its opportunities by using it more frequently, whereas older generations are more inclined to focus on its associated risks.

Limitations and future research directions: During the primary data collection, efforts were made to achieve generational representativeness. With the extension of the research, the focus could also be expanded to include demographic differences, educational background, and occupational categories. Furthermore, it would be important to explore the perceived benefits and concerns in more detail, based on qualitative information primarily in order to identify generational features.

Keywords: AI, generation, social innovation



Attitudes of Forest Managers Toward Drone Use

Éva Bednárík¹, Zsuzsanna Jámbori²

¹University of Sopron, Hungary, Sopron, bednarik.eva@uni-sopron.hu

²University of Sopron, Hungary, Sopron, jambori.zsuzsanna@uni-sopron.hu

Background and introduction: The University of Sopron has received a Thematic Excellence Program grant for implementing its "Development of a fixed-wing drone and evaluation software for border monitoring and environmental assessment – BorderEye" project. This paper summarizes the results of an intended target group—forest managers. . Based on a methodological literature review, we provide an environmental impact model for attitudes toward forestry drones in the target group.

Objective: Among the factors determining the attitudes of forestry representatives towards drone use, we identified many related to personal characteristics and external environmental influences. The widespread adoption of drone use for forestry purposes requires positive attitudes among individuals working in organizations—attitudes that product developers can help influence.

Methodology: Qualitative individual in-depth interviews are the primary research method the present study employed, justified by the unresearched nature of the topic, its sensitivity, and the need for attitudinal analysis. The qualitative research allowed us to examine respondent thinking, opinion-forming processes, habits, and mental processes. The sample consisted of 14 forest holdings, which covers 63% of domestic state-owned forests.

Results: Our research results suggest that drones will soon become valuable tools for forest management. Most respondents believe drone use will become necessary and plan to purchase drones or utilize a drone data acquisition service. Drones are also increasingly assisting management practices in various forestry fields. Respondents identified many applications in which drones are advantageous.

Conclusions: Drones offer unique opportunities for forest observation, research, conservation efforts, and management practices. The attitude test confirmed that personal (cognitive and emotional) characteristics and environmental effects determine the mental processes that support using drones for forestry purposes. Our primary research revealed a positive attitude among respondents.

Limitations and future research directions: Areas suggested for further research include the application of quantitative studies among forest engineers. It is important to clarify legal and regulatory issues related to drone use, as well as to develop data processing competence and manage the data deluge. It is necessary to dispel misconceptions, such as the challenges of mapping under the canopy, and to maintain continuous, personal, and professional communication about the developments. Furthermore, it is recommended to develop a common

Keywords: Forestry management/innovation marketing/ product development/drones in forestry