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BRIDGING THE AI GAP: CHALLENGES AND OPPORTUNITIES IN THE ADOPTION OF AI IN THE CROATIAN HOSPITALITY AND TELECOMS INDUSTRY

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Abstract: *This study analyses the implementation of Artificial Intelligence (AI) and its impact on operational processes in the Croatian hospitality and telecommunication industry. By applying a qualitative research methodology, the study reveals a significant gap in the adoption of AI in these sectors. The key findings show that telecoms companies are leading the way in the integration of AI, while the hospitality industry is lagging behind. Factors influencing AI adoption include ownership structure, market dynamics and cultural influences. The results show that AI is improving customer service, data analysis and operational efficiency in the industries analyzed. Although both industries recognize the potential benefits of AI, they are approaching implementation differently, with the telecoms industry making greater progress. The study also looks at challenges such as implementation costs and the need to educate and train employees, which can be critical to the successful adoption of AI. Importantly, AI is seen as a tool that complements, rather than replaces, human resources. This study contributes to understanding the role of AI in Croatian industry and provides insights for future implementation strategies.*

Keywords: *Artificial Intelligence, operational processes, hospitality industry, telecommunications industry.*

JEL classification**:** *O31, O33, M15*

INTRODUCTION

The rise of artificial intelligence (AI) and its crucial role in improving business processes makes AI one of the most exciting and valuable areas of research(Helo & Hao, 2022).

AI is one of the fastest growing areas of technology. The more companies incor-

porate it into their strategies, the more important it becomes in overcoming operational challenges. Its ability to mimic the cognitive processes of humans in searching, analysing and making decisions based on vast amounts of data makes it a crucial factor in transforming operations management(Yao et al., 2025). The increasing use of AI will influence global competition and pave the way for new collaborations between companies and countries around the world(Xiong et al., 2021). AI is being used in various industries to improve user experience, enhance supply chain management efficiency, increase operational effectiveness and deliver consistent and reliable quality while reducing costs(Pallathadka et al., 2023). AI has a significant impact on all aspects of business, especially supply chain operations(Dogru & Keskin, 2020), and the link between AI implementation, supply chain resilience and better business performance has been proven(Mukherjee et al., 2024).

The adoption of AI has expanded across e-commerce, finance, science and technology, smart manufacturing, supply chain management and other business areas to improve business processes and revolutionise various industries while transforming the way we live and work(Zuo, 2024).

The transformative potential of AI for addressing various business-related challenges is widely recognized (Kitsios & Kamariotou, 2021), but the practical implementation of AI in business processes also poses risks and challenges. In this context, the ethical considerations related to the implementation of AI have been extensively discussed, especially with regard to the jobs that could be lost in the future and the human resources that could be replaced by the automation of organizations(Wright & Schultz, 2018).

LITERATURE OVERVIEW

Implementing AI into business processes is critical for organizations that want to remain competitive in today's turbulent business world and succeed in global markets(Suryadevara, 2017). Competitive pressures have driven companies to accelerate their digital transformation and adoption of AI, a trend that was particularly evident during the Covid-19 pandemic when numerous companies were struggling to survive(Chen et al., 2023). While companies adopted AI primarily to minimize human interaction and contain the spread of disease, the result of improved decision-making based on the data provided by AI was compelling(Li et al., 2021).

AI development has increased customer satisfaction and improved business processes(Bhagat et al., 2023). It is argued that AI has the potential to dramatically change business operations by using new technologies to redefine the role of the labor force, the way business is done and the global economy (Dirican, 2015). AI, robotics, IoT, block chain and other advanced technologies are dramatically transforming various aspects of industry, especially in the supply chain(Attaran, 2020). The transformative power of AI in various sectors has also been recognised in terms of decision-making processes, automation and service delivery, as well as in terms of delivery times, customer data, customer service (Allioui & Mourdi, 2023) and achieving competitive advantage while reducing costs(Cannas et al., 2024). (Grover et al., 2022)refer to AI as the new electricity that is critical to numerous aspects of operations management, including manufacturing, product development, services and supply chain. Ultimately, AI is seen as essential to a company's survival and success(Saroha et al., 2023). AI of-

fers many benefits, such as improved decision making and resource allocation, leading to more streamlined operations(Durach & Gutierrez, 2004; Gupta et al., 2022). On the negative side, AI should be evaluated based on its potential to stifle organizational creativity and the adaptability of human resources to change, which could have a negative impact on the sustainability of the business in the long term. However, AI is advancing inexorably, completely revolutionizing business and making the adoption of AI inevitable(Sena & Nocker, 2021).

The ever-increasing use of AI in business raises ethical questions, as morals and ethics are deeply human and can hardly be transferred to AI systems. To this end, various ethical aspects of AI have been explored, including transparency and accountability (Sison et al., 2023) and algorithmic bias(Manchidi, 2024). However, one of the most intriguing ethical considerations regarding the adoption of AI concerns human resources and the potential for the human factor to be replaced by AI in the future. AI is designed to replace routine and repetitive tasks, but it cannot yet replace the unique skills and abilities of human resources. Therefore, companies should use AI to ensure job security, emphasizing its ability to improve human capital by helping employees become more creative and productive in their daily work. In addition, insufficient training of employees on AI implementation can negatively affect the implementation process and reduce the potential for significant improvements in operations(Rana et al., 2022).

As more companies realize the benefits and potential of AI, many are looking for the best strategies to improve adaptability, optimize business processes and increase operational efficiency. With this in mind, an AI strategy has become essential. The key steps in developing an AI strategy are conducting preliminary research and assessments, setting clear goals, identifying potential partners, creating a plan, presenting the AI strategy, training and educating employees, and establishing ethical guidelines (Finio, 2023). Implementing AI can incur significant costs(Jadhav, 2023), but the numerous benefits certainly justify the implementation(Duggal, 2024). Although AI has a significant and positive impact on the global economy, there is still a lack of understanding of AI, particularly in relation to its impact on human resources and ethical issues.

METHODOLOGY

In order to contribute to our understanding of the role of AI in Croatian industry and the factors that determine its adoption, the main research question that this study addresses were formulated as follows: How the implementation of AI affects operational processes in different industries in the Republic of Croatia and what are the main challenges, and opportunities involved?

This study uses a qualitative approach to investigate how the implementation of AI affects operational processes in different industries in the Republic of Croatia. The qualitative study was exploratory and served to gain a deeper understanding of the role of AI in shaping operational efficiency in various industries(Saunders et al., 2007). To explore the current situation of AI implementation and its impact, eight participants from the hotel and catering, and telecommunication industries were interviewed in semi-structured in-depth interviews to compare their perspectives on AI integration and related challenges.

These two industries differ significantly. The former relies heavily on a human touch and a customized approach to ensure customer satisfaction in an increasingly competitive landscape(Solnet et al., 2019). In contrast, the latter relies on digital transformation and the integration of AI to increase efficiency and agility as high-tech industries operate in a highly competitive environment characterized by rapid changes that force companies to react quickly to new market conditions(Vasques, 2024). However, due to the increase in operational costs and the challenges of keeping up with growing market demands, the hospitality industry is currently undergoing a digital transformation and utilizing AI tools to address these issues and improve customer service and satisfaction(Peng et al., 2024).

Participants were selected using the snowball principle (Saunders, 2012) to ensure a wide diversity in terms of age, education level and professional background. They were contacted via publicly available email addresses and/or LinkedIn profiles. Five participants were from the telecommunications industry and three from the hospitality industry. Two participants from the telecoms industry held senior positions (Chief Marketing Officer and Regional Manager), while three were employees. The participants from the hospitality industry were one member of management and two reception managers. Five female and three male participants were included in the sample. All participants were informed about the anonymity of their participation and contributions and could choose between online interviews via the Zoom platform or on-site interviews in their respective organizations.

Each interview lasted approximately 40 minutes and focused on topics such as AI implementation, digital transformation, AI tools, the benefits and costs associated with AI implementation, expectations for the future of AI and labor market dynamics, and the catalysts and barriers to AI implementation. All interviews were transcribed, coded and analyzed using thematic analysis to identify recurring patterns in attitudes towards AI implementation and its impact.

FINDINGS AND DISCUSSION

The participants were asked about their familiarity with AI and the tools available and all were well informed and used to AI. They all use different AI tools in their daily lives, albeit in different ways and for different purposes. All agreed that AI simplifies their lives, both professionally and personally.

The participants from the hospitality industry agree that digital transformation and the integration of AI are still insufficiently represented in the Croatian hospitality industry compared to other industries. From the participants' point of view, the reason for this "lagging" behind" is a lack of knowledge due to a lack of education. One hospitality industry board member emphasized that foreign-owned hotels and large hotels, especially chain hotels, are more open to the integration of AI, as he explained:

"…looking at the current state of AI integration in the industry, the results are very poor and unsatisfactory because people in Croatia are still very conservative regarding AI due to the lack of knowledge… big hotels that operate on the global scale are far better performing regarding this issue…"

Other participants also recognized the ownership factor as relevant for the implementation of AI, stating that private ownership and especially foreign-owned companies play a pioneering role in Croatia, as state-owned companies, companies

that are predominantly state-owned and companies owned by local governments play an important role in many industries. From the participants' perspective, competition is crucial for the implementation of AI, as competitive pressure drives companies to improve their services, streamline business processes and automate data through the introduction of AI. In the telecoms industry, executives agree that AI has been gaining a foothold for some time, which is also confirmed by the employee in the telecoms industry:

"...as soon as AI came along, we started using some of the AI tools, especially in customer support and related services. Virtual assistants are fundamental. Our chatbots simplify the handling of simpler problems..."

Since the participants from the telecommunications industry represent two large companies and the Croatian telecommunications market is a classic oligopoly, a growing number of users were recognized as a catalyst for the implementation of AI. They use AI for big data management and analyses, which contributes to operational efficiency:

"...the use of AI allows us to better monitor the performance of the network…. it helps us to recognize problems more quickly and solve them more efficiently… Employees alone would need much more time to recognize these problems..."

In addition, both telecoms companies have dedicated significant resources to the implementation and development of AI. Their R&D departments are dedicated to innovating and introducing AI tools that meet the specific needs of their respective businesses. In the hospitality industry, respondents believe that AI tools are primarily used for customer service or for providing feedback in reviews:

"We use ChatGPT for certain questions from hotel guests and for managing guest feedback… we get tons of emails, and responding quickly is very important in our industry… AI tools help us to work better..."

AI tools are also proving to be very helpful in analyzing customer and employee satisfaction, which respondents believe are two cornerstones of a successful hospitality business. The CEO of the hospitality industry is concerned that many Croatian companies are not proactively responding to industry and global trends and have not developed digitalization strategies or even recognized the benefits of AI integration:

"Tourism is one of the main drivers of economic growth in Croatia… competition in the market is fierce… in order to keep up, AI needs to be implemented in daily operations… I believe that the reason for the insufficient use of AI tools in Croatian hotels is ignorance."

Although AI "is "becoming more and more present in the hospitality industry", the reception manager recognizes that it must be approached with caution as it is not considered risk-free. He emphasizes the importance of "educating and training staff to equip them with the knowledge and skills they need to use AI tools effectively." There is a consensus in the hospitality industry that AI has brought the sector to a "tipping point"," but there is no concern that people will lose their jobs due to an AI takeover. People will always be at the heart of the hospitality industry.

The benefits of AI implementation in the hospitality industry have been identified:

"...although there may be an initial cost to implementation, it can lead to time savings, increased efficiency, the ability to manage large amounts of data and ultimately a reduction in operating costs."

One of the biggest weaknesses in the implementation of AI in the hospitality industry is the misinterpretation of data, which can lead to inaccurate insights and decisions. In addition, AI-generated content often lacks authenticity and can be repetitive, detracting from the personalized experience guests expect. Another major challenge is guest interaction with AI-driven systems, such as chatbots, as many guests may feel uncomfortable communicating with a non-human interface. These factors underline the need for a more sophisticated and human-centered approach to integrating AI into hotel services.

In the telecommunications industry, participants are aware that AI is gaining a foothold in all sectors, but believe that the dynamics of the labor market will not change dramatically in the medium term. In the long term, the changes are inevitable, as one participant emphasized:

"In the past, we have seen many jobs swept away by one of the industrial revolutions….

However, technological progress, including AI development, is having a positive impact on operational efficiency and streamlining business processes, "making work easier for employees".

Another interesting point was identified from the perspective of participants in the telecommunications industry. Cultural attitudes contribute a lot to the overall perception of AI and its future impact on the Croatian economy. As one participant said:

"In Japan it might be completely normal to have robots serving customers in bars and restaurants, but in Croatia it's a science fiction scenario."

In this sense, historical cultural influences, especially from the Mediterranean and Central Europe, that have shaped today's cultural environment in Croatia, determine not only the way people prefer to be served their coffee, but also how they think about AI. Traditional cultures tend to be reluctant to embrace technological advances. Their resistance to change is a significant obstacle that needs to be overcome in order to fully realize the potential benefits of these advances for the economy and society as a whole.

CONCLUSION

This study analysed the implementation of AI and its impact on operational processes in the Croatian hospitality and telecommunications industries. The results show that there is a significant gap in the adoption of AI in these two sectors, with the telecoms industry leading the way in integration while the hospitality industry lags behind.

The research findings reveal several key factors that influence the adoption of AI.

Ownership structure is important for the adoption of AI. Privately owned and foreign-owned companies are more likely to adopt AI, especially in the hospitality industry. Another important factor is market dynamics, as market pressures force companies to improve their services and streamline their operations with the help of AI. Educational and cultural influences have been shown to be critical to the adoption of AI. A lack of understanding of the benefits of AI hinders adoption, especially in the hospitality industry. In addition, traditional cultural values can slow down the adoption of AI compared to more technologically advanced countries.

Key findings show that AI is increasingly being used to improve customer service, data analysis and operational efficiency. In general, AI is perceived positively as

a tool that improves daily work rather than replacing human jobs.

Challenges associated with the introduction of AI include the high implementation costs. However, the long-term benefits justify these initial outlays, as does the ongoing need for targeted employee training and development.

While both industries recognise the potential of AI to improve operational efficiency, customer service and data management, the telecoms sector has made greater strides in implementation. While the hospitality sector recognises that AI is a game changer, it is proceeding with caution due to the sector's reliance on human contact.

Finally, AI is seen as a tool that complements, rather than replaces, human labour. Both industries emphasise the need for continuous education and training of employees in order to use AI technologies effectively.

The main limitations of this study result from the small number of participants from only two industries. Future studies should therefore include more participants and other industries in Croatia to provide a more comprehensive perspective on the adoption of AI across the economy.

Longitudinal studies that would track changes in AI implementation and attitudes, especially in the hospitality industry, would be beneficial. Research on the role of cultural and educational factors could deepen our understanding of the mechanisms that influence AI adoption and its key outcomes.

Finally, studies that look at the economic impact, quantify the benefits of AI adoption in the Croatian economy and focus on productivity gains and cost savings are very welcome.

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