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THE IMPACT OF ARTIFICIAL INTELLIGENCE ON BUSINESS DEVELOPMENT AND EMPLOYEE PRODUCTIVITY IN THE CONTEXT OF DIGITAL TRANSFORMATION

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Abstract: *This paper examines the impact of artificial intelligence on business development and employee productivity within the context of digital transformation. The aim of the study is to determine the strength of the relationship between the application of artificial intelligence and employee efficiency. A quantitative research approach was applied, including a survey conducted on a sample of 100 respondents, as well as a trend analysis covering the period from 2020 to 2025. Data were analyzed using descriptive statistics, correlation analysis, and linear regression analysis. The research findings indicate a statistically significant and positive relationship between the application of artificial intelligence and employee productivity, while the majority of respondents confirm its positive impact on work efficiency. It is concluded that artificial intelligence represents a significant factor in enhancing business development and employee productivity, provided that it is adequately implemented and supported by the digital readiness of organizations.*

Keywords: *artificial intelligence, digital transformation, employee productivity, business development, digital economy*

JEL classification: *O33, J24, M15*

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UTICAJ VEŠTAČKE INTELIGENCIJE NA RAZVOJ POSLOVANJA I PRODUKTIVNOST ZAPOSLENIH U KONTEKSTU DIGITALNE TRANSFORMACIJE

Sažetak: Rad analizira uticaj veštačke inteligencije na razvoj poslovanja i produktivnost zaposlenih u kontekstu digitalne transformacije. Cilj istraživanja je da se utvrdi jačina veze između primene veštačke inteligencije i efikasnosti zaposlenih. U radu je primenjen kvantitativni istraživački pristup, koji obuhvata anketno istraživanje sprovedeno na uzorku od 100 ispitanika, kao i analizu trendova za period od 2020. do 2025. godine. Podaci su obrađeni primenom deskriptivne statistike, korelacione analize i linearne regresione analize. Rezultati istraživanja ukazuju na postojanje statistički značajne i pozitivne povezanosti između primene veštačke inteligencije i produktivnosti zaposlenih, dok većina ispitanika potvrđuje njen pozitivan uticaj na efikasnost rada. Zaključuje se da veštačka inteligencija predstavlja značajan faktor unapređenja razvoja poslovanja i produktivnosti zaposlenih, pod uslovom adekvatne implementacije i digitalne spremnosti organizacija.

Ključne reči: veštačka inteligencija, digitalna transformacija, produktivnost zaposlenih, poslovni razvoj, digitalna ekonomija

1. INTRODUCTION

The contemporary business environment is characterized by rapid technological changes, globalization, and an increasing need to enhance organizational efficiency and competitiveness. In this context, institutional and structural factors play a significant role in economic development and convergence, particularly in European countries (Lalić & Trifunović, 2026a). Within this framework, digital transformation represents one of the key processes shaping modern business operations, enabling the integration of advanced technologies into everyday business activities (Vial, 2019). Furthermore, digitalization significantly improves operational efficiency and performance across sectors, particularly in the financial industry (Savić, 2025).

One of the most significant technologies driving digital transformation is artificial intelligence (AI). Its application enables the automation of routine tasks, the enhancement of data analysis, and the improvement of the speed and quality of business decision-making (Brynjolfsson & McAfee, 2017). In recent years, the development of generative AI tools has further accelerated the process of digitalization and business transformation (Dwivedi et al., 2023).

The application of artificial intelligence has substantial potential to influence business development, primarily through the optimization of business processes,

cost reduction, and increased organizational efficiency (Porter & Heppelmann, 2014). At the same time, AI technologies affect employees' work by transforming task execution and contributing to increased productivity (Brynjolfsson, Rock, & Syverson, 2019). Recent studies further confirm that artificial intelligence plays a mediating role in enhancing employee motivation and performance, thereby directly affecting productivity and work efficiency (Jevtić et al., 2025). In this context, the importance of cooperation between organizations and higher education institutions becomes particularly evident, as it contributes to the development of knowledge-based economies and the enhancement of human resource competencies (Trifunovic & Tankosic, 2013).

However, despite numerous advantages, the effects of artificial intelligence on business performance and employee productivity are not uniform, as they depend on the manner of implementation, the level of employees' digital literacy, and the readiness of organizations to adopt new technologies (Bughin et al., 2018). Therefore, it is necessary to empirically examine the relationship between the application of artificial intelligence and key business performance indicators.

This paper analyzes the impact of artificial intelligence on business development and employee productivity in the context of digital transformation. The aim of the study is to determine the existence and strength of the relationship between the application of AI technologies and improvements in employee productivity through quantitative analysis and survey research.

The study is based on the assumption that a higher level of artificial intelligence adoption contributes to business development and increased employee efficiency, which is tested using statistical methods, including correlation and regression analysis.

The structure of the paper is organized as follows: following the introduction, a review of relevant literature is presented, followed by the research methodology, research results, discussion, and conclusion.

2. LITERATURE REVIEW

The development of artificial intelligence represents one of the key drivers of contemporary digital transformation in business, with recent studies confirming its significant impact on improving business processes and organizational performance (Gojković et al., 2025). Numerous studies indicate that the application of AI technologies contributes to process optimization, increased efficiency, and the creation of competitive advantages for organizations (Brynjolfsson et al., 2019; Porter & Heppelmann, 2014).

Within the context of digital transformation, artificial intelligence plays a central role in the analysis of large datasets, task automation, and decision-making support. According to Vial (2019), digital transformation involves the integration of digital technologies into all aspects of business, leading to significant changes in how organizations operate. Information and communication technologies represent the foundation of digital transformation, enabling the integration of advanced tools such as artificial intelligence and supporting business process optimization (Stanković et al., 2023).

In addition, digital technologies, including social networks and modern communication platforms, have a substantial impact on learning processes and the development of employee competencies, representing an important factor in the contemporary business environment (Pajić et al., 2025). In the modern digital context, media and communication platforms play a significant role in shaping information flows and interactions among actors in society, including business systems (Petrović & Mirko, 2023). Furthermore, recent studies highlight the importance of innovative models and digitalization in enhancing cooperation between educational institutions and businesses, as well as the development of e-education as a key component of digital transformation (Trifunović et al., 2024; Dašić et al., 2024).

A particularly important development in this field is the emergence of generative artificial intelligence, which enables content creation, user interaction, and the automation of cognitive tasks. A major turning point was the launch of ChatGPT in late 2022, which made generative AI widely accessible to both individuals and organizations (Dwivedi et al., 2023). Recent research further indicates that generative AI significantly influences digital content creation processes, thereby enhancing efficiency and productivity across various business activities (Bučalina Matić et al., 2025).

Following its introduction, there has been a rapid increase in the adoption and application of generative AI tools across different sectors. Studies show that the use of large language models has grown significantly since 2022, expanding into areas such as business communication, marketing, education, and data analysis. This trend is further supported by the classification of generative AI as a “breakthrough technology” characterized by exceptionally rapid diffusion in the business environment (Dwivedi et al., 2023).

The growing popularity of these tools is reflected in their widespread use among individuals and organizations. For instance, by 2025, a significant proportion of the population is expected to use generative AI in daily activities, while the number of users continues to grow exponentially. Additionally, ChatGPT has

reached hundreds of millions of users worldwide within a relatively short period, highlighting its global significance in the digital economy.

Beyond individual use, there has also been a notable increase in the adoption of AI technologies within organizations. According to OECD data, the percentage of companies utilizing AI has risen significantly in the period following 2022, indicating accelerated digitalization of business processes. These findings confirm that AI is becoming a key driver of development in modern organizations.

However, despite its numerous advantages, some authors emphasize that the effects of artificial intelligence on employee productivity are not always proportional to its level of adoption. This can be attributed to factors such as the need for employee adaptation, a lack of adequate skills, and challenges related to the implementation of new technologies (Bughin et al., 2018).

Based on the reviewed literature, it can be concluded that artificial intelligence—particularly generative AI—represents a significant driver of digital transformation and business development. At the same time, its impact on employee productivity depends on various organizational and technological factors, which further justifies the need for empirical research in this field.

3. RESEARCH METHODOLOGY

This study adopts a quantitative research approach aimed at examining the impact of artificial intelligence on business development and employee productivity in the context of digital transformation. The research was conducted using a combination of a survey-based approach and exploratory trend analysis based on aggregated data related to the adoption of artificial intelligence in business.

The empirical part of the study includes a survey conducted on a sample of 100 respondents employed across various sectors of the economy. The respondents consisted of employees who use digital technologies in their daily work, and the sample was formed using a convenience sampling method.

The study is based on the following research hypotheses:

H1: The application of artificial intelligence has a positive impact on business development.

H2: The application of artificial intelligence has a positive impact on employee productivity.

H3: There is a positive correlation between AI adoption and employee productivity.

The questionnaire was structured and included questions related to the frequency of AI usage in the workplace, perceptions of its impact on business efficiency, its influence on decision-making processes, and its effect on employee productivity.

A five-point Likert scale was used to measure respondents' attitudes (1 – strongly disagree, 5 – strongly agree).

The reliability of the measurement instrument was assessed using Cronbach's alpha coefficient, confirming the internal consistency of the scale.

In addition to the survey research, a trend analysis of artificial intelligence adoption and employee productivity was conducted for the period from 2020 to 2025. These data represent an aggregated view of respondents' perceptions and were complemented by modeled trends for the purpose of quantitative analysis of the relationship between variables.

The following statistical methods were applied in data analysis: descriptive statistics, Pearson correlation coefficient, and linear regression analysis.

Correlation analysis was used to determine the strength and direction of the relationship between AI adoption and employee productivity, while regression analysis was applied to assess the impact of the independent variable (AI adoption) on the dependent variable (employee productivity).

The statistical significance of the results was tested at the level of $p < 0.05$.

4. RESEARCH RESULTS

In order to examine the impact of artificial intelligence on employee productivity, a data analysis was conducted, encompassing both survey results and a modeled representation of trends over the period from 2020 to 2025.

The data used in the analysis are presented in Table 1.

Table 1

Data used in the analysis

Year	AI Adoption (%)	Employee Productivity (%)
2020	5	20
2021	10	25
2022	30	40
2023	55	52
2024	68	60
2025	75	66

Source. Author’s calculation.

The relationship between AI adoption and employee productivity is illustrated in Figure 1.

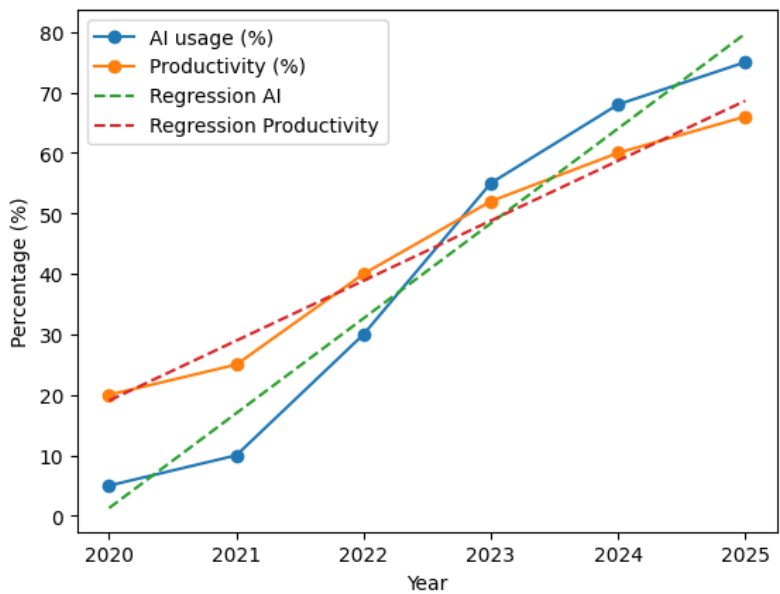


Figure 1. Relationship between AI adoption and employee productivity, 2020–2025

Source. Author's calculation.

The figure illustrates the growth trends in artificial intelligence adoption and employee productivity over the period from 2020 to 2025. A significant increase in the adoption of AI technologies is observed after 2022, along with a continuous rise in employee productivity. The regression lines further confirm the existence of a positive linear relationship between the observed variables.

The obtained data indicate a significant increase in the adoption of artificial intelligence in business. The proportion of organizations using AI technologies increased from 5% in 2020 to 75% in 2025, with the most pronounced growth observed after 2022, which can be associated with the development and widespread availability of generative AI tools.

At the same time, employee productivity shows a continuous increase, albeit at a more moderate pace. The percentage of employees experiencing productivity improvements rose from 20% in 2020 to 66% in 2025. This relationship suggests that the adoption of artificial intelligence has a positive impact on productivity, although this effect is not proportional to the rate of technological adoption.

To further examine the relationship between the variables, a correlation analysis was conducted. The obtained Pearson correlation coefficient ($r \approx 0.996$, $p < 0.05$) indicates an extremely strong positive relationship between AI adoption and employee productivity.

Although the correlation coefficient indicates an extremely strong relationship, this result should be interpreted with caution, as it may partly reflect the structured and modeled nature of the dataset rather than purely empirical observations.

In addition, the results of the linear regression analysis indicate a statistically significant impact of AI adoption on employee productivity. The linear model can be expressed as: $Y = \beta X + \varepsilon$, where β represents the coefficient of the impact of AI adoption on employee productivity. The regression model confirms that increases in AI adoption are accompanied by increases in productivity, with effects materializing gradually over time.

The coefficient of determination ($R^2 \approx 0.99$) indicates a high level of explained variance in employee productivity. However, such a high value should be interpreted with caution, given the limited number of observed time points and the fact that the data are based on aggregated and modeled values. Under such

conditions, linear trends may lead to an overestimation of the strength of the relationship between variables.

In addition to trend analysis, the survey results further support these findings. The analysis of survey responses shows that 65% of respondents believe that artificial intelligence significantly contributes to increased employee productivity, while 20% hold a neutral position and 15% express disagreement.

Based on the conducted analysis, it can be concluded that there is a statistically significant and strong relationship between AI adoption and the growth of employee productivity, thereby confirming the proposed research hypotheses.

5. DISCUSSION

The research results indicate a significant relationship between the adoption of artificial intelligence and increased employee productivity, which is consistent with contemporary trends in digital transformation and recent empirical findings confirming the positive impact of generative AI on work performance (Brynjolfsson et al., 2024; Gojković et al., 2025). The findings should not be interpreted as definitive causal evidence, but rather as indicative patterns that require further validation using real longitudinal datasets.

The rapid increase in AI adoption after 2022 is particularly notable and can be linked to the development and widespread availability of generative AI tools. This period is characterized by accelerated adoption of technologies that enable task automation, data analysis, and the improvement of business processes, as supported by recent studies highlighting the transformative potential of generative AI in business (Dwivedi et al., 2023; McKinsey Global Institute, 2024).

However, the findings also show that the growth in employee productivity does not fully match the pace of AI adoption. This can be explained by adjustment factors such as the need for employee training, changes in organizational processes, and limitations in the implementation of new technologies. Similar conclusions are reported in recent studies emphasizing the importance of employee competencies and human–AI interaction (Jevtić et al., 2025; Jarrahi et al., 2024).

These findings are also consistent with research indicating that institutional frameworks and regulatory stability significantly influence economic growth and the effects of advanced technologies (Lalić & Trifunović, 2026b).

In other words, although artificial intelligence represents a powerful tool for improving business performance, its impact on productivity depends on the

manner of implementation, the level of digital transformation within organizations, and the degree of integration into work processes. Empirical findings suggest that the greatest effects of AI technologies occur in combination with organizational changes and the adaptation of business models, while experimental evidence confirms significant improvements in employee productivity and task performance when using generative AI tools (Brynjolfsson et al., 2024; Noy & Zhang, 2023).

The obtained results have important implications for companies, highlighting the need for a strategic approach to AI implementation, including employee training, competency development, and strengthening cooperation between educational institutions and businesses (Trifunović et al., 2024; Dašić et al., 2024).

It is also important to note that the data used in this study are based on modeled trends, which represents a limitation of the research. Future studies may focus on empirical data collection and the analysis of specific sectors, particularly in the context of the continued development of generative artificial intelligence and its impact on business (Dwivedi et al., 2023).

This study contributes to the existing literature by combining survey-based evidence with trend analysis, providing a broader perspective on the relationship between AI adoption and productivity in the context of digital transformation.

6. CONCLUSION

Contemporary business conditions, characterized by rapid digital transformation, require the adoption of innovative technologies to enhance organizational efficiency and competitiveness. In this context, artificial intelligence stands out as one of the key drivers of modern business development.

The results of the conducted research indicate a statistically significant and strong relationship between the adoption of artificial intelligence and employee productivity. The analysis of trends from 2020 to 2025 shows a substantial increase in AI adoption, particularly after 2022, which can be associated with the development and widespread availability of generative AI tools. At the same time, a continuous increase in employee productivity has been observed, although at a more moderate rate.

The results of correlation and regression analyses support the proposed hypotheses and indicate a positive association between AI adoption, business performance, and employee efficiency. Additionally, survey findings reveal that

the majority of respondents recognize artificial intelligence as an important factor contributing to productivity and business improvement.

However, the findings also indicate that productivity growth does not fully correspond to the pace of AI adoption, suggesting that the effects of AI depend on implementation strategies, employees' digital competencies, and organizational readiness for change.

Based on the above, it can be concluded that artificial intelligence represents a significant factor in business development and the improvement of employee productivity. However, its full potential can only be realized through proper integration into business processes and continuous investment in human capital.

The limitations of this study include the use of modeled data and a convenience sampling method, which may affect the generalizability of the results. Future research may focus on sector-specific analyses and longitudinal studies to provide a more comprehensive understanding of the long-term effects of artificial intelligence.

In this context, artificial intelligence can be viewed as a key factor of competitiveness and long-term development of modern organizations in the era of digital transformation.

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