

AI IN IT BUSINESS: PERCEPTIONS OF SERBIAN IT PROFESSIONALS ON THE IMPACT OF ARTIFICIAL INTELLIGENCE ON INDIVIDUAL PRODUCTIVITY

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ABSTRACT

This paper explores the perceptions of Serbian IT professionals regarding the impact of artificial intelligence (AI) tools on individual productivity in the context of IT business. As AI technologies become increasingly integrated into everyday work environments, particularly in knowledge-intensive industries, understanding user attitudes and experiences is essential. The research is based on a quantitative study conducted through an online questionnaire, which gathered responses from IT professionals working in various roles across Serbia. The questionnaire assessed the frequency of AI tool usage, perceived benefits and challenges, and self-reported changes in work efficiency. The results indicate a generally positive perception of AI tools, especially in relation to time-saving and task automation. This study contributes to a better understanding of how AI adoption is shaping modern IT workflows and provides insights relevant to business leaders and digital entrepreneurs in the tech industry.

Keywords: artificial intelligence, IT professionals, IT business, business applications, job productivity.

INTRODUCTION

Artificial intelligence (AI) is recognized as one of the fastest-growing fields, attracting increasing attention in everyday and business life. It is a form of intelligence similar to human intelligence, demonstrated by machines in solving problems of various kinds (Aldoseri et al., 2023). The goal of AI technology is to develop systems capable of perceiving, learning, planning, predicting, and making decisions in ways that resemble human thinking (Ayinaddis, 2025; Xu, et al., 2021; Enholm et al., 2022; Zohuri & Moghaddam, 2020). Using self-learning systems and technologies such as machine learning, natural language processing, robotics, and computer vision, AI impacts many areas of human activity (Qudus, 2025; Aldoseri et al. 2023; Xu, et al. 2021; Palanivelu & Vasanthi, 2020). These technologies provide significant advantages over human intelligence, including scalability, cost efficiency, consistency, and reduced errors, making AI a central driver of change in society and the economy (Alenezi & Akour, 2025; Palanivelu & Vasanthi, 2020).

The implementation of AI in business and industrial processes has transformed knowledge-based work. In the IT sector, where tasks are often complex, data-intensive, and time-consuming, AI enhances productivity by supporting developers, analysts, and IT professionals in decision-making, code generation, bug detection, workflow optimization, and software testing (Alenezi & Akour, 2025; Ayinaddis, 2025; Qudus, 2025; Xu et al., 2021). Generative AI systems, such as ChatGPT, are extending this influence to industries beyond software. These systems improve performance and problem-solving across areas including customer service, healthcare, transport, finance and education, while also contributing to the development of industry and whole society (Rane, 2023). Furthermore, AI assists in material innovation, project scheduling, safety management, and quality control, demonstrating its broad applicability (Xu et al., 2021).

Despite the growing adoption of AI technologies in the IT industry, organizations often face

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challenges in fully exploiting their potential. Challenges include integrating AI into existing processes, managing diverse data sources, and connecting knowledge across different domains (Enholm et al., 2022;). Particularly in IT, a major challenge lies in understanding how employees actually use AI tools and how value is generated through their application. Recognizing these organizational challenges, alongside the awareness, reflection, and perception of IT professionals, is essential to fully harness the productivity benefits AI can offer (Kerzel, 2021).

The national framework for AI development in Serbia is defined by the Strategy for the Development of Artificial Intelligence 2020–2025 (Government of the Republic of Serbia, 2019). The strategy emphasizes the role of AI as a driver of economic growth, innovation, and improved public services, while also addressing the need for ethical and responsible use of these technologies. Key objectives include improving innovation capacities, supporting the digital transformation of businesses, and fostering the development of human capital by strengthening AI-related skills. In this context, the perceptions and experiences of IT professionals are particularly relevant, as they represent the workforce most directly involved in AI adoption and implementation in practice.

While the adoption of AI in Serbian companies remains limited—only 34% of firms report having experience with artificial intelligence, mainly in ICT and technical services sectors (ICT Hub, 2024)—the perspective of individual IT professionals provides a more dynamic picture. As organizational strategies are still evolving, professionals may be at the forefront of experimenting with AI tools in their daily work.

Beyond technical considerations, IT professionals also face human and organizational challenges, such as balancing automation with human oversight, developing new skills required for AI-driven work, and addressing ethical dilemmas, including model biases and data confidentiality. Research focused on IT specialists' perceptions and experiences with AI is increasingly important, as the human factor largely determines whether technology genuinely improves productivity and work quality (Alenezi & Akour, 2025). Kassa and Worku (2025) emphasize that full integration of AI into work processes requires not only understanding technical and organizational aspects, but also considering employees' perceptions of the usefulness of AI tools and their reflections on the impact on daily tasks. Zhao and colleagues (2025) investigated how employees' awareness of AI influences their job performance, including extra-role tasks, and how perceived overqualification and collaboration with AI shape these outcomes. Laxmi & Leela (2023) examined how employees in IT companies perceive AI use and its impact on their performance in dynamic work environments.

According to the literature, the human factor determines whether technology genuinely increases productivity, as value is created through the way people use AI tools in an organizational context. This study examines the perceptions of IT professionals in Serbia regarding AI usage, the usefulness of AI tools, and their awareness of AI applications in relation to work efficiency.

AI awareness refers to how employees perceive and understand the potential impact of AI technologies on their future careers. It includes both - positive aspects, such as new opportunities and possibilities for personal and professional growth, as well as concerns, such as the risk of job replacement by AI (Zhao et al., 2025). Reflection on artificial intelligence refers to employees' consideration of how AI impacts their work helping them to make decisions, improving their creative abilities, and helping them with routine tasks, contributing to productivity and efficiency within the organization (Laxmi & Leela, 2023). Perceived usefulness of AI tools refers to employees' perception of how AI tools can support their work, improve efficiency, and contribute to better performance (Zhao et al., 2025).

Based on the literature and identified research gaps, the following hypotheses are proposed:

H1: A higher level of reflection on AI use positively influences the job performance of IT professionals in Serbia.

H2: A higher level of awareness of AI positively influences the job performance of IT professionals in Serbia.

H3: A positive perception of the usefulness of AI tools positively influences the job performance of IT professionals in Serbia.

The study is structured around the conceptual model presented in Figure 1, which connects Reflection on AI Usage, AI Awareness, and Perceived Usefulness of AI Tools with Employee Performance. The model illustrates the hypothesized relationships between these constructs and provides a visual framework for testing the proposed hypotheses (H1–H3). By presenting this model, the study highlights the central role of engagement with AI in shaping individual productivity outcomes of IT professionals.

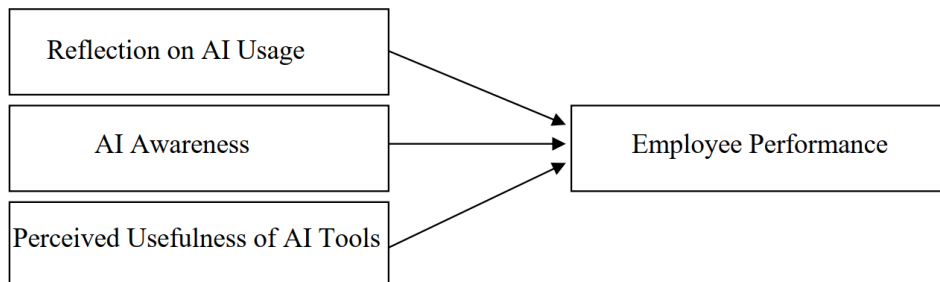


Figure 4. Conceptual model linking Reflection on AI Usage, AI Awareness, and Perceived Usefulness of AI Tools with Employee Performance.

MATERIAL AND METHODS OF WORK

The main objective of this study was to examine the perceptions of IT professionals in Serbia regarding the impact of AI on individual productivity in the business environment. For the purposes of the research, an adapted questionnaire was developed and consisted of 29 questions divided into five main sections.

All sections of the questionnaire were adapted from previous studies to ensure reliability and relevance for examining AI perceptions among Serbian IT professionals. The first section measured Reflection on AI Usage with six items from Zhao et al. (2025), slightly modified for the IT work context. AI awareness was assessed using four items from the same author. The Perceived Usefulness of AI Tools scale was adapted from Laxmi and Leela (2023) and consisted of seven items, while the Employee Performance (efficiency) scale from the same study included six items. All adaptations preserved the key concepts of the original instruments while ensuring applicability to the local context.

Participants responded on a 5-point Likert scale, where 1 represented “strongly disagree” and 5 “strongly agree.” The questionnaire also collected demographic and professional data, including gender, age, education, years of experience in IT, and current job position. In the final item, respondents reported the AI tools they most frequently use.

The questionnaire was distributed electronically via LinkedIn and through private messages sent to contacts within professional IT networks. A total of 87 valid responses were collected during the data collection period, which spanned from April to June 2025. The collected data were systematically processed and analyzed using SPSS software. Preliminary analyses included descriptive statistics to summarize the characteristics of the sample, reliability testing using Cronbach’s alpha to ensure the internal consistency of the adapted scales, and regression analysis to examine the relationships between AI awareness, perceived usefulness of AI tools, and self-reported productivity.

The sample consisted of 58 men and 29 women. The majority of respondents hold a Master’s degree in academic studies (35.6%), followed closely by those with a Bachelor’s degree in academic studies (32.2%). A smaller proportion of participants have a Bachelor’s degree in applied studies (13.8%), while the remaining respondents have a high school diploma (5.7%), a Master’s in applied studies (3.4%), or a Doctorate (9.2%).

The largest group of respondents are mid-level professionals with 4–6 years of experience, representing 31% of the sample. Junior-level employees with 1–3 years of experience make up 25.3%, while entry-level and senior-level participants each constitute 16.1%, and those with over 10 years of experience make up 11.5% of the total. A total of 58% of respondents belong to the

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26–35 age group, while only 20% of participants are older than 36 years. The largest share of respondents works as Programmers/Software Developers, accounting for 51.7% of the sample. This is followed by System Administrators/System Engineers at 19.5%, Project Managers/Scrum Masters at 10.3%, Data Analysts/Data Scientists at 9.2%, while QA/Testers and DevOps/Cloud Engineers each represent 4.6% of the respondents.

RESULTS AND DISCUSSION

Reliability analysis for all variables was conducted using Cronbach's alpha coefficient. The results of the reliability analysis are presented in Table 1. The reliability of the measurement scales, as a key prerequisite for further statistical analysis, was assessed using Cronbach's alpha coefficient. Nunnally (1978) states that a scale can be considered reliable when the Cronbach's alpha value is at least 0.70. All measurement scales used in this study achieved high reliability coefficients. The most reliable scale was for Employee Performance ($\alpha_{EP} = 0.908$), while AI Awareness showed the lowest reliability ($\alpha_{Aw} = 0.776$).

The normality of the data distribution was assessed using skewness and kurtosis values, along with the Kolmogorov–Smirnov test (Table 1). The results indicate that the variables Perceived Usefulness of AI Tools (PU) and AI Awareness (Aw) exhibited only minor deviations from normality, suggesting that their distributions are approximately symmetric and not heavily peaked. In contrast, Reflection on AI Usage (RU) and Employee Performance (EP) showed substantial deviations from normality, with significant negative skewness and high kurtosis values, as confirmed by the Kolmogorov–Smirnov test ($p < 0.001$). These findings suggest that the data for RU and EP are not normally distributed, and therefore, non-parametric statistical techniques were employed in all subsequent analyses.

Table1. Results of reliability and descriptive analysis and normality tests.

Variable	Cronbach's alpha	Mean	Std. deviation	Skewness	Kurtosis	Kolmogorov-Smirnov (N=87)	
						K-S	p-value
Perceived Usefulness of AI Tools (PU)	0.884	3.343	0.9887	-0.378	-0.355	0.075	0.200*
AI Awareness (Aw)	0.776	3.203	1.0655	-0.260	-0.559	0.091	0.072
Reflection on AI Usage (RU)	0.913	4.007	0.9268	-1.687	2.967	0.173	0.000
Employee Performance (EP)	0.908	4.374	0.769	-2.065	6.663	0.208	0.000

*Lilliefors Significance Correction

The mean scores indicate that participants perceive AI tools as moderately useful ($M_{PU} = 3.34$, $SD_{PU} = 0.99$) and have moderate AI awareness ($M_{Aw} = 3.20$, $SD_{Aw} = 1.07$). Engagement with AI in their work ($M_{RU} = 4.01$, $SD_{RU} = 0.93$) and Employee Performance ($M_{EP} = 4.37$, $SD_{EP} = 0.77$) are higher, suggesting frequent use of AI and relatively high self-rated performance.

Table 2 presents the Spearman's rho correlation coefficients between the analyzed variables. The results show a strong positive correlation between PU and Aw ($\rho = 0.666$, $p < 0.001$), indicating that higher perception of usefulness is associated with greater awareness. PU was also moderately positively correlated with RU ($\rho = 0.318$, $p = 0.003$), while Aw showed a similar positive correlation with RU ($\rho = 0.305$, $p = 0.004$). Aw, however, was negatively correlated with EP ($\rho = -0.223$, $p = 0.038$), suggesting that greater awareness does not necessarily translate into higher performance. RU demonstrated a moderate positive correlation with EP ($\rho = 0.367$, $p < 0.001$), whereas PU was not significantly related to EP ($\rho = -0.079$, $p = 0.468$).

Table 2. Correlation analysis

Variable	PU	Aw	RU	EP
Perceived Usefulness of AI Tools (PU)	1			
AI Awareness (Aw)	0.666**	1		
Reflection on AI Usage (RU)	0.318**	0.305**	1	
Employee Performance (EP)	-0.079	-0.223*	0.367**	1

* p <0.05, ** p <0.01

The multiple regression analysis was performed to examine the impact of PU, Aw, and RU on EP. Despite minor deviations from normality for some variables, the sample size (N = 87) is sufficient for regression, and linear relationships were supported by correlation analysis. Multicollinearity among predictors was tested. Tolerance values ranged from 0.47 to 0.74, while VIF values were between 1.34 and 2.09. Since all Tolerance values are above the recommended threshold of 0.20, and all VIF values are below 5, it can be concluded that there are no multicollinearity issues in the model.

The overall model was statistically significant, $F(3, 87) = 11.603$, $p < 0.001$, explaining 29.5% of the variance in EP ($R^2 = 0.295$, Adjusted $R^2 = 0.270$). The coefficients show that:

- PU had a positive but non-significant effect on EP ($\beta = 0.177$, $t = 1.417$, $p = 0.160$).
- Aw had a significant negative effect on EP ($\beta = -0.403$, $t = -3.030$, $p = 0.003$).
- RU had a significant positive effect on EP ($\beta = 0.597$, $t = 5.591$, $p < 0.001$).

These findings indicate that Reflection on AI Usage is the strongest positive predictor of employee performance, while Awareness of AI negatively affects performance. Perceived Usefulness, although positively related, does not significantly influence EP in this model.

Table 3. Multiple linear regression analysis

Variable	B	Standard Error	Beta	t	Sign. (p)
Constant	2.858	0.341	-	8.386	0.000
PU	0.138	0.097	0.177	1.417	0.160
Aw	-0.291	0.096	-0.403	-3.030	0.003
RU	0.496	0.089	0.597	5.591	0.000

Dependent Variable: Employee Performance, $R^2 = 0.295$; $F = 11.603$; Sig = 0.001, N=87

*p <0.05, ** p <0.01

The results of this research can be compared with previous studies. While Laxmi and Leela (2023) showed that AI mostly has a positive impact on employees' work performance, our findings indicate that the situation may be more complex. Specifically, Aw can sometimes create a sense of overqualification and negatively affect performance, but through reflection on its use and collaboration with AI, better outcomes can be achieved. These conclusions align with more recent studies (Zhao et al. 2025), emphasizing that the impact of AI is not one-sided, but depends on how employees perceive and apply these technologies.

The analysis of responses from IT professionals in Serbia shows that ChatGPT is the most frequently used AI tool, mentioned by approximately 62% of participants. This highlights its wide application in various tasks, from content generation and client communication to coding support and data analysis. Microsoft Copilot and GitHub Copilot were also commonly used, with usage rates of around 18% and 9%, respectively, reflecting their importance in software development and programming tasks. Other tools such as DeepSeek, Gemini, and Grok were used less frequently, with adoption rates between 5–7%, while Grammarly and Claude had limited use, mainly for writing, proofreading, or UI prototyping. Tools like DALL·E, Gamma, and TabnineAI were not

reported in this sample, indicating lower popularity among IT professionals in Serbia. Overall, these results indicate that IT professionals predominantly rely on AI tools for text generation, coding assistance, and task automation, while specialized tools are used selectively. ChatGPT clearly serves as the central tool in daily work, complemented by other AI applications for specific functions.

CONCLUSIONS

This study provides an initial exploration of how AI-related factors influence perceived job performance among IT professionals in Serbia. The results show that reflective engagement with AI tools (RU) is the strongest positive predictor of employee performance, suggesting that employees who actively consider how AI can support their tasks, improve decision-making, and reduce routine workloads achieve higher efficiency. These findings are consistent with prior experimental evidence showing that generative AI improves both the speed and quality of professional work (Noy & Zhang, 2023; Brynjolfsson, Li, & Raymond, 2023). In contrast, AI awareness (Aw was negatively associated with performance), suggesting that simple awareness of AI's potential may not translate into improved productivity and could even create a sense of overqualification or hesitation. Perceived usefulness of AI tools (PU) demonstrated a positive but non-significant relationship with performance, implying that subjective evaluations of utility are insufficient without reflective application.

These findings highlight the importance of cognitive and behavioral engagement with AI, beyond simple exposure or awareness. Organizations should therefore not only provide AI tools, but also foster reflective practices, such as training programs, guided use-cases, and collaborative experimentation, to enable employees to fully harness AI's potential. The results also underline the complex nature of AI integration: its impact depends largely on how employees perceive, interpret, and actively utilize the technology in their daily work routines.

The findings also have practical implications for IT managers and organizations. Reflection on AI usage proved to be the strongest predictor of employee performance, suggesting that companies should not only invest in AI tools, but also create training programs and guidelines that encourage employees to critically reflect on their use. Furthermore, the negative effect of AI awareness indicates that awareness campaigns alone are not sufficient and may even discourage productivity if not accompanied by practical skill-building. Finally, the results highlight the need for better alignment between individual-level adoption of AI tools and broader organizational strategies, in order to fully realize the productivity benefits of artificial intelligence in the IT sector.

For IT managers, these insights suggest that successful AI deployment requires attention to organizational culture, employee engagement, and reflective practices, in addition to technical implementation. Future research could expand on these findings by exploring team-level interactions with AI, or investigating sector-specific AI applications to provide a more comprehensive picture of AI's influence on productivity.

This study has some limitations that should be considered. The sample size (N = 87) is relatively small and may not fully represent the diversity of IT professionals in Serbia. Consequently, the generalizability of the results to other contexts or countries may be limited. Future studies could include larger and more heterogeneous samples to enhance external validity.

The data were collected through self-reported questionnaires, which are subject to social desirability bias and individual interpretation of AI-related concepts. It is also important to emphasize that the study examined self-reported perceptions of productivity rather than objectively measured performance indicators, which limits the ability to draw definitive conclusions about actual productivity outcomes. Employees may have overestimated or underestimated their engagement with AI tools, awareness, or perceived usefulness. Multi-source data, such as supervisor evaluations or system usage logs, could provide more objective insights.

This study focused primarily on individual-level perceptions of AI usage, awareness, and usefulness, without considering team-level or organizational-level factors that may influence productivity, such as collaboration dynamics, managerial support, or organizational culture.

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Incorporating these factors in future research would provide a more comprehensive understanding of AI's impact on performance.

And finally, the study did not differentiate between types of AI tools in depth. While general tools like ChatGPT and Copilot were considered, specialized AI applications for specific tasks may produce different effects on productivity. Future research could investigate tool-specific impacts and their interactions with job roles.

Overall, the study emphasizes that the impact of AI on productivity is not uniform but depends on how employees perceive, interpret, and actively apply these technologies. Strategic alignment of AI adoption with reflective employee practices may therefore be crucial for maximizing the benefits of AI in the IT sector.

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DECLARATIONS OF INTEREST STATEMENT

The authors affirm that there are no conflicts of interest to declare in relation to the research presented in this paper.

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