

ATTITUDES AND KNOWLEDGE OF THE INHABITANTS OF SERBIA ABOUT ARTIFICIAL INTELLIGENCE AND ITS TECHNOLOGIES

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ABSTRACT

This study provides a new perspective on trust in artificial intelligence (AI), examining people's attitudes toward trust in the use of AI systems in particular. The aim of this study is to examine attitudes and to know what are the advantages and disadvantages of artificial intelligence (AI). Also, in addition to the empirical part, this paper also deals with

theoretical knowledge about artificial intelligence, which is the basis of the existing literature. For the purposes of this research, the authors created a survey based on secondary sources. The survey was conducted on the entire territory of Serbia. The subject of this work is the examination of the attitudes and knowledge of the inhabitants of Serbia about artificial intelligence as well as its technologies, which focuses on a deeper understanding of the perceptions and attitudes of the public in Serbia about artificial intelligence.

Keywords: Artificial intelligence, user attitudes and perception, technological integration, impact of AI on the labor market and research.

INTRODUCTION

In the field of IT, which is constantly evolving, artificial intelligence (AI) is gaining importance because it provides interaction with necessary information and services (Gökçearsan, Tosun, & Erdemir, 2024). In today's era, AI has a larger number of processes, such as learning, decision-making, reasoning, understanding the direction in which individuals are involved in order to obtain new necessary information that AI enables them, and therefore it is becoming increasingly important in business. So today, a larger number of organizations in different business segments are actively integrating or thinking about merging artificial intelligence (AI) into their business (Füller, Hutter, Wahl, Bilgram, & Tekic, 2022). So, this is the time when artificial intelligence (AI), with its admixtures, provides its decisions and is present in our lives every day and is certainly becoming a part of every person or company. The trend is

reflected in how individuals form their preferences with the help of AI applications. Telecommunications, engineering, consumer, healthcare, pharmaceutical and educational institutions are among the first to implement AI technology (Perifanis, & Kitsios, 2023). Therefore, the authors Karaman and Goksu (Karaman, & Göksu, 2024), emphasized that the combination of AI and chatbots is important because it has led to extreme changes in the education sector, adopting a large number of applications that have been successfully implemented. In the sphere of education in larger areas, learning platforms have been adapted to improve the educational experience of students, automated processes that provide teachers with the process of student progress as well as the ability to recognize students and thus monitor their progress. The application of AI in educational institutions is important because its implementation represents a reengineering of traditional teaching methods and improves the overall learning ecosystem (Mabuan, 2024). The growth of digitalization and the adoption of AI has changed the business world in the environment (Javaid, Haleem, Singh, Suman, & Gonzalez, 2022). So, AI in modern conditions affects the way an organization works, in the sphere in which corporate strategy will be implemented (Kraus, et al., 2022). Artificial intelligence (AI) is considered a branch of computer science that is implemented to simulate intelligent behavior in computers with the aim of imitating and ideally improving human behavior (Naqvi, 2020). It has a significant impact in the fields of engineering, mechanical engineering, medicine, and other technologies, and therefore has an impact on education because with the help of machine learning systems and algorithms, it contributes to many solutions. The application of artificial intelligence is not always at the forefront of everyday life, it has an impact on various aspects of people's lives as we routinely interact with AI applications.

Artificial intelligence (AI) is becoming increasingly present in academia and education, using technology as a primary and significant component (Giray, Jacob, & Gumalin, 2024). With the implementation of the effect of AI applications such as ChatGPT,

learning becomes applicable because it allows easier overcoming of obstacles in unfamiliar material (Karaman, & Göksu, 2024). Learning systems are designed to improve the user experience in learning, automated assessment systems that allow teachers to assess what has been learned, as well as facial recognition systems that offer insight into student behavior can be seen as different algorithmic applications of artificial intelligence in education, all of which aim to improve users in acquiring new skills (Remian, 2019). The application of artificial intelligence (AI) in almost all spheres is growing, and for this reason, new innovative capabilities are being adopted and directed in this context (Gansser, & Reich, 2021). Many companies are adopting artificial intelligence (AI) for a different group of tasks, for example: medical concerns, stock trading, the role of trust in artificial intelligence systems and aggregates plays the most significant role (Maslej, et al., 2023). It is known that artificial intelligence (AI) operates with the help of algorithms, which are part of the technique, the so-called "rational search for standardized means or practices for achieving already defined results" (Lindebaum, Glaser, Moser, & Ashraf, 2022). The technique can exploit the basic advantages of companies that rely on the value itself and are the basis of organizational activities as well as support the implementation of strategy (Rindova, & Martins, 2023). Companies that aim to have a competitive advantage with the application of artificial intelligence (AI) run the risk of concealing the decision of interested future customers (van Houwelingen, & Stoelhorst, 2022). It is important to align the tool (AI) with the necessary goals, values and the impact that it can have on trust in the agendas of artificial intelligence adopted by supra-actors (Gabriel, 2020), as well as researchers in various fields of research, such as morality (Malle, 2016), transparency (Xu, Benbasat, & Cenfetelli, 2014), explainability (Rai, 2020) and the concept of artificial intelligence (Cunneen, et al., 2020). For example, after interacting with ChatGPT, a GPT-based chatbot created by OpenAI, users with conservative political views expressed the belief that ChatGPT was embedded in OpenAI's bias against conservative views (Mitchell, 2023). For this

reason, Sam Altman, CEO of OpenAI, has highlighted this issue as one of the most pressing challenges they face in developing their AI agents (Vincent, 2023). AI technologies have been implemented to perform economic tasks with greater care and reliability than humans (Balasubramanian, Ye, & Xu, 2022). AI technologies have proven themselves in performing repetitive, well-defined tasks that follow specific protocols (Berente, Gu, Recker, & Santhanam, 2021). However, the current form of AI is limited in handling unformulated, unstructured, higher-level tasks (Brynjolfsson, & McAfee, 2014), and this is because it lacks human creativity in generating novel answers to unknown problems (Wilson, & Daugherty, 2018). The application of AI requires that this tool be properly aligned with human needs, goals, and values (Russell, 2019). Empirical work has shown that AI alignment is of great concern to the general public (Zhang, et al., 2021). Given the impact of AI agents on people's lives, the United Nations and many AI practitioners and scholars have expressed concern about the limited research on AI alignment (Future of Life Institute, 2017) and have called for more work on how AI can be aligned with "shared global values" (Microsoft, 2023). Rapid technological advances in organizations, especially the growing adoption of artificial intelligence (AI) technologies in the workplace, have created an urgent need for scholars and practitioners to rethink the future of work and workplace dynamics (Balasubramanian, Ye, & Xu, 2022; Brynjolfsson, Liu, & Westerman, 2022; Iansiti, & Lakhani, 2020). Most scholars believe that AI has an impact because of its capabilities in conducting data analysis and making statistical predictions, which is a result of better accuracy in solving certain problems that require more information related to organizational management (Tong, Jia, Luo, & Fang, 2021), not to mention the threat that human resource managers may be threatened in terms of expressing their views (Köchling, & Wehner, 2020; Lee, 2018). Research based on artificial intelligence (AI) provides evidence of the application of algorithms, where people follow algorithmic advice and apply it (You, Yang, & Li, 2022). Namely, there are strong

reasons to be pessimistic about AI outperforming its own data analytics "game" due to the long-known cognitive limitations of humans in making statistical predictions compared to algorithms (Dawes, 2008) and the constant technological improvement of AI capabilities (Lee, 2018).

Based on knowledge about artificial intelligence The research topic "Attitudes and knowledge of Serbian citizens on artificial intelligence and its technologies" focuses on a deeper understanding of the perceptions and attitudes of the public in Serbia on artificial intelligence (AI). Research objectives: Examination of general knowledge about artificial intelligence - To determine how familiar Serbian citizens are with the basic concepts, applications and terminology related to AI. Analysis of attitudes and perceptions about artificial intelligence - To investigate how Serbian citizens perceive AI in the context of ethical and social issues, as well as their views on possible benefits and risks. Consideration by demographic characteristics: To analyze how attitudes towards artificial intelligence differ among different demographic groups (gender, age, education, employment), Education and information - Identifying gaps in knowledge about AI can help in designing educational programs and awareness-raising campaigns. Preparing for technological change - Understanding citizens' attitudes can help companies and organizations better prepare for the introduction of AI technologies, adapt their products and services to the needs and expectations of users. Social adaptation - Monitoring attitudes and perceptions can facilitate social adaptation to the rapid technological changes brought about by AI, helping to reduce resistance and fear of new technologies. Acceptance and education - To assess the level of acceptance of AI technologies in society and the need for additional education or information on this topic. Research reasons: Lack of data - There is a need for systematic research in order to obtain a clear picture of the attitudes and knowledge of the inhabitants of Serbia about AI, given the rapid technological progress in this area.

In accordance with the research objectives, the following hypotheses were

defined: Primary hypothesis: H0: Respondents have knowledge of artificial intelligence (AI). While the auxiliary ones: H1: Respondents use AI in everyday life, H2: Respondents are satisfied with the achievements that AI enables them. H3: Respondents believe that AI can improve work efficiency. In the research process, there were certain limitations that arose from the models themselves, but due to the conclusion that the expected response was not obtained. For the above reason, the authors adapted the questionnaire for this research. Namely, this method of data collection has its positive sides, such as reducing costs, reducing the possibility of influencing the interviewer to respond to the user, and convenience for people. The statistical program SPSS version 26 was used to process the data.

THE SAMPLE OF RESPONDENTS

The reliability of the measurement scale was checked using Cronbach's alpha (α). The obtained Cronbach's alpha coefficient ($\alpha = 0.845$) indicates a high level of reliability and internal consistency, as it exceeds the recommended threshold of 0.8. Therefore, the questionnaire responses and respondents' ratings can be considered reliable for further analysis.

RESEARCH RESULTS

The research was conducted on a sample of 123 respondents, citizens of the Republic of Serbia, from various demographic categories. The age distribution of the sample includes respondents under 18 years (2.4%), those aged 19–25 years (57.7%), 26–50 years (35.0%), and over 50 years (4.9%) (Table 1). The average age of respondents is 29 years. Given that the majority of participants belong to the 19–50 age group (92.7%), the findings primarily reflect the attitudes of younger and middle-aged adults. The inclusion of respondents under 18 and over 50, despite their lower representation, provides additional insights into generational differences in AI perception. However, for a more precise analysis, future research could focus specifically on the 18–50 age group, where AI adoption and its impact on professional and daily activities are most pronounced. In the social sciences, samples larger than 30 are

often considered sufficient for basic statistical analyses, especially when using a normal data distribution (eg, the central limit theorem). Cronbach's alpha coefficient ($\alpha = 0.845$) shows that there is a high level of reliability of the questionnaire, which means that the obtained data are consistent and valid for further analysis. Similar studies on attitudes and perceptions often use samples of 100 to 300 respondents, especially when the goal is to examine general trends and perceptions in the population. For example, a study by Masley et al. (2023) used a sample of 110 respondents to analyze the perception of AI technologies, and the results were statistically valid.

Descriptive sample analysis

The results of the descriptive sample analysis with frequency (absolute and relative - percentage) in relation to gender show that there were more men 64 (52%) than women (48%). The structure of respondents in relation to age shows that there were a maximum of 71 respondents aged 19-25 (57.7%) and 35% of respondents aged 26 to 50, while the youngest (2.4%) and oldest respondents (4.9%) had the lowest number. In relation to the region where they live, the most are from the region of Šumadija and Western Serbia (32.5%), AP Vojvodina (23.6%) and Belgrade and its surroundings (22%), while the least are from Kosovo and Metohija (3.3%). There were more students than others and more unemployed than employed (65%). In the descriptive analysis of the sample, it is stated that the majority of respondents were students (65%) and that there were more unemployed than employed individuals. This demographic structure is particularly relevant for the study of attitudes toward artificial intelligence (AI), as students and younger individuals generally have greater exposure to AI technologies through education and digital platforms. Additionally, unemployed respondents may have a distinct perspective on AI's impact on the labor market, automation, and job opportunities. By analyzing these groups, the study provides insights into how AI is perceived by those who are entering or seeking to enter the workforce, making their opinions crucial for understanding future trends in AI adoption and its socio-economic implications.

Table 1. Structure of the sample according to demographic characteristics

Respondent categories	N = 123	Frequency	Percent
Gender	Male	64	52.0
	Female	59	48.0
Age	Up to 18 years	3	2.4
	from 19-25 years old	71	57.7
	from 26-50 years old	43	35.0
	over 50 years	6	4.9
Region where they live	Belgrade and surroundings	27	22.0
	Šumadija and Western Serbia	40	32.5
	Southern and Eastern Serbia	23	18.7
	Vojvodina	29	23.6
	Kosovo and Metohija	4	3.3
Student	not a student	43	35.0
	student	80	65.0
Employed	unemployed	80	65.0
	employee	43	35.0

Analysis of respondents' responses

The sample is not representative, although statistically it belongs to the group of large samples (N>50), but with a non-homogeneous structure and a very different number of respondents in relation to categories (groups), which is why the obtained results should be used with caution in generalizing conclusions.

The reliability of the measurement scale was checked using Cronbach's alpha α . Cronbach's alpha coefficient is good ($\alpha = 0.845 > 0.8$), which indicates a high level of reliability and internal consistency, which is why the responses obtained on the questionnaire and the respondents' ratings can be safely trusted for further analysis.

Analysis of respondents' responses

Respondents answered 21 questions in three areas: (1) general knowledge about artificial intelligence (4 questions), (2) practical applications of artificial intelligence (5 questions), and (3) attitudes and perceptions about artificial intelligence (12 questions) on a five-point Likert scale with answers ranging from 1-5. Respondents' responses to answers

ranging from 1-5 were assigned appropriate scores from 1-5, and the weighted scores for each respondent were summed, the scores for all areas were summed, and an overall average score on artificial intelligence was derived. The mean scores of the respondents' responses are shown as the arithmetic mean (M) \pm standard deviation (SD), as a measure of dispersion that also shows the spread of individual scores. Respondents rated general knowledge about artificial intelligence with an average score of 3.80 ± 0.67 (Table 2), which is significantly higher than the average summary score for all answers on artificial intelligence (3.49 ± 0.5). Most respondents (99%) have heard of artificial intelligence and rated it highly (4.46), but for the key question of how much they know about artificial intelligence, the average summary score is significantly lower (3.61 ± 0.97) with a greater dispersion of individual scores up to one score (according to SD). More than half of the 73 respondents (59.4%) stated that they know or absolutely know about artificial intelligence, as opposed to 10.6% of respondents who do not know or know nothing at all about artificial intelligence.

Table 2. Mean values of respondents' ratings on general knowledge of artificial intelligence

Questions	N=123	M	SD	Min.	Max.
How often do you hear the term "artificial intelligence"		4.46	0.64	2	5
How much do you know about artificial intelligence		3.61	0.97	1	5
In your opinion, is artificial intelligence when Google can predict what you will type in the search box		3.82	1.09	1	5
In your opinion, is machine learning the same as artificial intelligence		3.31	1.09	1	5
General knowledge about artificial intelligence		3.80	0.67	1.25	5.00
Average summary score for artificial intelligence		3.49	0.50	1.86	4.71

The practical application of artificial intelligence was rated with an average score of 3.31 ± 1.00 (Table 3), which is in line with the average summary score for all responses on artificial intelligence (3.49 ± 0.5). Most respondents (27%) use artificial intelligence in everyday life occasionally or often, 12.2% very often, while only 13.8% have never used artificial intelligence. 47.9% use it often or

very often at work, while 37.4% do not use it at work or very rarely. Artificial intelligence is used on average for up to an hour at most (41.5%), up to three hours a day (31.7%) and up to eight hours a day (11.4%). Of the artificial intelligence tools or technologies, ChatGPT is used the most (83.7%). Most users (68.3%) are satisfied with the results of using artificial intelligence tools.

Table 3. Mean values of respondents' ratings on the application of artificial intelligence

Questions	N=123	M	SD	Min.	Max.
How often do you hear the term "artificial intelligence"		3.04	1.23	1	5
How much do you know about artificial intelligence		3.06	1.37	1	5
In your opinion, is artificial intelligence when Google can predict what you will type in the search box		3.33	1.14	1	5
In your opinion, is machine learning the same as artificial intelligence		3.81	0.57	1	7
General knowledge about artificial intelligence		3.83	0.88	1	5
Average summary score for artificial intelligence		3.31	1.00	1.00	5.00
How often do you hear the term "artificial intelligence"		3.49	0.50	1.86	4.71

Based on the presented results, it can be concluded that the inhabitants of Serbia are very well acquainted with the basic concepts, applications and terminology of artificial intelligence (3.80 ± 0.67), while the practical application of artificial intelligence in everyday life and work is significantly lower (3.31 ± 1.00) with a larger dispersion of individual scores. Attitudes and perceptions about artificial intelligence were rated with an average score of 3.43 ± 0.5 (Table 4), which is in line with the average summary score for all responses about

artificial intelligence (3.49 ± 0.5). In order to summarize all the ratings of attitudes in the same direction, the oppositely defined questions (1) were first decoded, asking whether they agree with the well-known sentence "People will lose their jobs because of artificial intelligence", to which the majority disagreed (79.7%) and 76.4% of respondents to the question (2) whether the description in the introduction to the questionnaire is too futuristic. Most respondents agree that artificial intelligence will not cause people to lose their

jobs and that artificial intelligence is a real present and future, but 81.3% of respondents believe that some limits should be set regarding the use of artificial intelligence (4.20 ± 1.06). Respondents expressed very consistent views, also with high scores, on the following questions: 77.2% of respondents believe that with the development of artificial intelligence, some jobs will become more important (3.89 ± 1.01), that artificial intelligence will improve their work efficiency in their current or future profession (3.84 ± 0.98) and, which is very important for the introduction of new artificial intelligence technologies in all branches of the economy, 68.3% of respondents stated that artificial intelligence will become an integral part of all industries (3.76 ± 1.09).

On the other hand, 64.3% of respondents claim that artificial intelligence has the potential to improve our daily lives (3.58 ± 1.11) and believe that artificial intelligence can affect our privacy and security (3.73 ± 1.13), but with a greater spread of individual ratings by an average of over one rating.

Respondents were also in a dilemma about whether artificial intelligence can have ethical (moral) dilemmas (3.28) and whether artificial intelligence will reach the level of human consciousness (2.34) with a large gap of individual ratings of over one rating ($SD=1.25$). In contrast to undecided attitudes on these issues and partial agreement with only 3.3% of respondents that artificial intelligence could replace all jobs, such as kindergarten (1.26 ± 0.65), 95.1% of respondents unanimously support the opposite view that artificial intelligence cannot replace all jobs.

Table 4. Mean values of attitudes towards artificial intelligence

Questions	N=123	M	SD	Min.	Max.
Do you think that artificial intelligence can improve work efficiency in your current or future profession?		3.84	0.98	1	5
Do you agree with the famous sentence "People will lose their jobs because of artificial intelligence"		4.03	1.14	1	5
Do you think that artificial intelligence could replace all jobs, such as a teacher?		1.26	0.65	1	4
In your opinion, will some jobs become more important with the development of artificial intelligence?		3.89	1.01	1	5
Google CEO Sundar Pichai claimed that artificial intelligence would transform humanity more as a species than electricity and fire.		3.20	1.13	1	5
Do you think that artificial intelligence has the potential to improve our daily lives?		3.58	1.11	1	5
Do you think that artificial intelligence can affect our privacy and security?		3.73	1.13	1	5
Do you believe that artificial intelligence will reach the level of human consciousness?		2.34	1.25	1	5
Do you think that artificial intelligence can have ethical (moral) dilemmas?		3.28	1.25	1	5
Do you think it is important to set certain boundaries regarding the use of artificial intelligence?		4.20	1.06	1	5
Do you think artificial intelligence will become an integral part of all industries?		3.76	1.09	1	5
Is the previous text in the questionnaire description too futuristic?		4.04	1.26	1	5
Attitudes and perceptions of artificial intelligence		3.43	0.50	2.00	4.67
Average summary score for artificial intelligence		3.49	0.50	1.86	4.71

Based on the results presented, it can be concluded that the attitudes and perceptions of the inhabitants of the Republic of Serbia regarding artificial intelligence are relatively good, which is confirmed by the average summary score (3.49 ± 0.5). The level of knowledge about artificial intelligence and citizens' awareness of the necessity of its application can facilitate social adaptation to rapid technological changes, while reducing resistance and fear of the introduction of new technologies, as well as strengthening the belief that artificial intelligence has the potential to improve our everyday lives, positively affect our privacy and security. In addition to social adaptation, in the economic sphere, citizens of Serbia believe that artificial intelligence will improve their work efficiency in their current or future profession, that it is a real present and future, that it can replace certain jobs, but they are of the same opinion that artificial intelligence cannot replace all jobs and that certain limits should be set regarding the use of artificial intelligence. Understanding citizens' attitudes towards artificial intelligence contributes to better preparations of companies and organizations of all sectors of the economy for the introduction of new technologies into their technological, production or service process for the management and organization of business processes. Citizens believe that artificial intelligence will become an integral part of all industries, used to optimize production, analyze the market and predict consumer needs. In addition to the economy, the strategy for the development of artificial intelligence in Serbia also includes the public sector to improve the work of public administration to improve the efficiency of public services,

improve healthcare and transport, as key areas for the application of artificial intelligence in the public sector.

Analysis of attitudes towards artificial intelligence in relation to demographic groups

The analysis of attitudes towards artificial intelligence in relation to different demographic groups (gender, age, employment, location) was carried out using the T-test for independent samples to compare differences in mean values for categorical variables with two categories (gender and employment) and analysis of variance (ANOVA) to compare differences in categorical variables with more than two categories with an additional post hoc multiple comparison test (LSD).

The comparison of response frequencies in relation to demographic groups of respondents was carried out using the Chi-square test "Crosstabs" (Table 4). The results of the Chi-square test show the frequency of ratings of attitudes towards artificial intelligence, which range from sufficient to excellent and that there are no statistically significant differences in relation to all demographic groups. This conclusion stems from the fact that in all groups the frequency is similar, that the lowest for ratings is sufficient and excellent, and that the attitudes of the majority of citizens are rated good and very good, which range from 25-75%. On average, for all demographic groups, the frequency of ratings of sufficient and excellent is only 4% and 3%, while the frequency of ratings of good and very good is 50% and 42%, respectively.

Table 5. Frequency of ratings of attitudes towards artificial intelligence in relation to demographic groups

Demographic group (number/%)		Attitudes towards artificial intelligence				Total	η^2	p
		2	3	4	5			
Gender	Male gender	4	28	29	3	64	3.876	0.275
		6.3%	43.8%	45.3%	4.7%	100%		
	Female gender	1	34	23	1	59		
		1.7%	57.6%	39.0%	1.7%	100%		
Age	Under 18 years	0	1	2	0	3	6.215	0.718
		0.0%	33.3%	66.7%	0.0%	100%		
	19 - 25 years old	2	40	26	3	71		
		2.8%	56.3%	36.6%	4.2%	100%		
	26 - 50 years	2	19	21	1	43		
		4.7%	44.2%	48.8%	2.3%	100%		
	over 51 years	1	2	3	0	6		
		16.7%	33.3%	50.0%	0.0%	100%		
Employment	unemployed	3	40	34	3	80	0.241	0.971
		3.8%	50.0%	42.5%	3.8%	100%		
	employed	2	22	18	1	43		
		4.7%	51.2%	41.9%	2.3%	100%		
Location	Belgrade and surroundings	1	13	11	2	27	9.378	0.670
		3.7%	48.1%	40.7%	7.4%	100%		
	Šumadija and Western Serbia	2	16	20	2	40		
		5.0%	40.0%	50.0%	5.0%	100%		
	Southern and Eastern Serbia	2	13	8	0	23		
		8.7%	56.5%	34.8%	0.0%	100%		
	Vojvodina	0	17	12	0	29		
		0.0%	58.6%	41.4%	0.0%	100%		
Total		5	62	52	4	123		
		4.1%	50.4%	42.3%	3.3%	100%		

An examination of the differences in the mean values of citizens' opinions on artificial intelligence in relation to demographic groups (Table 6) also determined that there are no

statistically significant differences in opinions between all demographic groups of citizens of the Republic of Serbia.

Table 6. Mean values of citizens' opinions on artificial intelligence in relation to demographic groups

Demographic groups		N	M	SD	t (F)	df	p
Gender	Male gender	64	3.48	0.54	1.154	121	0.251
	Female gender	59	3.38	0.45			
Employment	Unemployed	43	3.44	0.52	0.158	121	0.875
	employed	80	3.42	0.49			
Age	Under 18 years	3	3.58	0.25	0.435	3	0.728
	19 - 25 years old	71	3.41	0.48			
	26 - 50 years old	43	3.47	0.51			
	over 51 years	6	3.26	0.74			
Location	Belgrade and aurroundings	27	3.52	0.58	0.939	4	0.444
	Šumadija and Western Serbia	40	3.49	0.51			
	Južna i istočna Srbija	23	3.29	0.43			
	Vojvodina	29	3.40	0.46			
	Kosovo and Metohija	4	3.25	0.42			
Total		123	3.43	0.50			

M - arithmetic mean, SD - standard deviation, t - value, test statistic, F - value, ANOVA analysis statistic.

Below is a tabular presentation of descriptive statistics Frequency of respondents' responses to all questions.

Namely, below the question 'Is the previous text in the description of the questionnaire too futuristic?' refers to the introductory part of the questionnaire in which respondents are introduced to the basic

concepts, current applications and possible future development of artificial intelligence. This part of the questionnaire was intended to provide context for further questions and to examine respondents' perceptions of the future of AI technologies. The detailed content of this description can be found in Annex 1.

Table 7. Descriptive statistics Frequency of respondents' responses to all questions¹

Questions and answers		Frequency	Percentage	η ²	p
Is the previous text in the description of the questionnaire too futuristic	Absolutely yes	63	51.2	89.480	0.000
	Yes	31	25.2		
	Undecided	8	6.5		
	No	13	10.6		
	Absolutely not	8	6.5		
How often do you hear the term "artificial intelligence"	Rarely	1	0.8	97.325	0.000
	Occasionally	7	5.7		
	Often	50	40.7		
	Very often	65	52.8		

¹ **Note:** In the case of the same significance of differences in respondents' answers (p=0.000), the differences are greater for higher η²-values

Table 7. Descriptive statistics Frequency of respondents' responses to all questions - continued²

Questions and answers		Frequency	Percentage	η^2	p
Do you use artificial intelligence in your daily life	Never	17	13.8	12.569	0.014
	Rarely	24	19.5		
	Occasionally	34	27.6		
	Often	33	26.8		
	Very often	15	12.2		
Do you use artificial intelligence in your work	Never	24	19.5	14.764	0.005
	Rarely	22	17.9		
	Occasionally	18	14.6		
	Often	41	33.3		
	Very often	18	14.6		
How much do you use artificial intelligence every day	I don't use	16	13.0	63.301	0.000
	Less than one hour a day	51	41.5		
	Between one and three hours a day	39	31.7		
	Between three hours and eight hours a day	14	11.4		
	All day	3	2.4		
What AI tools or technologies do you use	ChatGPT	103	83.7	520.359	0.000
	Canva AI Art	5	4.1		
	Gemini	3	2.4		
	DALL-E	2	1.6		
	Jasper AI	2	1.6		
	Copilot	1	0.8		
	Prome AI	1	0.8		
Are you satisfied with the results you got using artificial intelligence tools	Absolutely not	3	2.4	83.707	0.000
	No	3	2.4		
	I'm not sure	33	26.8		
	Yes	57	46.3		
	Absolutely yes	27	22.0		
Do you think artificial intelligence can improve work efficiency in your current or future profession	Absolutely not	4	3.3	66.797	0.000
	No	6	4.9		
	I'm not sure	28	22.8		
	Yes	53	43.1		
	Absolutely yes	32	26.0		

² **Note:** In the case of the same significance of differences in respondents' answers ($p=0.000$), the differences are greater for higher η^2 -values

Table 7. Descriptive statistics Frequency of respondents' responses to all questions - continued³

Questions and answers		Frequency	Percentage	η^2	p
How much do you know about artificial intelligence	I don't know at all	5	4.1	66.715	0.000
	I don't know	8	6.5		
	I neither know nor do I know	37	30.1		
	I know	53	43.1		
	I absolutely know	20	16.3		
In your opinion, is it artificial intelligence that Google can predict what you will type in the search box	Completely false.	8	6.5	61.187	0.000
	Partially incorrect	4	3.3		
	I don't know, I have no opinion	25	20.3		
	Partially true	51	41.5		
	Absolutely correct	35	28.5		
In your opinion, is machine learning the same as artificial intelligence	Completely false.	9	7.3	60.618	0.000
	Partially incorrect	11	8.9		
	I don't know, I have no opinion	57	46.3		
	Partially true	25	20.3		
	Absolutely correct	21	17.1		
"People will lose their jobs because of artificial intelligence" - a sentence we hear more and more often. Do you agree with that	I completely disagree.	54	43.9	89.642	0.000
	I partially disagree	44	35.8		
	I don't know, I have no opinion	3	2.4		
	I partially agree	19	15.4		
	I completely agree	3	2.4		
Do you think artificial intelligence could replace all jobs, such as a teacher	I completely disagree	101	82.1	217.715	0.000
	I partially disagree	16	13.0		
	I don't know, I have no opinion	2	1.6		
	I partially agree	4	3.3		
In your opinion, will some jobs become more important with the development of artificial intelligence	I completely disagree	6	4.9	93.301	0.000
	I partially disagree	6	4.9		
	I don't know, I have no opinion	16	13.0		
	I partially agree	63	51.2		
	I completely agree	32	26.0		

³ **Note:** In the case of the same significance of differences in respondents' answers (p=0.000), the differences are greater for higher η^2 -values

Table 7. Descriptive statistics Frequency of respondents' responses to all questions - continued⁴

Questions and answers		Frequency	Percentage	η^2	p
Google CEO Sundar Pichai has argued that artificial intelligence would transform humanity as a species more than electricity and fire	I completely disagree	13	10.6	47.528	0.000
	I partially disagree	12	9.8		
	I don't know, I have no opinion	53	43.1		
	I partially agree	28	22.8		
	I completely agree	17	13.8		
Do you think artificial intelligence has the potential to improve our daily lives	I completely disagree	10	8.1	64.439	0.000
	I partially disagree	9	7.3		
	I don't know, I have no opinion	25	20.3		
	I partially agree	58	47.2		
	I completely agree	21	17.1		
Do you think artificial intelligence can affect our privacy and security	I completely disagree	8	6.5	47.772	0.000
	I partially disagree	4	3.3		
	I don't know, I have no opinion	39	31.7		
	I partially agree	34	27.6		
	I completely agree	38	30.9		
Do you believe that artificial intelligence will reach the level of human consciousness	I completely disagree	43	35.0	29.154	0.000
	I partially disagree	27	22.0		
	I don't know, I have no opinion	27	22.0		
	I partially agree	20	16.3		
	I completely agree	6	4.9		
Do you think that artificial intelligence can have ethical (moral) dilemmas	I completely disagree	16	13.0	19.398	0.001
	I partially disagree	14	11.4		
	I don't know, I have no opinion	33	26.8		
	I partially agree	39	31.7		
	I completely agree	21	17.1		
Do you think it is important to set certain boundaries regarding the use of artificial intelligence	I completely disagree	5	4.1	102.894	0.000
	I partially disagree	5	4.1		
	I don't know, I have no opinion	13	10.6		
	I partially agree	37	30.1		
	I completely agree	63	51.2		
Do you think artificial intelligence will become an integral part of all industries	I completely disagree	7	5.7	56.553	0.000
	I partially disagree	8	6.5		
	I don't know, I have no opinion	24	19.5		
	I partially agree	52	42.3		
	I completely agree	32	26.0		

⁴ **Note:** In the case of the same significance of differences in respondents' answers ($p=0.000$), the differences are greater for higher η^2 -values

It should also be pointed out that Artificial Intelligence (AI) is a technology that increasingly affects everyday life and business. Algorithms and machine learning enable AI systems to analyze data, recognize patterns and make decisions previously reserved exclusively for humans. In the future, AI could play a key role in job automation, medical diagnostics, education and many other fields. Some experts predict that AI will surpass human abilities in certain tasks, while others believe that it will remain just a tool in the hands of humans. The selection of AI tools in the survey was based on their popularity and widespread use at the time of the research. The listed tools, such as ChatGPT, Canva AI Art, Gemini, DALL-E, Jasper AI, and Copilot, were chosen because they represent different categories of AI applications, including text generation, image creation, and virtual assistants. The exclusion of a 'Other' option was a methodological decision aimed at ensuring data comparability and avoiding open-ended responses that could complicate statistical analysis. However, future research could incorporate an open-ended option to capture additional AI tools used by respondents. More than half of the respondents (51.2%) believe that the text in the description of the questionnaire is too futuristic. The term "artificial intelligence" is often heard, with 52.8% of respondents saying they hear it "very often" and 40.7% "often". When it comes to knowledge of AI, 43.1% of respondents stated that they "know" something about it, while 30.1% are in the middle ("neither know nor don't know"). 26.8% use AI "often", while 12.2% state that they use it "very often". In a business environment, 33.3% use AI "often", while 14.6% declare that they use it "very often". The most frequently used tool is ChatGPT (83.7%), while other tools are marginally represented. 46.3% of respondents believe that AI improves work results, while 22.0% are completely satisfied. 43.1% of respondents believe that AI can improve efficiency in their current or future profession. The survey questions were designed to be clear and easily understandable for respondents with different levels of familiarity with artificial intelligence. The question 'How much do you know about artificial intelligence?' aims to assess respondents' self-perceived knowledge

of AI, without requiring specialized expertise. However, future studies could refine this question by specifying whether it refers to general knowledge, practical experience, or technical understanding. Similarly, the question 'Do you think some jobs will become more important with the development of artificial intelligence?' is formulated to capture respondents' perception of AI's impact on the job market. While the phrasing is straightforward, a more detailed version could specify whether it refers to new job roles emerging due to AI, changes in existing professions, or shifts in industry demand. To ensure clarity, future research could incorporate additional explanatory notes or examples within the survey to guide respondents in interpreting these questions correctly.

51.2% of respondents believe that it is important to set limits in the use of AI. 35% of respondents do not believe that AI will ever reach the level of human consciousness, while 16.3% believe that it is partially possible. 31.7% of respondents think that AI may have ethical dilemmas. 30.9% believe that AI can significantly affect privacy and security. 43.9% of respondents strongly disagree with the statement that people will lose their jobs because of AI, while 35.8% partially do not believe it. The majority of respondents (82.1%) believe that AI cannot completely replace professions such as teaching. 51.2% believe that some jobs will become more important with the development of AI. 47.2% of respondents believe that AI can improve everyday life. 26.0% of respondents believe that AI will become an integral part of all industries.

All p-values are: 0.000 or very small, indicating statistically significant differences, in respondents' responses. High η^2 values (eg 520.359 for the AI tools question) indicate that there is a large variability in responses and that some topics are particularly polarized. The research indicates a positive perception of AI, but also the existence of certain ethical and security dilemmas. Participants do not expect a complete loss of jobs, but believe that AI will change job roles and industries. Namely, high η^2 values indicate significant variability in responses, suggesting that some topics are

particularly polarized among respondents. While sample size and structure can influence η^2 values, the obtained results reflect genuine differences in perceptions rather than purely methodological limitations. However, future research could aim for a more balanced sample distribution, particularly across different age groups and employment statuses, to ensure greater representativeness and minimize potential biases."

DISCUSSION OF RESULTS

The research results show that the inhabitants of Serbia have a relatively high level of awareness and knowledge about artificial intelligence (AI), but also that there are certain uncertainties and dilemmas regarding its application and ethical implications. Most respondents recognize the importance of artificial intelligence in modern society and its potential to improve business processes and everyday life. On the other hand, concerns have been raised regarding the privacy, security and ethics of using AI.

One of the key findings of the research is that more than half of the respondents have heard of the concept of artificial intelligence and that they often encounter it in their daily lives. However, when it comes to the level of knowledge, there were significant differences among the respondents, with only 16.3% of them stating that they fully understand AI and its technologies. This indicates the need for additional education and information for the general public about this area. Regarding practical application, the results show that 47.9% of the respondents use AI in their daily life, while 37.4% rarely or never use AI at work. The most commonly used tools are ChatGPT and related applications, which indicates their increasing availability and popularity. These data suggest that AI is increasingly integrated into everyday activities, but that there is still a gap in its application in professional settings. The perception of the impact of AI on employment shows interesting results. The majority of respondents (79.7%) do not believe that AI will cause mass job losses, while 77.2% believe that certain professions will become more important due to the development of AI. These findings show that Serbian citizens are not particularly

pessimistic about the future of work in the context of the development of ICT, but still express the need to set certain limits in its use (81.3%). Regarding ethics and regulation, respondents were divided. While 51.2% believe that it is necessary to set clear rules for the application of AI, 31.7% of respondents believe that AI can have ethical dilemmas, and 30.9% believe that it can affect privacy and security. These results point to the need for further discussion of ethics and regulation in the field of artificial intelligence, in order to ensure its responsible use. The analysis of demographic groups showed that there are no significant differences in attitudes towards AI between genders, age groups and employed and unemployed respondents. This indicates that the perception of AI in Serbia is relatively uniform, regardless of demographic characteristics. In general, the results of the research confirm the basic hypothesis that the inhabitants of Serbia have a certain level of knowledge about artificial intelligence. Also, auxiliary hypotheses were confirmed, whereby the majority of respondents are satisfied with the achievements of AI and believe that they can improve work efficiency. However, the research also points to the need for further education and awareness of AI, as well as the development of regulations that will ensure its safe and ethical use.

CONCLUSION

AI technologies are of great help to employees as they gradually become more creative by generating new and useful ideas at work. Artificial intelligence AI has increased employee creativity and is increasingly present in all spheres of society. Therefore, the value created by artificial intelligence (AI) and people, the strengthening of human creativity (which is key to the new industrial revolution), and the unequal effects on human workers with different existing job skills — topics that deserve greater attention from scientists, practitioners and policymakers. Artificial intelligence is developing rapidly and raises key questions about the future of our society. Analyzing the advantages and disadvantages of artificial intelligence, it is clear that this technology carries enormous potential for positive impact, but also challenges that require

careful management. The survey results show that Serbian residents are relatively well informed about artificial intelligence, but also that there is a certain level of uncertainty and concern regarding its application and ethical implications. Respondents generally recognize the importance of regulation and ethical guidelines for artificial intelligence, suggesting that there is a need for a broader discussion on how to best utilize the potential of artificial intelligence in society, while simultaneously reducing risks and negative impacts on people and the environment. While the IT sector is actively using artificial intelligence and is committed to its development and application, other professions are aware of its importance but are often insufficiently informed about the specific technologies, concepts and opportunities that artificial intelligence offers to improve their fields of work. Investment in education and awareness-raising among employees outside the IT sector is needed to better utilize the potential of artificial intelligence in different industries and areas in Serbia. Considering the rapid development of artificial intelligence, it is crucial for society to follow technological innovations in order to adequately respond to the new challenges and opportunities that AI brings. Although artificial intelligence is often presented as a threat, the reality is that it is still in development and that it will take a lot of time and effort before it can pose a real threat to humanity. The main hypothesis: H0: The respondents have knowledge about artificial intelligence (AI) is confirmed by this research, which is proven in table number 2. While the auxiliary ones are: H1: The respondents use AI in everyday life, which is proven in work because 47.9% of the respondents use it, while 37.4% do not use it in work or very rarely., H2: The respondents are satisfied with the achievements that AI enables them, which is confirmed in this research, because (68.3%) of the respondents are satisfied with the results that AI enables. H3: The respondents believe that AI can improve work efficiency, which is confirmed in this research, because artificial intelligence will improve their work efficiency in their current or future profession, which is rated with (3.84±0.98), which is proven in table number 3. The results of the research confirm this

auxiliary hypothesis, where the respondents estimated that artificial intelligence will improve their work efficiency in their current or future profession with an average score of 3.84 (SD=0.98) (Table 4). Specifically, 69.1% of respondents agree or completely agree with this statement, while only 8.2% are unsure or disagree. These results indicate a dominantly positive perception of the impact of AI on work efficiency. However, it should be noted that there are certain differences in perceptions depending on the degree of involvement in AI technologies. For example, respondents who use AI tools more often in their daily life and work had statistically significantly more positive attitudes about its effectiveness. This correlation indicates that practical experience with AI technologies contributes to a more positive attitude towards their use. Additionally, the results show that 47.9% of respondents use AI tools in their daily lives, while 37.4% rarely or never use AI at work. This may indicate that, although there is a generally positive opinion about the potential of AI to improve work efficiency, its application in professional settings has not yet been fully realized. According to the quantitative data from the research, which confirms that the majority of respondents believe that AI will improve their work efficiency, but also that there are differences in perception depending on the degree of use of AI technologies.

The results of the survey show that, despite the relatively high level of awareness of AI, there are no significant statistical differences in the attitudes of respondents towards AI between different demographic groups, including gender, age, education and employment status. The analysis showed the following: Gender: Both men and women expressed a similar level of knowledge of AI and similar attitudes about its benefits and risks. Although a slightly higher number of men expressed positive attitudes about the use of AI, this difference is not statistically significant. Age groups: Respondents under 25 years of age showed a higher level of awareness and experience with AI tools, while those over 50 years of age expressed more reserved attitudes and more pronounced concerns about the ethical and security aspects

Tešić, B., & Pavlović, M. M. (2025). Attitudes and knowledge of the inhabitants of Serbia about artificial intelligence and its technologies. *STED Journal*, 7(1), 58-76.

of the use of AI. Employment: Employed respondents are more likely to point out that AI can improve efficiency in the workplace, while the unemployed are more skeptical about the impact of AI on the labor market. Regional differences: Respondents from urban areas use AI more often in their daily lives compared to those from rural areas, which may be due to different access to technology and digital infrastructure. Although the results indicate relatively uniform attitudes across the population, we recommend that future research include a larger and more diverse sample, in order to better understand possible differences in terms of industrial sector of employment, educational level and economic status of the respondents. Recommendations for future research: Focused sectoral research – Analyze how different industries (e.g. IT, healthcare, education) perceive and apply AI, with a particular focus on expectations and challenges in their implementation. Long-term attitude monitoring study – Investigate how attitudes towards AI change over time, especially in the context of rapid technological change and the increasing integration of AI into daily life. Qualitative analysis – In addition to quantitative data, it is recommended to conduct interviews and focus groups to gain a deeper understanding of respondents' attitudes and potential concerns regarding AI. Regional differences – Analyze attitudes in more detail in urban and rural areas, taking into account different levels of access to technology, education, and digital literacy. Ethical and legal dimensions of AI – Future research could focus on understanding the ethical dilemmas and legal frameworks related to AI, to ensure its responsible and safe application.

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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