



RESEARCH ON THE APPLICATION OF ARTIFICIAL INTELLIGENCE IN BUSINESS

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Abstract: In recent years, we have witnessed the impact of a large number of applications supported by artificial intelligence, which is continuously used on websites, as well as in business, which is becoming a real need of some organizations. Artificial intelligence systems have been created, which are incorporated into established information systems, websites, portals and the like. Artificial intelligence has existed as an idea that has been working for many years, but in recent years its implementation has experienced expansion. The rapid development of the Internet and digital technology in the last ten years has had a great impact on finding ways to apply artificial intelligence in digital communication and digital marketing when creating content that is in line with user needs. It has been observed that companies are using artificial intelligence to improve customer relations. The aim of the research of this paper is to determine the potential and use of artificial intelligence in business among employees and the use of artificial intelligence among the younger population. While the subject of research is the ways of using artificial intelligence in humans. This paper presents current events in the world of artificial intelligence, which were collected based on research. The total number of respondents in this work is 118.

Keywords: Artificial intelligence, business, research and Serbia

JEL: M10, M15 and M 21

INTRODUCTION

Artificial intelligence has already become part of our daily lives, having an impact on our economy and education. It is the branch of computer science that deals with the creation of programs that are capable of demonstrating intelligent behavior. The very concept of artificial intelligence was born in 1956 at a meeting organized by John McCarthy. This gathering was the result of the first works and research in this area. Artificial intelligence is a technology that represents the ability of a computer to use human-like intelligence to perform activities that until recently were performed by humans (Stanić et al., 2024). Artificial intelligence and its application in the business environment improve large amounts of information that are becoming more and more available. Artificial intelligence brings new opportunities, but at the same time it poses numerous new challenges. The concept of artificial intelligence causes fear in individuals and a threat to their workplaces, but in addition to this fear for their workplaces, there is a possibility for the emergence of some new ones as well. Applying artificial intelligence can improve enterprise problem solving, but it requires high-quality technology and human trust. It can also contribute to the protection of employees and the opening of some new jobs and opportunities. According to estimates, it is believed that by 2035 productivity in workplaces will be increased by as much as 11-37% due to the use of artificial intelligence (Gaši et al., 2024). It is predicted that in the near future, artificial intelligence software programs will surpass human capabilities. In modern society, this technology finds its useful value in many areas, and there is more and more evidence that it will improve the prospects of the global economy. The rapid development and widespread integration of artificial intelligence (AI) in

numerous fields has created enormous changes in conventional paradigms. The revolutionary technology of artificial intelligence has had a profound impact on various sectors across the globe. The financial industry is one of the main sectors that have felt the significant impact of artificial intelligence (Chen et al., 2019). This extensive review can serve as a basis for understanding the comprehensive impact of artificial intelligence on financial services and help us recognize existing trends, new opportunities and opportunities, and the directions that will be taken in the future (Hansen et al., 2020). New business models are based on Industry 4.0. The characteristics of such business models are: mass production in the short term, linking of production capacities and fragmentation of the value chain. All this leads to the fact that there are no more boundaries between participants in the production and provision of services and users of products and services, which leads to the creation of new markets (Valenduc & Vendramin, 2016).

A digital transformation strategy has four main areas: 1) capture the attention of consumers, 2) transform products from traditional to digital, 3) optimize operations to reduce costs and achieve higher revenues and profits, and 4) empower employees with new knowledge and skills (Singh, 2020). The use of artificial intelligence has become increasingly popular in various fields, including economics, finance, mining and organizational sectors. It has the ability to minimize cognitive load or automate tasks now performed by humans, leading to increased productivity and efficiency. However, the rapid changes it has brought about also have great implications for organizations and workers, as they can lead to job losses and require the implementation of measures and strategies for retraining workers (Morandini, & associates, 2023). The use of artificial intelligence has become more intensive during the era of the fourth industrial revolution, and approaches within artificial intelligence, such as machine learning and data mining, are progressively accepted (Sarker, 2021). Artificial intelligence will have a great impact on the efficiency of the future economy.⁵ Achieving a long-term competitive advantage is one of the factors that encourage companies to achieve higher goals.⁶ Therefore, influential innovative companies identify the potential of expert systems as a technology that will improve the outlook of the global economy. The success of artificial intelligence does not only depend on the development process of organizations seeking innovation and technological progress, but also depends on the level of intelligence within the technology (Manu, 2012). Artificial intelligence can play the role of an advisor and suggest companies how to make better decisions. The result of such advice can be risk reduction, lower prices, shorter time to market and the like (Baltezarević, 2023). Artificial intelligence has become an increasingly used tool for economic analysis, with applications in forecasting economic indicators, modeling complex economic systems, predictive analytics, decision making, trading and investment management. The use in economic analysis is driven by the need to improve the accuracy and efficiency of economic forecasting and decision-making (Zapata, & Mukhopadhyay, 2022). Artificial intelligence techniques are used to predict economic indicators such as GDP (gross domestic product), inflation and unemployment rates. For example, machine learning algorithms are used to predict the direction of the stock market and to predict the price of commodities such as oil and gold, they can also be used to predict consumer behavior and optimize marketing strategies (Nikolopoulos 2010). Deep learning algorithms are used to forecast macroeconomic variables such as GDP and inflation (Sun & colleagues 2019). Artificial intelligence in the manufacturing sector is believed to be increasing due to the development of automated learning processes (Szczepański 2019). Artificial intelligence has a profound impact on the future growth of the social economy. Existing research shows that the development of artificial intelligence can optimize the industrial structure and increase high-quality economic growth. This technology improves production efficiency by optimizing the industrial structure (Zhi, 2022).

METHODOLOGICAL PART OF THE WORK

Research subject: use of artificial intelligence in business.

The primary goal of the research: identification of needs for the use of artificial intelligence in business. Secondary research objective: creation and adoption of a new model based on research related to artificial intelligence. The goal of the work is: to find out in which capacity artificial intelligence is used.

Hypotheses in the work:–H0: Based on the opinion of employees, AI is used in business. .–H1: According to users, artificial intelligence does not pose a threat to job loss.–H2: Employees believe that artificial intelligence will not affect employers’ productivity.

RESEARCH RESULTS

118 respondents participated in the research, of which 25 were male and 93 were female (Table 1). The vast majority of respondents are between the ages of 18 and 24 (74.6%), while the number of respondents in the other categories is much smaller (Table 1). Most pupils and students participated in the survey (70.3%), while the smallest number were unemployed (3.4%) and pensioners (3.4%). Most respondents’ monthly income is from 35,000 to 55,000 dinars, most of them work in art and design, followed by information technology, and they are mostly from Belgrade and Vojvodina (Table 1).

Table 1. Sociodemographic characteristics of respondents

	Frequency	Percentage [%]
Gender		
Male	25	21.2
Ladies	93	78.8
Age		
Under 18 years old	8	6.8
18-24	88	74.6
25-35	12	10.2
36-47	4	3.4
48-64	2	1.7
65+	4	3.4
Employment Status		
Employed	27	22.9
Unemployed	4	3.4
Pupil/student	83	70.3
Pensioner	4	3.4
Amount of monthly income		
From 35,000 to 55,000 dinars	71	60.2
From 55,001 to 95,000 dinars	32	27.1
More than 95001 dinars	15	12.7
Respondent’s profession		
Art and design	40	33.9
Information Technology	17	14.4
Sales and trade	6	5.1
Education and training	8	6.8
Finance and Accounting	8	6.8
Marketing and advertising	8	6.8
Media and communication	7	5.9
Tourism and catering	4	3.4
Health and medicine	5	4.2
Law and legal services	6	5.1
Construction and architecture	9	7.6
Place of living		
Belgrade region	54	45.8
Western Serbia	10	8.5
South Serbia	4	3.4
Vojvodina	47	39.8
East Serbia	3	2.5

The largest number of respondents rarely use artificial intelligence (43.2%), while the smallest number of respondents use it constantly (5.9%) (Table 2). Respondents predominantly believe that artificial intelligence can improve the efficiency of the company's work (53.4%), that artificial intelligence provides new opportunities (65.3%) and can contribute to the development of new business opportunities (61%). The opinion is relatively divided on the issue of job endangerment by artificial intelligence (Table 2). Most respondents do not use artificial intelligence at work (49.1%) and believe that their company does not use artificial intelligence either (39%) (Table 2).

Table 2. Use of artificial intelligence

	Frequency	Percentage [%]
How often do you use artificial intelligence?		
I do not use	27	22.9
Really rare	51	43.2
Very often	33	28.0
All the time	7	5.9
Do you think that artificial intelligence can improve the efficiency of your company's work?		
Yes	63	53.4
I'm not sure	43	36.4
Not	12	10.2
Do you think there is a possibility that artificial intelligence will take over some jobs in your company and do you feel threatened by that?		
Yes	44	37.3
I'm not sure	35	29.7
Not	39	33.0
Do you use artificial intelligence at work?		
Yes	14	11.9
Periodically	46	39.0
Not	58	49.1
Does your company use artificial intelligence?		
Yes	28	23.7
I'm not sure	44	37.3
Not	46	39.0
Do you see artificial intelligence as an enabler?		
Yes	77	65.3
I'm not sure	26	22.0
Not	15	12.7
Do you think that artificial intelligence can contribute to the development of new business opportunities?		
Yes	72	61.0
I'm not sure	28	23.7
Not	18	15.3

As part of the research, it was examined whether there is a difference in the respondents' attitudes about artificial intelligence in relation to the gender of the respondents. The t test of independent samples was used to examine the differences in the attitudes of respondents in relation to gender. The significance level of the t test is higher than the observed statistical level for all statements, on the basis of which we conclude that there is no statistically significant difference in relation to the gender of the respondents (Table 3).

Table 3. Differences in respondents' views on artificial intelligence in relation to gender

	Male (N=25)	Female (N=93)	t	p
	Srednja vrednost			
How often do you use artificial intelligence?	1.96 ± 0.93	2.22 ± 0.82	-1.393	0.166
Do you think that artificial intelligence can improve the efficiency of your company's work?	1.72 ± 0.73	1.52 ± 0.65	1.278	0.204
Do you think there is a possibility that artificial intelligence will take over some jobs in your company and do you feel threatened by that?	2.08 ± 0.86	1.92 ± 0.83	0.818	0.415
Do you use artificial intelligence at work?	2.52 ± 0.71	2.33 ± 0.68	1.204	0.231
Does your company use artificial intelligence?	2.40 ± 0.81	2.08 ± 0.76	1.803	0.074
Do you see artificial intelligence as an enabler?	1.44 ± 0.71	1.48 ± 0.71	-0.272	0.786
Do you think that artificial intelligence can contribute to the development of new business opportunities?	1.60 ± 0.81	1.52 ± 0.73	0.433	0.666

* Statistical significance at the level of 0.05

As part of the research, it was examined whether there is a difference in the opinions of the respondents about artificial intelligence in relation to the working status of the respondents. One-factor analysis of variance (ANOVA) was used to examine the differences in the attitudes of respondents in relation to work status. Based on the results of the Anova test shown in Table 4, it can be concluded that there is a significant difference in the frequency of use of artificial intelligence and the threat of work by artificial intelligence. The post hoc test found that there is a difference between employees and students ($p=0.027$) for the frequency of use of artificial intelligence, where students and students use artificial intelligence more often. The post hoc test found that there is a difference between the unemployed and students ($p=0.018$), where the unemployed believe that they are not threatened by artificial intelligence.

Table 4. Differences in respondents' attitudes about artificial intelligence in relation to work status

	Z (N=27)	N (N=4)	S/U (N=83)	P (N=4)	F	p
	Middle value					
How often do you use artificial intelligence?	1.77±0.75	2.0±0.81	2.30±0.86	2.25±0.50	2.757	0.046*
Do you think that artificial intelligence can improve the efficiency of your company's work?	1.51±0.70	1.75±0.50	1.56±0.68	1.75±0.50	0.239	0.869
Do you think there is a possibility that artificial intelligence will take over some jobs in your company and do you feel threatened by that?	2.22±0.80	2.75±0.50	1.81±0.82	2.25±0.95	3.147	0.028*
Do you use artificial intelligence at work?	2.55±0.57	2.00±1.15	2.31±0.69	2.75±0.50	1.656	0.181
Does your company use artificial intelligence?	2.18±0.78	2.00±1.15	2.13±0.76	2.50±1.00	0.343	0.794
Do you see artificial intelligence as an enabler?	1.37±0.68	1.25±0.50	1.50±0.72	1.75±0.95	0.571	0.635

Do you think that artificial intelligence can contribute to the development of new business opportunities?	1.55±0.80	1.25±0.50	1.54±0.73	1.75±0.95	0.305	0.822
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* Statistical significance at the level of 0.05

As part of the research, it was examined whether there is a difference in the opinions of respondents about artificial intelligence in relation to the material status of the respondents. One-factor analysis of variance (ANOVA) was used to examine the differences in the attitudes of respondents in relation to financial status. Based on the results of the Anova test shown in Table 5, it can be concluded that a significant difference exists for the frequency of use of artificial intelligence and the provision of artificial intelligence opportunities. The post hoc test determined that for the frequency of use of artificial intelligence there is a difference between respondents with an income of 35,000 to 55,000 dinars and respondents with an income of 55,001 to 95,000 dinars ($p=0.032$), where respondents with lower incomes use artificial intelligence less often. The post hoc test determined that for the claim about providing the possibility of artificial intelligence where respondents with an income of over 95,001 dinars believe that artificial intelligence can provide more opportunities compared to respondents with an income of 35,000 to 55,000 ($p=0.021$), and respondents with an income of 55,001 to 95,000 dinars ($p=0.029$).

Table 5. Differences in respondents' views on artificial intelligence in relation to material status

	35000 to 55000 (N=71)	55001 to 95000 (N=32)	from the 95001 (N=15)	F	p
	Srednja vrednost				
How often do you use artificial intelligence?	2.29 ± 0.83	1.84 ± 0.80	2.26 ± 0.88	3.359	0.038*
Do you think that artificial intelligence can improve the efficiency of your company's work?	1.57 ± 0.64	1.62 ± 0.70	1.40 ± 0.73	0.585	0.559
Do you think there is a possibility that artificial intelligence will take over some jobs in your company and do you feel threatened by that?	1.87 ± 0.82	2.12 ± 0.83	2.00 ± 0.92	1.010	0.367
Do you use artificial intelligence at work?	2.38 ± 0.66	2.50 ± 0.67	2.06 ± 0.79	2.065	0.131
Does your company use artificial intelligence?	2.16 ± 0.75	2.21 ± 0.83	1.93 ± 0.79	0.719	0.489
Do you see artificial intelligence as an enabler?	1.53 ± 0.71	1.56 ± 0.80	1.00 ± 00	4.024	0.020*
Do you think that artificial intelligence can contribute to the development of new business opportunities?	1.53 ± 0.71	1.62 ± 0.87	1.40 ± 0.63	0.467	0.628

* Statistical significance at the level of 0.05

As part of the research, it was examined whether there is a difference in respondents' attitudes about artificial intelligence in relation to the respondent's place of residence. One-factor analysis of variance (ANOVA) was used to examine the differences in the attitudes of respondents in relation to their place of residence. Based on the results of the Anova test shown in Table 6, it can be concluded that there is no significant difference for all the statements made.

Table 6. Differences in respondents' views on artificial intelligence in relation to place of residence

	Bg (N=54)	ZS (N=10)	JS (N=4)	V (N=47)	IS (N=3)	F	p
	Srednja vrednost						
How often do you use artificial intelligence?	2.24 ± 0.82	2.00 ± 0.66	3.25 ± 1.50	2.02 ± 0.82	2.33 ± 0.57	2.290	0.064
Do you think that artificial intelligence can improve the efficiency of your company's work?	1.48 ± 0.69	1.70 ± 0.48	2.00 ± 1.15	1.61 ± 0.64	1.33 ± 0.57	0.882	0.477
Do you think there is a possibility that artificial intelligence will take over some jobs in your company and do you feel threatened by that?	2.20 ± 0.76	1.80 ± 0.91	1.25 ± 0.50	1.80 ± 0.87	1.33 ± 0.57	2.200	0.072
Do you use artificial intelligence at work?	2.25 ± 0.64	2.50 ± 0.84	2.00 ± 1.15	2.55 ± 0.61	1.66 ± 0.57	2.452	0.051
Does your company use artificial intelligence?	2.11 ± 0.79	2.10 ± 0.73	2.50 ± 1.00	2.17 ± 0.78	2.33 ± 0.57	0.287	0.886
Do you see artificial intelligence as an enabler?	1.33 ± 0.61	1.50 ± 0.70	1.50 ± 0.57	1.65 ± 0.81	1.00 ± 0.00	1.699	0.155
Do you think that artificial intelligence can contribute to the development of new business opportunities?	1.51 ± 0.72	1.40 ± 0.51	1.75 ± 0.95	1.57 ± 0.80	1.66 ± 1.15	0.218	0.928

* Statistical significance at the level of 0.05

CONCLUSION

The very motive of this research is to understand the contribution and impact of artificial intelligence on the work environment. It was important for us to find out how employees in companies perceive artificial intelligence and their willingness to adapt to changing working conditions. With all the analysis and discussions, we can come to a final conclusion.

Artificial intelligence has a great influence and importance on people in performing their tasks and monotonous jobs. Recognition and awareness of artificial intelligence is very high, especially among younger generations who have more exposure to technology. Depending on different experiences, professions and education, employees in companies perceive the concept of artificial intelligence differently. Respondents whose jobs can be easily replaced by artificial intelligence may view it as a threat. While in jobs that require physical work in the field and project management, artificial intelligence has a very limited application. The application of artificial intelligence is significantly less in work environments (in companies). Its application would require employers to provide appropriate training to workers in order to use it correctly. OpenAI's motives for AI research are varied and they are highly motivated to contribute to society through their research. They also strive to advance science through their research which can lead to new discoveries and reliable work tools for their users that will shape the future of technology, solve global problems, and everyday human needs. Artificial intelligence should be used as a tool and aid for some monotonous and boring jobs, it is an excellent source of information, as confirmed by the majority of respondents. It is necessary to research and keep abreast of the progress of artificial intelligence, as well as providing appropriate training and spreading awareness to employees in companies, for the correct and effective use of it, as a key factor of productivity and innovation in work environments. Our mission is to shake the foundations of understanding this revolutionary technology and its impact on employees. This research is a call to action to adapt and confirm that artificial intelligence can be a driver of long-term success, productivity and innovation in work environments. Hypotheses in the work:—H0: Based on the opinion of employees, AI is used in business in this research is partially

confirmed. –H1: In the opinion of the users, artificial intelligence does not pose a threat to job loss, according to the respondents, it was confirmed.–H2: Employees believe that artificial intelligence has no impact on work productivity in this work is confirmed.

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