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THE USE OF ARTIFICIAL INTELLIGENCE IN HUMAN RESOURCE MANAGEMENT OF ENTERPRISES *

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Abstract. The modern concept of business management involves the delineation of numerous functional areas of managerial activity, including those related to the management of the human component of production – the enterprise's personnel. Global technological and structural transformations, increasing competition, the globalization of production, and the development of international relations, cooperation, and integration make the management of this critical area increasingly complex. Under these conditions, human resource specialists in many companies have begun to actively adopt intelligent technologies that support recruiters in accomplishing tasks such as staff recruitment and placement, employee training, adaptation, and performance evaluation more efficiently and in significantly shorter timeframes. The objective of this study is to explore how artificial intelligence (AI) can be effectively integrated into HR processes and, more broadly, into workplace operations in a way that does not provoke resistance from employees but instead fosters their cooperation and trust. The research was conducted through a quantitative survey designed to capture respondents' attitudes toward the potential replacement of their job positions by AI. The sample was selected randomly, with the target group consisting of employees from various sectors. A total of 411 fully completed responses were included in the final analysis. The data were processed using the SPSS software package. The results allowed to reveal attitudes of different group of employees to AI use. Findings can be used for formulate better tackled human resource management strategies.

Keywords: human resource management; personnel management; artificial intelligence (AI); questionnaire; employees

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1. Introduction

In contemporary society, artificial intelligence (AI) has increasingly emerged as a transformative tool that fundamentally reshapes the functioning of organizations across diverse sectors, including human resource management (HRM). The rapid advancement of technology and its integration into workplace environments have accelerated the adoption of AI-based applications. HR departments are progressively employing such tools to automate processes, optimize operations, and enhance the overall quality of their activities. This issue is of particular relevance, as it extends beyond the technical and organizational domains to encompass ethical considerations, employee trust, and the future of work. The integration of AI affects virtually every employee and employer, as it alters approaches to recruitment, performance evaluation, training, and the execution of routine tasks. Consequently, the study of AI in HRM carries both theoretical significance and practical implications, offering valuable insights into the broader impact of this technological transformation.

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Artificial intelligence is grounded in the premise that computers and machines can be designed to replicate human cognitive functions such as reasoning and learning. This idea dates back to the 1950s, when the first AI programs were developed. Today, AI constitutes an integral part of everyday life, serving as a powerful instrument for information retrieval, problem-solving, planning, data analysis, and other essential activities. AI embodies the capacity of a system to exhibit human-like abilities, including reasoning, learning, planning, and creativity. Through AI, technical systems are capable of perceiving their environment, identifying problems, and acting in pursuit of predefined objectives. Data are acquired either from prepared sources or collected via sensors (e.g., cameras), processed by the system, and subsequently utilized to generate responses.

AI systems are characterized by their ability to operate autonomously and to adapt their behavior based on the analysis of prior actions. This adaptability has facilitated their growing application in key sectors such as healthcare, manufacturing, and transportation. A particularly noteworthy field of application is human resource management. HRM represents a targeted activity undertaken by an organization's leadership team, together with managers and specialists within the personnel management system. It encompasses the formulation of concepts and strategies for personnel policy as well as the development of methods for managing employees. The adoption of AI technologies in HRM can significantly reduce the workload of HR professionals by automating routine tasks, thereby allowing them to focus on strategic and value-adding activities.

2. Theoretical background

Although artificial intelligence is often perceived as something new and inherently tied to the modern – primarily information-based – society, it is in fact a phenomenon that has captured the attention of thinkers and visionaries for centuries, arguably since the beginning of the First Industrial Revolution, when one of its essential features was the replacement of human labor with machines. The term *artificial intelligence* is generally used to describe systems that demonstrate intelligent behavior by analyzing their environment and taking actions with a certain degree of autonomy. In this sense, it refers to the capacity of technologies to perform tasks that are typically assumed to require human intelligence (Mugunzva & Manchidi, 2024). Artificial intelligence is rapidly transforming employers' established processes. It offers speed and efficiency, which explains its growing application in recruitment, management, and employee evaluation—areas traditionally reserved for human decision-making.

Artificial intelligence can be understood in different ways. At present, it is predominantly viewed as a scientific discipline that draws on knowledge from other fields such as mathematics, logic, statistics, and computer science. In a narrower sense, it refers to specific processes or capabilities possessed or executed by computers (in the broadest sense—PCs, tablets, robots, etc.) or their software (Vojtuš, Kordík & Dražová, 2023).

According to the OECD Council Recommendation on Artificial Intelligence, “artificial intelligence is a system capable of finding optimal or suitable recommendations, solutions, or decisions for human-defined objectives, which influence the surrounding environment in either a real or virtual manner” (OECD, 2022). In a very general characterization, artificial intelligence represents a system operating autonomously with a high capacity to solve problems defined by humans. This ability of AI to think abstractly and derive specific actions, conclusions, or decisions has fundamental practical as well as legal implications. Ultimately, control over these autonomous AI systems should remain with humans, especially in situations where such systems exercise their ability to make independent decisions (Barancová, 2024).

Artificial intelligence operates on the principle of a set of algorithms or computational formulas that program a computer system. An AI algorithm represents a sequence of precisely defined steps, instructions, or rules that enable AI to effectively solve problems, identify patterns, and adapt to new situations (Štalmachová & Strenitzerová, 2020).

Artificial intelligence is emerging as a transformative innovation with the potential to drive substantial economic growth and productivity gains (Damioli, 2025). For workers, it is essential to remain committed to the continuous improvement of their skills (Lloyd & Payne, 2019). Analyses presented in several studies (Marinas et al., 2024; Holm & Lorenz, 2022; Istudor et al., 2024; Hui, 2024; Popa, 2024) suggest that artificial intelligence

is reshaping skill requirements, particularly in more demanding positions, and is expected to have a positive impact on the employment prospects of highly educated workers. A study from Slovakia (Valaskova et al., 2024) points to the slower adaptation to Industry 4.0, largely due to deficiencies in the education system and insufficient state support, which may limit workers' ability to adapt to ongoing changes. Consequently, adapting the educational system and enhancing digital literacy are indispensable.

New forms of work are emerging through digital platforms within the sharing economy, characterized on the one hand by increased flexibility, but on the other by a markedly reduced and limited scope of labor law paternalism. Artificial intelligence has also become a common subject of debate across numerous scientific domains, including legislation, particularly in the context of copyright law. The ability to create and perceive art has long been regarded as an exclusively human trait distinguishing us from other living beings or technologies (Démuth, 2020).

Honavar (2016) provides several descriptions of artificial intelligence: AI is the science of intelligence. As a scientific discipline, AI primarily deals with falsifiable claims, i.e., testable hypotheses concerning the structures and processes that are necessary and sufficient for intelligent behavior. AI is the study of computational models of intelligent behavior—perception, cognition, and action. AI is the science of exploring the space of possible and actual intelligent systems. AI is the practice of designing and analyzing intelligent agents. AI is a branch of engineering concerned with the mechanization of tasks presumed to require intelligence when performed by humans—for example, theorem proving, route planning, face recognition, disease diagnosis, computer design, music composition, scientific discovery, mathematical proof, chess playing, story writing, teaching physics, contract negotiation, and providing legal advice. However, sound engineering must always be grounded in a solid scientific foundation. AI is no exception (Honavar, 2016).

The primary objective of AI research is to enhance our understanding of perceptual, rational, learning, linguistic, and creative processes. Such understanding is undoubtedly valuable for the design and development of innovative tools in science, industry, and culture. Just as the invention of the internal combustion engine and the development of machines such as airplanes led to an unprecedented increase in human mobility, tools emerging from AI research are already beginning to expand human intellectual and creative capacities in ways our ancestors could only imagine. A sophisticated comprehension of the fundamental mechanisms, potential, and limitations of human—as well as other forms of—intelligence is also likely to shed light on the social, environmental, and cultural challenges of our time and contribute to the search for solutions (Honavar, 2016).

Technological progress, particularly in the field of artificial intelligence, is driving increasing automation across various industries. This trend may significantly affect employment in the future, raising concerns, especially due to the potential savings in labor costs that automation brings to companies. However, the advancement of AI also brings forth perspectives emphasizing the creation of new job opportunities. For example, AI specialists may become highly sought after as a result of widespread AI implementation, making them an indispensable part of many organizations.

The field of AI consistently demonstrates strong potential for development and application across diverse sectors. Discoveries and innovations in this area inspire enthusiasm for progress among many, yet—as with any major transformation—technological advancement also evokes a wide spectrum of emotions and opinions.

Many scholars argue that the use of AI technologies does not automatically lead to rising unemployment (Gries & Naudé, 2018; Mutascu, 2021). Rather, the transformations brought about by digitalization compel the workforce to adapt to new work environments shaped by AI technologies (Abdeldayem & Aldulaimi, 2020). Meister (2019) predicted that artificial intelligence would create more jobs than it eliminates. Although employees may perceive AI as a threat, for business management it represents a significant opportunity. Its integration into corporate processes can contribute to substantial modernization and enhanced competitiveness in the marketplace. Both employees and employers are expected to benefit from the advent of automation and AI, as these technologies will perform routine tasks previously carried out by humans. This will increase productivity, based on the positive relationship of cooperation between humans and machines (Čižo, 2025). Another group of authors focuses on the challenges and risks associated with AI in the labor market (Otoiu,

2022). Concerns include worker displacement in certain sectors, the deepening of economic inequality, declining demand for low-skilled labor (with older workers, the low-skilled, and certain marginalized groups identified as most vulnerable), and the growing need for highly skilled employees (Badea et al., 2024; Lazaroiu et al., 2024). At the same time, however, the use of AI may boost productivity and democratize access to knowledge and expertise (Komp-Leukkunen, 2024).

The adoption of artificial intelligence can significantly facilitate the work of HR specialists while alleviating much of their workload. One of the main responsibilities of HR professionals in companies is recruiting employees across various specializations. To achieve this, recruiters must process a wide range of tasks. The use of AI in this process can substantially ease the recruiter's work by taking over a considerable share of their responsibilities. Thanks to the unique analytical capabilities of artificial intelligence, HR departments can simultaneously collect large volumes of information on each candidate applying for a specific position. Moreover, with the support of intelligent technologies, it will be possible in the future to gather data such as performance evaluations of newly hired employees, providing recruiters with essential insights into the potential of these workers (Tappaskhamíova, Mustafaeva & Tokmakova, 2020). With continuous development, AI will be able to handle increasingly complex tasks, opening up new opportunities for its application across diverse domains. However, this progress also brings numerous challenges and highlights the need for regulation, which requires careful attention.

3. Research objective and methodology

The aim of this research is to examine how artificial intelligence (AI) can be effectively implemented into HR processes and work processes in general in a way that does not provoke resistance from employees but rather fosters their cooperation and trust. The defined problem primarily concerns the question of how AI can be applied to streamline work processes while at the same time respecting the human dimension of labor and not jeopardizing job security. This study seeks to contribute to a deeper understanding of this complex issue and provide recommendations for employers who are planning to introduce, or are already implementing, AI into their organizational processes. Addressing this topic may be beneficial for both the professional and the general public interested in modern approaches to human resource management.

The research was carried out through a quantitative survey designed to investigate respondents' attitudes toward the potential replacement of their job positions by artificial intelligence (AI). The objective was to identify differences in the level of concern between men and women and to analyze the relationship between gender and attitudes toward AI. The sampling was random, targeting employees from various sectors. Data collection was conducted anonymously via an online questionnaire. The data were processed using SPSS software.

To verify the relationship between respondents' gender and concerns about AI-driven job replacement, the Chi-square test was applied. This method belongs to the group of nonparametric statistical tests used to test hypotheses regarding frequencies or variable independence. It determines whether a significant dependence exists between observed and expected frequencies in categorical data (Neubauer, 2021). To compare the distribution of responses between men and women, the Mann–Whitney U test was used. This nonparametric test is designed to compare two independent samples and determines whether the distribution of values in the two groups differs significantly (Shier, 2004). To assess the strength and direction of the relationship between variables, Goodman–Kruskal's tau and Somers' d were employed. Goodman–Kruskal's tau is an asymmetric measure of association for categorical variables, indicating the extent to which knowledge of one variable improves the prediction of another (Goodman & Kruskal, 1979). Somers' d is a measure of association for ordinal variables, expressing the extent to which the values of a dependent variable change monotonically (increase or decrease) with changes in an independent variable (Agresti, 2010).

The research was conducted in accordance with ethical principles. Participation was voluntary and anonymous, and respondents were informed about the purpose of the study.

4. Results and discussion

A total of 437 respondents participated in the research; however, after data quality control, it was found that some responses were incomplete or inconsistent. For this reason, only 411 fully completed records that met the criteria of completeness and usability were included in the final analysis. These respondents represented different genders, age categories, and professional sectors. Therefore, the survey initially asked respondents about these identifiers (see Table 1).

Among the respondents, women were strongly predominant, accounting for 70% of the sample. From a generational perspective, more than 70% were employees of the younger generation under the age of 27 (Generation Z), for whom modern technologies, including artificial intelligence, are more familiar, and who are able to adapt more quickly to technological progress. Only 7% of the respondents belonged to Generation X (aged 44–59), who generally find it more difficult to adapt to modern technologies.

Table 1. Structure of Respondents

	Mans		Females		Together	
	n	%	n	%	n	%
Generation Z 18 – 27 years old	72	18	222	54	294	72
Generation Y (Millennials) 28 – 43 years old	39	9	48	12	87	21
Generation X 44 – 59 years old	12	3	18	4	30	7
Together	123	30	288	70	411	100

Source: own calculation

The distribution of employees by sector shows that the largest share of respondents works in trade and services (25%), followed by healthcare (21%) and industry (19%).

The use of AI at work, however, varies significantly across sectors. Information technology is the leader in everyday AI usage—most respondents from this sector report using it daily or frequently, which is natural given the technological nature of their work. In the trade and services sector and in industry, AI is also widely employed, with many respondents indicating frequent or occasional use, particularly for process automation, data analysis, production planning, and customer support.

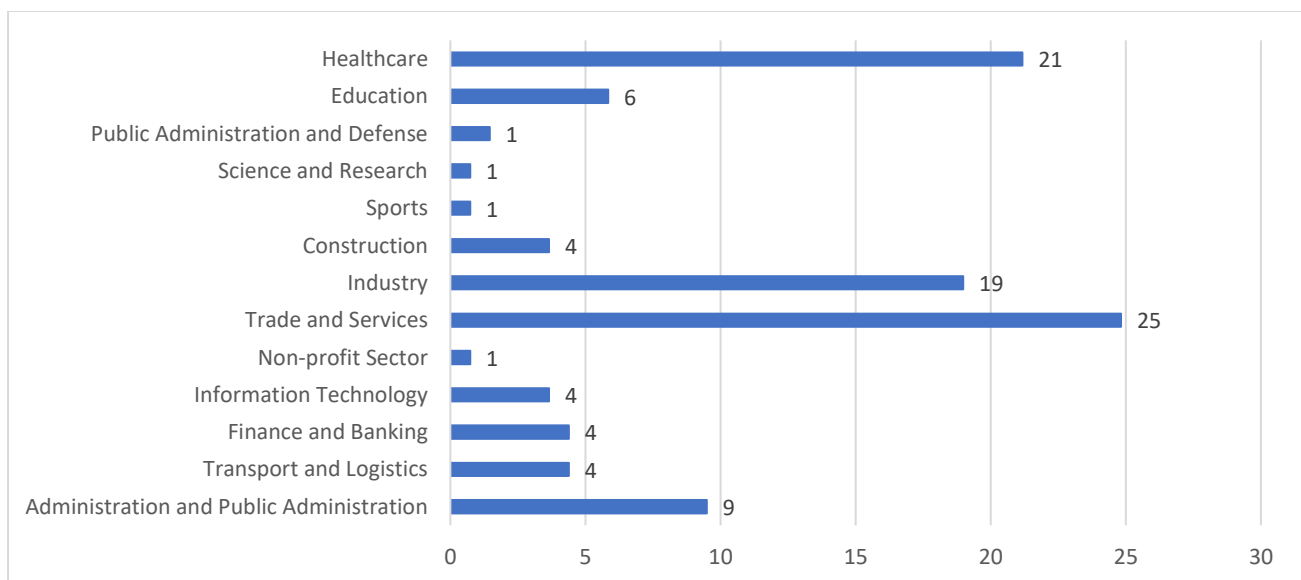


Figure 1. Respondents' Employment Sectors (%)

Source: own calculation

In healthcare, AI is used occasionally or rarely. It assists in diagnostics, service planning, and competence assessment, but its implementation has not yet become widespread. A similar pattern is observed in education and finance, where AI serves as a supplementary tool—for example, in personalized learning or risk analysis. Conversely, in sectors such as sports, the non-profit sector, public administration and defence, transportation and logistics, or construction, AI usage is minimal or nonexistent, with most respondents reporting that they never use it. This may be linked to lower levels of digitalization, limited resources, or a lack of awareness of AI's potential applications.

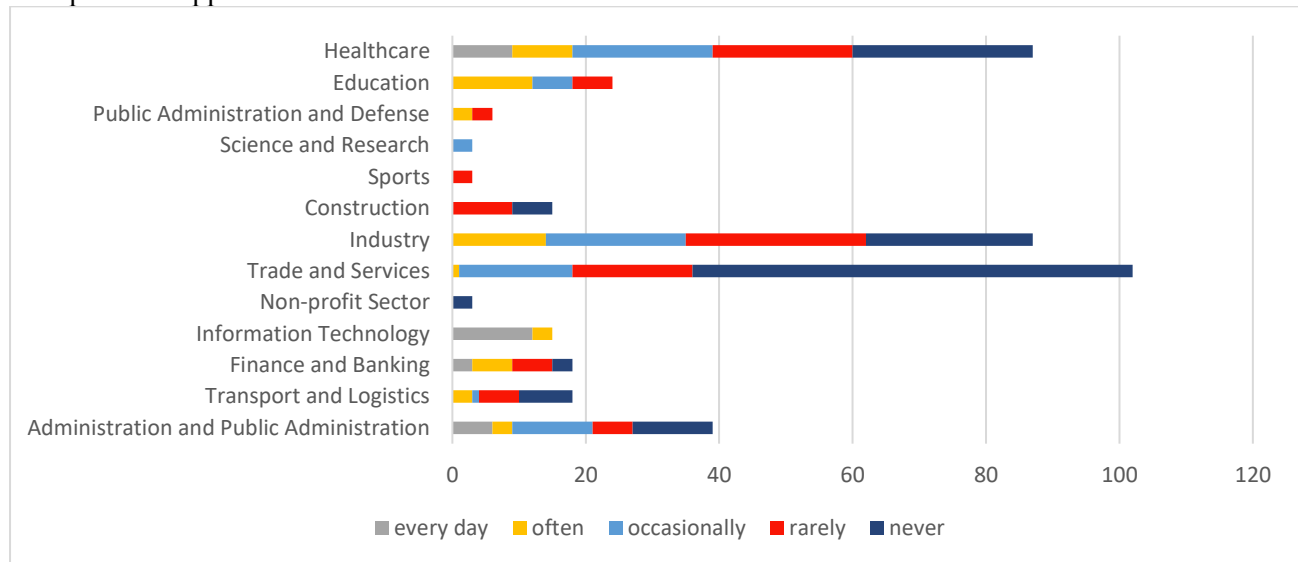


Figure 2. Use of AI in the Workplace

Source: own calculation

The survey results indicate that the majority of respondents are rather reserved toward the use of artificial intelligence in HR processes. The strongest resistance is observed in relation to AI-conducted interviews and AI-based evaluations, where more than half of the participants stated that they would not want such an approach or would find it objectionable. Specifically, 153 respondents (37%) reported that they do not wish to undergo an interview with AI, and 99 respondents (24%) indicated that they would find it bothersome. Only 18 respondents (4%) stated that such an interview would suit them and that they would explicitly prefer to participate in it.

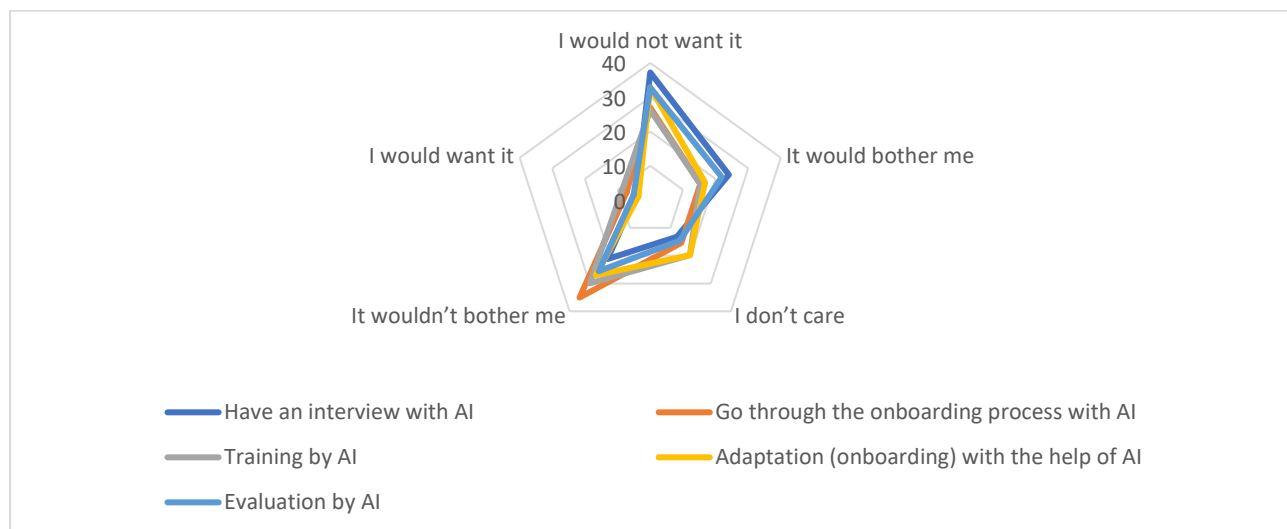


Figure 3. Use of AI in HR Processes

Source: own calculation

A similarly skeptical attitude is evident in relation to AI-based performance evaluation, where 135 respondents (33%) stated that they would not want their performance to be assessed in this way. An additional 90 respondents (22%) indicated that they would find such an approach undesirable and would prefer an alternative. These results suggest that people are concerned about the lack of personal interaction, objectivity, and fairness in assessment and selection processes.

On the other hand, respondents showed a slightly more positive attitude toward HR processes such as onboarding, training, and adaptation. For instance, with respect to an AI-assisted onboarding process, 144 respondents (35%) reported that it would not bother them, and 30 (7%) stated that they would actually prefer it. In the case of training supported by AI, 123 respondents (30%) indicated that it would not be a problem, while 36 (9%) said they would welcome it. These findings suggest that AI is primarily perceived as a practical tool in administrative and educational tasks, where it can streamline processes without interfering with personal relationships.

Overall, it can be concluded that respondents are cautious toward the use of AI in HR processes, particularly in activities that require personal interaction or performance evaluation. However, AI is regarded as more acceptable as a support tool in onboarding and training processes. For HR managers, this highlights the need for a sensitive approach to the implementation of AI technologies, especially in contexts where they can provide support without undermining trust and the human dimension of work.

Table 2. Respondents' Concerns about AI Replacement

												Together	
		Yes		Partially		Not thinking		Rather no		no			
		n	%	n	%	n	%	n	%	n	%	n	%
Gender	Mans	3	2	27	22	12	10	51	42	30	24	123	100
	Females	30	10	93	32	39	14	60	21	66	23	288	100
Together		33	8	120	29	51	13	111	27	96	23	411	100

Source: own calculation

The survey indicates that concerns about being replaced by artificial intelligence at work are present, but not predominant. Only 8 respondents (1.9%) reported being definitely afraid of replacement by AI—of these, 3 were men (2% of men) and 30 were women (10% of women). Another 120 respondents (29%) expressed partial concerns, with women again reporting a higher level of uncertainty (93 women, 32%; 27 men, 22%).

Interestingly, 51 respondents (13%) stated that they had not considered this question, which may suggest either low awareness or a lack of interest in the topic of AI in the workplace. On the other hand, 111 respondents (27%) reported that they were rather not concerned, with men showing lower levels of concern (51 men, 42%; 60 women, 21%). In addition, 96 respondents (23%) reported that they were not concerned at all (30 men, 24%; 66 women, 23%).

From a gender perspective, it is clear that women express concerns more frequently than men—whether complete, partial, or hesitant. Men are more likely to choose responses such as “rather not” or “not at all,” which suggests a higher degree of certainty or confidence in their job stability. While most respondents do not feel significant anxiety about being replaced by AI, the survey highlights gender differences. Women appear to be more cautious toward AI in the workplace, which may be related to the nature of their job positions, lower technical orientation, or concerns about automation. For HR managers, it is important to recognize these differences and to ensure transparent communication, provide employee training, and strengthen trust in new technologies when introducing AI into the workplace.

Subsequently, the data obtained from the survey were subjected to statistical verification. Based on the theoretical framework, the following hypotheses were formulated:

H0: There is no statistically significant difference between men and women in terms of concern about AI replacement.

H1: There is a statistically significant difference between men and women in terms of concern about AI replacement.

First, the relationship between gender and concerns about AI replacement was tested using the Chi-square test. The results are presented in Table 3.

Table 3. Chi-Square test

Chi-Square Tests			
	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	24.646 ^a	4	.000
Likelihood Ratio	25.508	4	.000
N of Valid Cases	411		

a. 0 cells (0,0%) have expected count less than 5. The minimum expected count is 9.88.

Source: own calculation

Based on the results of the Chi-square test, we can conclude that the p-value = 0.000 is significantly lower than the standard significance level of 0.05, which indicates that the differences in responses between men and women are not random. In other words, there is a statistically significant relationship between gender and respondents' concerns about AI replacement in the workplace. This result confirms that gender influences attitudes toward artificial intelligence—women feel more threatened by the use of AI, more frequently expressing concerns or uncertainty, whereas men are considerably more confident and do not perceive themselves as strongly at risk. In addition, the results were further evaluated using the Goodman and Kruskal test (see Table 4).

Table 4. Goodman and Kruskal test

Directional Measures

			Value	Asymptotic Standardized Error ^a	Approximate T ^b	Approximate Significance
Nominal by Nominal	Lambda Symmetric		.058	.020	2.742	.006
		Gender Dependent	0.000	0.000	. ^c	. ^c
		Concerns Dependent	.082	.029	2.742	.006
	Goodman and Kruskal tau	Gender Dependent	.060	.023		.000 ^d
		Concerns Dependent	.017	.007		.000 ^d
Ordinal by Ordinal	Somers' d	Symmetric	-.205	.040	-4.970	.000
		Gender Dependent	-.158	.032	-4.970	.000
		Concerns Dependent	-.289	.057	-4.970	.000

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

c. Cannot be computed because the asymptotic standard error equals zero.

d. Based on chi-square approximation

Source: own calculation

The Goodman and Kruskal tau indicates dependence by gender: 0.060, $p = 0.000$, and dependence by concern: 0.017, $p = 0.000$. This measure reflects the proportion of variability in one variable that can be explained by the other. The values are low, which means that the predictive power is weak, although the results are statistically significant. Gender explains 6% of the variability in concerns, while concerns explain only 1.7% of the variability in gender.

Table 5. Mann-Whitneyho U test

Test Statistics ^a	
	transcoded Concerns
Mann-Whitney U	14161.500
Wilcoxon W	21787.500
Z	-3.320
Asymp. Sig. (2-tailed)	.001

Source: own calculation

Similarly, the Mann–Whitney U test revealed a statistically significant difference between men and women in the level of concern about being replaced by artificial intelligence at work. Since the p-value is lower than 0.05, we can reject the null hypothesis and conclude that there is a significant gender difference in attitudes toward AI replacement—women exhibit a higher level of concern than men.

5. Suggestions and recommendations

The results of the survey provided new insights into employees’ attitudes toward the use of artificial intelligence (AI) in the workplace. Based on these findings, we identified several specific recommendations that employers and organizations should consider when planning and implementing AI tools within their HR processes. One of the main findings of the research was that employees need to be better informed about what artificial intelligence represents in the work environment, what its benefits and limitations are, how it functions, and how it may affect their daily tasks. We therefore recommend that organizations, prior to the implementation of AI tools, conduct information campaigns, training sessions, and workshops that clearly explain the purpose, operation, and practical benefits of these technologies in an accessible manner. Such an approach can help dispel prejudices, reduce concerns, and increase employees’ trust in new solutions. At the same time, it strengthens employees’ ability to use AI effectively in practice, thereby enhancing the success of its implementation.

The introduction of AI should not be abrupt or applied indiscriminately. Survey respondents perceive the use of AI most positively in relation to routine and administrative activities—such as onboarding processes, employee training, or integration into the work team. AI may also be effectively utilized for information retrieval and verification. These areas represent an appropriate entry point for the adoption of artificial intelligence.

Conversely, in personal interactions such as job interviews or performance evaluations, the presence of a human should be maintained. In such cases, AI may be perceived as impersonal or even unethical, potentially undermining employees’ trust in their employer. Employees expect that decisions regarding hiring or termination, for example due to poor performance, should be made by a human.

For the successful acceptance of AI in the workplace, building transparent processes is essential. Employees should be informed about where and how AI is applied, what decisions it influences, and how they can participate in its evaluation. Equally important is creating a space for feedback, where employees can share their experiences, concerns, or suggestions.

Employers should also continuously assess the effectiveness and impact of AI solutions on the work environment. If evidence shows a negative effect on interpersonal relations, motivation, or employee performance, organizations need to respond flexibly—by adjusting the system or suspending its use.

Conclusions

The Chi-square test confirms that the differences between men and women in their attitudes toward AI are statistically significant. For HR managers, this implies that the implementation of AI technologies must take into account gender-based differences in risk perception, ensuring that changes are communicated sensitively and that adequate training and support are provided, particularly to groups that express higher levels of concern. From a human resource management perspective, sectors with a higher proportion of employees and a greater frequency of AI usage offer more opportunities for the development of intelligent HR tools—for instance, chatbots, predictive turnover analytics, automated candidate evaluation, or workforce scheduling. Conversely, less digitalized sectors may gain a competitive advantage through the targeted implementation of AI solutions, enabling them to manage human resources more efficiently even with limited capacities.

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