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## Article

# AI between threat and benefactor for the competences of the human working force

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## AI BETWEEN THREAT AND BENEFACITOR FOR THE COMPETENCIES OF THE HUMAN WORKING FORCE

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### Abstract

The fast pace of the inclusion of AI in almost all sectors of human activity, with more and more accurate and effective results, transforms society at all levels. Changes have already been noticed in the structure of jobs offers for human tasks, since AI provides skills that can successfully replace human competencies in certain areas of activity. Hence, our paper aimed to investigate whether AI is perceived as a threat or a benefactor for the competencies of the human workforce. The analysis of the relevant scientific literature was followed by a quantitative investigation on 512 adult persons of all ages, sex, and having various work experiences. Research results indicate that job losses, dehumanisation of the work, as well as lower intellectual capacity and skills for humans that are no longer used to solve problems and work tasks on their own, are the main threats brought by AI. At the same time, there are perceived AI benefits, such as rapidity in solving some work tasks and reducing the physical and mental strain of employees. In general, it can be said that younger generations, who also have less work experience, are more open to using the AI competencies to solve their work tasks.

**Keywords:** AI threats, AI benefits, competencies, human workforce, workplace.

**JEL Classification:** F10, J62, O32, O52.

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## **Introduction**

AI is seen as a generator of change, especially in the field of business (Berretta et al., 2023) with the promise that "will be performing 52% of the tasks in companies by 2025" (Arias-Pérez and Vélez-Jaramillo, 2022). In the process of implementing AI in organisations, turbulences have been created among human resources, these aspects being insufficiently analysed, as shown by recent specialised literature (Berretta et al., 2023; Presbitero and Teng-Calleja, 2023; Xiao, Yan and Bamber, 2023; Lanz, Briker and Gerpott, 2024).

The technological development of recent years, and especially everything related to Artificial Intelligence (AI), is undoubtedly having and will have an even greater impact on business management, worldwide. This development is forcing companies to adapt to new forms of organisation and new human resources strategies to cope with this new reality that is advancing at a fast pace, reinventing human resource management (HRM). Due to the novelty of this field, the changes and especially the impact of these changes on HRM are still understudied, lacking detailed analyses for a better understanding of the challenges and opportunities generated by AI to human resources (Palos-Sánchez et al. 2022; Pan et al. 2022). Therefore, this study aims to analyse the way AI is perceived by human resources - either as a threat, or as a beneficial element. The article unfolds from a double perspective: first through the lens of HRM and second, from the point of view of AI, the complex connection between these needs more profound research.

The research provides several contributions. First, the results will serve both the academic community and practitioners in human resources and AI, as a starting point for other related studies in the research area. Second, the article offers an insight into the main areas of activity in which human resources will be lost to AI. Third, the current study contributes to a better understanding of the perceptions of the workforce regarding how AI will influence the professional activities of human resources.

Thus, in its first part, the current paper provides an analysis of the scientific literature about the main research preoccupations and findings related to AI impact on employees, with special focus on the negative consequence of human jobs losses, brought by AI. The literature review aimed to: identify how the impact of AI on employees is perceived, find the areas where AI implementation is more evident and impacts employees, and distinguish the sociodemographic and professional characteristics that influence perceptions of AI. The second part of the paper includes the research methodology, with details about the structure of the questionnaire and the research objectives, which are: evaluating respondents' general attitudes towards the impact of AI on current human jobs; determining the areas where AI is perceived to lead to a decrease in available jobs for the human workforce; analysing how various AI competencies are used by the human workforce for work tasks; and identifying the perception of AI as either a threat or an aid to the human workforce, depending on respondents' age, gender, professional status, and professional experience. The third part of the paper presents the results of the quantitative research that seeks to identify whether AI is perceived as a threat or a beneficial factor for the competencies of the human workforce, with discussions and references to previous research findings in the scientific literature. The conclusions and limitations of the research are presented in the final part of the article.

## 1. Literature review

The extremely rapid development of AI is having a crucial impact on business performance and workforce utilisation, raising significant issues currently under debate.

Empirical research found in the specialised literature has revealed both positive and negative effects of AI implementation on employees, often simultaneously within the same research sample. A search in the Web of Science database for the keywords "AI perception" and "employee" yielded 175 articles, of which 120 remained for the period between 2019 and 2024. Only the categories "Management" and "Business" were selected, leaving 44 articles. Articles not related to employees were manually eliminated, leaving 22 articles relevant to the research theme. In a subsequent stage, this selection of articles was supplemented with other scientific articles from the Google Scholar database that served the research interests.

The specialised literature that focusses on the perception of the relationship between employees and AI reveals empirical studies that have pursued various topics, such as the direct and indirect effects of employees' perception of AI on career resilience and informal learning (Kong et al., 2024); the conditions under which employees might accept unethical instructions from a human supervisor or an AI supervisor (Lanz, Briker and Gerpott, 2024); the impact of AI-supported human resource activities (Xiao, Yan and Bamber, 2023); the development of a questionnaire and its verification among employees interacting with AI applications (Berretta et al., 2023); the implications of AI on human work (Bankins and Formosa, 2023); the development of a scale to measure employees' and management's perception of AI (Kambur and Akar, 2022); employees' perception of the impact of adopting AI principles in the organisation (Kelley, 2022); subsequent influences on employees' workplace attitudes and professional behaviours (Presbitero and Teng-Calleja, 2023); and the work of employees with different types of AI (Sowa, Przegalinska and Ciechanowski, 2021).

The data collection methods used in empirical studies are both quantitative and qualitative, and the range of subjects included in the studies varies as follows: 30 online questionnaires collected among employees in the digital marketing field (Simion and Popescu, 2023); 49 interviews (Kelley, 2022); questionnaires applied to 175 full-time employees in the tourism industry (Xiao, Yan and Bamber, 2023); 254 valid questionnaires applied to employees (Wijayati et al., 2022); a questionnaire applied to 345 call centre agents (Presbitero and Teng-Calleja, 2023); 350 self-administered questionnaires applied to employees and mirrored to clients (Nguyen and Malik, 2022); questionnaires on 363 employees (Chiu, Zhu and Corbett, 2021); an online questionnaire applied to 450 employees in the hospitality industry (Segovia-Perez, Jianu and Tussyadiah, 2023); questionnaires applied to 366 respondents, semi-structured interviews, and scenario creation (Sowa, Przegalinska and Ciechanowski, 2021); data collected from 472 subjects (Kong et al., 2024); and experiments on 1701 employees (Lanz, Briker and Gerpott, 2024). The sociodemographic aspects of employees that have been researched and proven to impact AI perception are: the tendency to conform without dissent, age (Lanz, Briker and Gerpott, 2024), tenure in the company (Tong et al., 2021), moderate experience in the field (moderate experience allows the employee to better utilise AI) (Allen and Choudhury, 2022).

The positive effects of AI, noticed or perceived by employees and employers, concern the following aspects of work: it optimises work efficiency and productivity, the "deployment effect" (Ciocan and Milon, 2018; Sowa, Przegalinska and Ciechanowski, 2021; Tong et al., 2021; Yang, 2022; Simion and Popescu, 2023; Bankins et al., 2024; Massoud et al., 2024;

Tasheva and Karpovich, 2024), allows the performance of repetitive tasks, which are seen as tiring and less enjoyable by the human workforce (Sowa, Przegalinska and Ciechanowski, 2021; Kambur and Akar, 2022), reduces employees' mental and physical fatigue and increases positive emotional states (Qiu et al., 2022), enhances workers' performance by combining artificial intelligence and human consultancy (Wijayati et al., 2022; Bankins et al., 2023), represents a positive challenge that encourages proactivity in the workplace (Huang and Gursay, 2024), increases career resilience and informal learning (Kong et al., 2024); optimises human resource management (Stone, Lukaszewski and Johnson, 2024), and leads to solving management challenges through new means (Jacob Fernandes França et al., 2023). Categorically, perceived positive effects predominate, but there are also many fears and negative effects perceived by employees.

Regarding the negative impact of AI on the workforce, it takes both explicit and subtler forms. From the category of explicit forms, we mention: significant job losses and dehumanisation of jobs (Chiu, Zhu and Corbett, 2021; Arias-Pérez and Vélez-Jaramillo, 2022; Presbitero and Teng-Calleja, 2023; Segovia-Perez, Jianu and Tussyadiah, 2023), changes in the human workforce forced to find new specialisations based on AI (Stone, Lukaszewski and Johnson, 2024); decreased work productivity ("unveiling effect") (Tong et al., 2021), incorrect decisions that can be made through AI-assisted support (Narayanan et al., 2024), and discrimination among employees who benefit differently from AI support (Tong et al., 2021; Segovia-Perez, Jianu and Tussyadiah, 2023). We observe a possible paradox in the impact of AI on the workforce, leading to increased and decreased work productivity. It is evident that the attitude and approach of the workforce to AI make a positive or negative difference. A more subtle negative impact of AI implementation, but with effects on the attitudes, behaviour, and performance of employees, includes the following phenomena: employees' aversion due to the perception of greater responsibility for AI-generated outcomes (Luo et al., 2021; Allen and Choudhury, 2022); disadvantage to employees with extreme (low or high) performance who receive fewer benefits due to information overload and aversion to algorithms (Tong et al., 2021); insecurity among employees and professional alienation (Segovia-Perez, Jianu and Tussyadiah, 2023; Huang and Gursay, 2024). Another type of negative effect, currently only suggested, concerns expectations about the training of employees. Not only are new skills required from employees, but traditional educational training programmes, such as higher education, are becoming obsolete (Yang, 2022). In addition, there are other challenges of AI, which are rather perceived negatively by employees, such as: inefficient human-machine integration (Fan and Yang, 2023), concerns about ethics, security, and confidentiality (Malik et al., 2023; Varma, Dawkins and Chaudhuri, 2023), oversimplification of nuanced situations (Kassir et al., 2023), and trust issues (Budhwar et al., 2022).

Concerns about the impact of job losses due to AI were also addressed in the literature before the advent of the publicised ChatGPT. A study conducted in Japan by Morikawa (2017), applied to 10.000 people, revealed that from the point of view of employees, about 30% feared losing their jobs due to AI and robotics, the greatest risk perceived by the younger generation working in the manufacturing process. On the other hand, another component of the study applied to consumers suggests that AI and robotics are less likely to replace personal services such as childcare, medical care, and education, as consumers prefer these services to be provided by humans (Morikawa, 2017).

In his paper, Krishna (2024) mentioned an MIT and Boston University report that reveal that AI is expected to replace approximately two million manufacturing workers by 2025.

Apparently, regarding the jobs that will be replaced by AI (Johnson, 2023), a major impact will be in the following domains: finance and banking (it is estimated that by 2027, in the Chinese financial sector, 23% of jobs will be replaced by AI); media and marketing; legal services.

Other areas prone to major changes in job structure as a result of the widespread introduction of AI are goods production, data input, and customer services. Initially, only some tasks will be replaced, and then the entire human workforce in these areas will be completely replaced (George et al., 2023). Similarly, Huang and Rust (2018) state that AI is revolutionising services by taking over various tasks, through innovations, threatening human jobs. According to the theory of these researchers, four types of intelligence (mechanical, analytical, intuitive, and empathetic) are highlighted in the replacement of jobs by AI, suggesting that AI will first support work and then completely replace human tasks, progressing from mechanical intelligence to empathetic intelligence, fundamentally changing the importance of these skills in service jobs.

A recent worldwide research by Statista (2023) on the expected change or replacement of jobs by AI between 2023 and 2028, most respondents consider that their jobs will be impacted but not replaced. On the other hand, according to a report from World Economic Forum, in the next five years a decrease of 14 million jobs (2% of current employment) will be registered, and the most affected domains will be Supply Chain and Transportation, Media, Entertainment, and Sport Industries (The Future of Jobs Report, 2023).

The sociodemographic and professional characteristics of employees and their relationship with attitudes toward AI have also been examined in the literature. The literature is abundant with studies on fear, both among employees and customers regarding AI, but the question is how it differs depending on the personal characteristics of the employee. Research has been conducted to better understand the causes of fear (Grassini and Sævilid Ree, 2023) and how it could be reduced. One aspect studied is the employee's experience with AI.

Mirbabaie et al. (2022) analyse the identity threat generated by collaborating with artificial intelligence in the workplace, proposing a theoretical framework that identifies predictors such as changes in work, loss of status, and identity related to AI. The results indicate that the employee's experience with AI does not change the perception of identity threat, and to reduce this threat, it is essential to support a positive identification with AI by explaining its role and promoting ethical and responsible use. Tong et al. (2021) studied the way in which the experience of the job of the employees influences their attitude toward AI, and the conclusion was that more experience at work generates fewer emotions about the implementation of AI.

Another aspect of the investigation is the relationship between the age of the employee and the perception (fear) of AI. Brougham and Haar (2018) emphasised that younger employees plan their careers more and are more sensitive to the threats that AI could pose to them and thus more fearful. However, Tong et al. (2021) show that familiarity with AI, which younger people have compared to older ones, increases their confidence and reduces their fear of AI. In another study (Kumari and Hemalatha, 2019), no significant differences were found in the perception of AI by employees in human resource management, depending on age. Neither gender nor educational qualification indicated different attitudes of employees towards AI.

(Kumari and Hemalatha, 2019), perhaps due to their separate analysis. An idea that should be investigated is that of the profile of an employee with a positive, proactive attitude towards AI in the workplace, where age should be associated with other characteristics. Different samples from different cultures and organisations may lead to different results. This is why we propose to investigate these avenues as well.

In spite of the persistent fear of job loss in academic literature (Lee and Park, 2023; Dorotic, Stagno and Warlop, 2024), the practitioner research (Rane, 2023; Vinchon et al., 2023; Zirar, Ali and Islam, 2023) argues in favour of the coexistence of workers and AI. Therefore, practitioners do not advocate algorithms intended to replace human workers, but rather for those algorithms, and therefore AI, projected to increase and benefit from the professionalism and skills of human workers (Kong et al., 2024), while also protecting their interests.

## **2. Research methodology and objectives**

Consequently, as a result of the literature review performed, a quantitative research was designed and conducted, with the purpose of assessing the way Artificial Intelligence (AI) is perceived as a threat or a benefactor for human competencies and working environments, throughout the various domains and various work experiences of people. This research is based on an online questionnaire, distributed through Google Docs platform in February-March 2024 to a non-probability sample of 573 people aged between 19 and 65, living in different regions of the country, with various work experiences, with a total of 512 valid questionnaire responses collected. Students from three faculties with an economics and informatics profile from Bucharest and Oradea were asked to distribute the questionnaire to at least three persons they know with work experience. At the same time, the questionnaire was distributed by the Linked In social media platform, in order to target as many working people in various domains as possible. The data recovered from the online questionnaire were initially processed with Microsoft Excel and then analysed with the statistical software Minitab 21.

The analysed variables are categorical - ordinal and nominal, and the tests conducted on them used non-parametric methods as well as logistic binary regression. The internal consistency of the data regarding respondents' perception of the positive role of AI (i.e., their trust in AI and the belief that humanity will benefit from AI) was tested. The Cronbach's Alpha coefficient was found to be 0.750, indicating positive premises for the validity of the data provided by the respondents.

The structure of the questionnaire was designed to obtain answers to the following research objectives:

- O1. Evaluating the general attitude of respondents about the impact of AI on current human jobs.
- O2. Determining the areas where AI is perceived to lead to decreased available jobs for the human workforce.
- O3. Analysing the way various AI competencies are used for work tasks by the human workforce.
- O4. Identifying the perception of AI as threat or benefactor for the human workforce, according to respondents' age, gender, work status, and work experience.

As a result, the following research hypotheses have been formulated, starting from the previous findings of other research in the field, as follows:

Hypothesis 1 – Respondents are willing to contribute to improving AI (Daugherty and Wilson, 2018), regardless of their awareness of job loss due to AI; corresponds to O1.

Hypothesis 2 – AI will never become better than human labor in terms of work competencies (Halal, Kolber, and Davies, 2016); corresponding to O1.

Hypothesis 3 - The perception of the areas where human job losses due to AI will occur is not influenced by age or gender (Morikawa, 2017); corresponding to O2.

Hypothesis 4 – The use of different types of AI competencies to solve human work tasks (Tong et al., 2021) is not influenced by age; corresponding to O3.

Hypothesis 5 – The perception of negative consequences induced by the use of AI in work-related tasks (Lee and Park, 2023; Dorotic, Stagno, and Warlop, 2024; Grassini and Sævild Ree, 2023) is the same regardless of: a) gender; b) age; c) job status; d) work experience; e) type of institution where respondents have work tasks; corresponding to O4.

Hypothesis 6 – The perception of positive effects induced by the use of AI in work-related tasks (Brougham and Haar, 2018; Kumari and Hemalatha, 2019) is the same regardless of: a) gender; b) age; c) job status; d) work experience; e) type of institution where respondents have service tasks; correspond to O4.

### 3. Results and discussions

The general distribution of genders is: 34.57% male and 65.43% female respondents, while in terms of age there are: 273 respondents (53.32%) < 25 years old – most of them also engaged in a form of university education, and 239 respondents (46.68 %) with ages between 26 – 65 years (13.28 % age between 26-35 years, 21.88% age between 36-50 years, 11.52% age between 51-65 years).

As our *first objective (O1)* was to evaluate the general attitude of respondents about the impact of AI on the jobs humans currently have, we first assessed the level of apprehension acknowledged by respondents about AI leading to job losses. The scale provided for the answers was ordinal, quantified from 1 – 5 (1 totally disagree with the affirmation and 5 totally agree with it). A 1-Sample Sign Test for the median is used since the data is not symmetric. We assumed that respondents agree to a large extent that AI will lead to losing jobs, and hence we tested the median accordingly. The results position the median of responses at 4 (agree to a high extent), while the p-value rejects  $H_0: \eta = 3$  and confirms that the respondents agree to a high and very high degree that AI will lead to loss of jobs (Table no.1).

Table no. 1. Sign Test: AI will lead to jobs losses

Null hypothesis	$H_0 : \eta = 3$			
Alternative hypothesis	$H_1 : \eta > 3$			
Sample	Number < 3	Number = 3	Number > 3	P-Value*
AI will lead to losing jobs	86	119	257	0.000

Note: \*significance level 0.05



At the same time, when testing the distribution of responses to the willingness of the respondents, on a scale of 1-5, to help improve AI by providing feedback and personal data, the median is below the middle of the scale. As data are quite symmetrical, 1 sample Wilcoxon signed rank test was applied, the results being presented in Table no. 2 below.

**Table no. 2. 1-Sample Wilcoxon test for median willingness to help AI improve in the workplace**

Null hypothesis	$H_0 : \eta = 3$		
Alternative hypothesis	$H_1 : \eta < 3$		
<b>Sample</b>	<b>N for Test</b>	<b>Wilcoxon Statistic</b>	<b>P-Value</b>
Agree (1-5) to help AI improve	313	20534.00	0.006

Note: \*significance level 0.05

The median willingness of the respondents to help AI improve is less than 3, meaning that the majority are reluctant to agree to contribute to AI improvement.

In order to test our first research *hypothesis (no. 1)* – Respondents are willing to help improve AI, regardless of their degree of apprehension about AI leading to job losses, the Spearman correlation coefficient was calculated, its value indicating a medium negative correlation ( $r = -0.256$ ) between these 2 variables: provide feedback for AI improvement and apprehension about AI leading to job losses. To quantify the median difference between these two pairs of data, the Wilcoxon Signed Rank test was performed for pair differences, the results are presented in Table No. 3 below.

**Table no. 3. Wilcoxon Signed Rank Test for pair differences: apprehension for AI jobs losses vs. willingness to improve AI**

Null hypothesis	$H_0 : \eta = 0$		
Alternative hypothesis	$H_1 : \eta > 0$		
<b>Sample</b>	<b>N for Test</b>	<b>Wilcoxon Statistic</b>	<b>P-Value</b>
Pair differences	406	59543.50	0.000

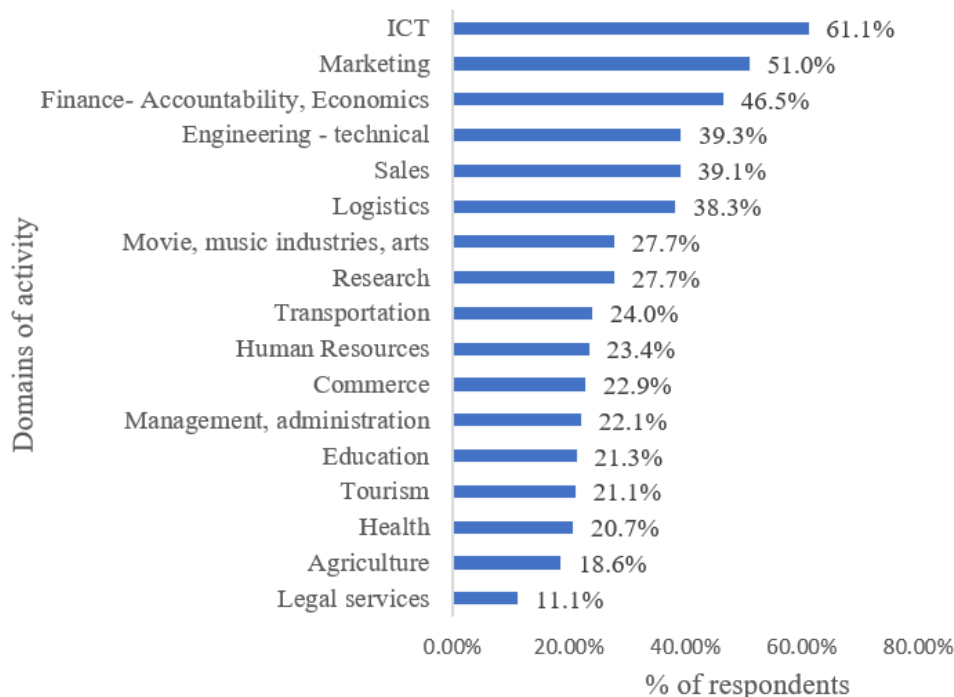
Note: \*significance level 0.05

The median of these differences between respondents' two sets of answers is 0.5, hence we can reject the null hypothesis and thus *invalidate the research Hypothesis no. 1*. Furthermore, this result complements the findings of previous research (Daugherty and Wilson, 2018), which identifies that people contribute to the development of AI, even if they are not aware of how they are doing so.

In what concerns *Hypothesis no. 2* – AI will never become better than human work force in terms of work competencies, we investigated in what interval of time respondents considered that AI would provide better competencies than the human workforce. The Wilcoxon test did not support the  $H_1 : \eta > 3$  (between 3-5 years), the p-value being 0.684. When analysing the distribution of answers, it resulted that only 21.48% of the respondents believe that AI will never be able to overpass human work competencies, arguing with the more optimistic results of other research (Halal, Kolber and Davies, 2016), while more than half of the respondents

(58.98%) consider that, by the end of 2029, AI will be better than human workforce; therefore, the research *hypothesis no. 2* is not confirmed.

Related to the second objective (O2), we wanted to determine the areas where AI is perceived to lead to decreasing available jobs for the human workforce. The distribution of the opinions of the respondents is presented in Figure no. 1.



**Figure no. 1. Perception of respondents about the various domains where AI will cause job losses for humans**

As it can be noticed, ICT, Marketing, Finance-Accountability, Banking, and Economics in general are areas where AI is perceived to greatly contribute to lowering the offer of jobs for human workforce, confirming the data from scientific literature (Johnson, 2023). Also, Agriculture, Health, and Education are sectors where AI is believed to have little impact in terms of jobs losses, again confirming the previous research in the field (Halal, Kolber and Davies, 2016; Morikawa, 2017).

In order to test whether there is any association between respondents' choice for domains with jobs losses for humans caused by AI and respondents' age and gender, Pearson Chi Square test was conducted. The results are presented in Table no. 4.

**Table no. 4. Pearson Chi Square test for association between variables “Activity domains with jobs losses caused by AI”, and “Gender”, respectively “Age”**

Null hypothesis (H <sub>0</sub> ) – statistic context	Tested variable	Cross variable	Decision	P-value*
There is no association between variables	ITC - software, websites, cyber security	Gender	Reject H <sub>0</sub>	<b>0.003*</b>
	Marketing		Accept H <sub>0</sub>	0.548
	Finance-Accountability, Banking, Economics		Accept H <sub>0</sub>	0.748
	Sales		Accept H <sub>0</sub>	0.242
	Engineering - technical, service, electronic equipment		Accept H <sub>0</sub>	0.071
	Logistics		Accept H <sub>0</sub>	0.417
	Research		Accept H <sub>0</sub>	0.821
	Movie, music industries, arts		Accept H <sub>0</sub>	0.417
	Transportation		Accept H <sub>0</sub>	0.159
	Commerce		Accept H <sub>0</sub>	0.062
	Human Resources		Accept H <sub>0</sub>	0.586
	Health		Accept H <sub>0</sub>	0.882
	Management, administration		Accept H <sub>0</sub>	0.184
	Education		Accept H <sub>0</sub>	0.703
	Tourism		Accept H <sub>0</sub>	0.288
	Agriculture		Accept H <sub>0</sub>	0.841
	Legal services		Reject H <sub>0</sub>	<b>0.031*</b>
	ITC - software, websites, cyber security	Age	Accept H <sub>0</sub>	0.191
	Marketing		Reject H <sub>0</sub>	<b>0.016*</b>
	Finance-Accountability, Banking, Economics		Accept H <sub>0</sub>	0.826
	Sales		Accept H <sub>0</sub>	0.907
	Engineering - technical, service, electronic equipment		Accept H <sub>0</sub>	0.252
	Logistics		Accept H <sub>0</sub>	0.110
	Research		Accept H <sub>0</sub>	0.125
	Movie, music industries, arts		Accept H <sub>0</sub>	0.258
	Transportation		Accept H <sub>0</sub>	0.176
	Commerce		Reject H <sub>0</sub>	<b>0.035*</b>
	Human Resources		Accept H <sub>0</sub>	0.910
	Health		Reject H <sub>0</sub>	<b>0.013*</b>
	Management, administration		Accept H <sub>0</sub>	0.824
	Education		Accept H <sub>0</sub>	0.073
	Tourism		Accept H <sub>0</sub>	0.883
	Agriculture		Accept H <sub>0</sub>	0.570
	Legal services		Reject H <sub>0</sub>	<b>0.001*</b>

Note: \*significance level 0.05

According to this analysis, there is an association between Areas with higher perspectives of job losses because of AI and gender, as for Legal services and ICT male respondents mentioned in a higher-than-expected number these domains as being affected by future job losses because of AI. When cross-tabulating "Areas with higher perspectives of job losses due to AI" by variable "Age", again associations, respondents with ages between 26-35 and 36-50 years, indicating in a higher than expected number that Legal services and Health Care as domains will have human job losses were found. Also, people older than 36 years indicated in a higher number Commerce, while Marketing was a domain chosen in a higher than expected number by the youngest segment - < 25 years old. Thus, the research *Hypothesis no. 3* – there is no association between ages, respectively, genders, and respondents' perception of activity areas that will be impacted by AI with human job losses is invalidated.

In what concerns testing the *Hypothesis no. 4* – there are no differences explained by age factor in the way various types of AI competencies are used to solve human work tasks; respondents were asked to assess the extent of using the various AI skills in their work tasks. The scale of answers ranges from 1 (never use AI) - to 5 (always use AI). Since the distribution of shape of the answers between age categories is not similar, the mood median test was applied, to identify if there are statistically significant differences between these (Table no. 5).

**Table no. 5. Mood's Median Test for the variable  
"use of various types of AI competencies" cross variable "age"**

Null hypothesis (H <sub>0</sub> ) – statistic context	Tested variable	Cross variable	Decision	P-value*
The distribution of the variable is the same across all categories	Chatbots AI skills use	Age	Reject H <sub>0</sub>	0.000
	AI skill of images creators		Reject H <sub>0</sub>	0.000
	Virtual Assistants AI skills use		Reject H <sub>0</sub>	0.000
	Education AI skills use		Reject H <sub>0</sub>	0.000
	Health AI skills use		Reject H <sub>0</sub>	0.001
	Navigation AI skills use		Reject H <sub>0</sub>	0.000
	Other types of AI skills use		Reject H <sub>0</sub>	0.000

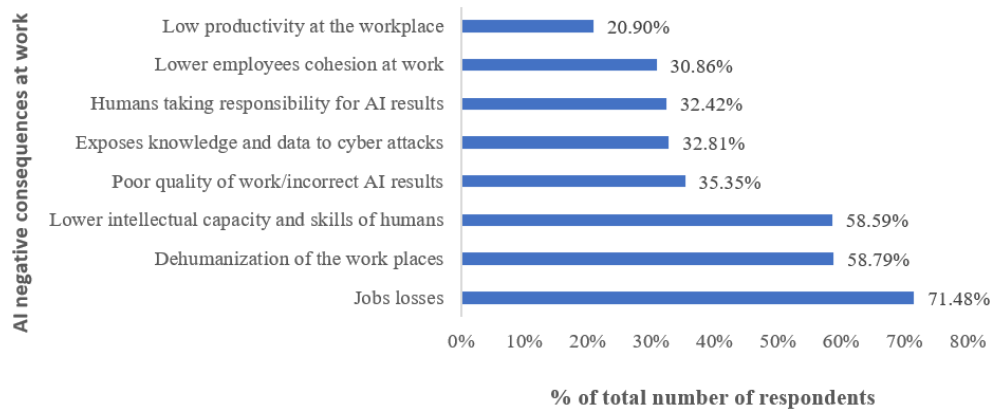
Note: \*significance level 0.05

For all tested types of AI competencies, statistically significant differences between age categories were found. Thus, the median for 18-25 and 26-35 year old groups is positioned at 3 (average extent use), as compared to 1 (never use) for the groups of age 36-50 and 51-65 years, in what regards the extent of using the skills Chatbot types of AI provide. The median for the groups 18-25 and 26-35 years is located at 2 (little extent use), as compared to 1 for the groups 36-50 and 51-65 years, for the extent of using the skills of Image creators AI and Health AI. Regarding the extent of using Virtual Assistant types of AI, the median for 18-25 and 26-35 years is positioned at 3, compared to the median for the groups 36-50 and 51-65 years, positioned at 2. The median for the 18-25 years group is 3, while for the 26-35 and 36-50 years old groups the median is 2, respectively, 1 for the group 51-65 years, when using the skills provided by Education AI. The highest extent of use is for the skills Navigation AI provides, the median for 18-25, 26-35, and 36-50 years old groups being positioned at 4 (large extent use), as compared to the median of 3 of the 51-65 years group.

For other types of AI skills, the median for 18-25, 26-35 years old is located at 3, as compared to median 2 for the 36-50 years, respectively median 1 for the 51-65 years groups. The results of this analysis indicate that research *Hypothesis no. 4 is also invalidated*.

Linked to the objective of research that aims at identifying the perception of AI as threat or benefactor for the human workforce, according to respondents' age, gender, work status, and work experience (O4), we asked the respondents to indicate both the benefits and the negative consequences of using AI for their work tasks.

The results of the respondents' answers regarding the disadvantages of AI are presented in Figure no. 2.



**Figure no. 2. The opinion of the respondents about the negative consequences of AI at work (% of the total number of respondents)**

As can be noticed, job losses and dehumanisation of work places are the main negative consequences of AI indicated by the majority of the respondents, thus confirming previous reports from the scientific literature (Chiu, Zhu and Corbett, 2021; Arias-Pérez and Vélez-Jaramillo, 2022; Presbitero and Teng-Calleja, 2023; Segovia-Perez, Jianu and Tussyadiah, 2023). Another perceived threat from AI refers to the lowering of the intellectual capacity and skills of humans, as they will no longer be used to solving problems and tasks on their own.

Next, we investigate the research *hypothesis no. 5* - the perception of negative consequences of using AI in work-related tasks is the same regardless of: a) gender; b) age; c) work status; d) work experience; e) type of institution where respondents have had work tasks. Pearson Chi square test of association was applied between variables indicating AI negative consequences at work (yes/no), and sociodemographic variables, as presented in Table no. 6.

Table no. 6. The p-value results for Pearson Chi Square Tests of Association between AI negative consequences at work and respondents sociodemographic variables

		Cross variable				
		Work experience	Position at work	Type of institution	Age	Gender
Tested variable	Dehumanisation of work places	0.079	0.496	0.501	<b>0.048*</b>	0.253
	Jobs losses	0.618	<b>0.027*</b>	0.541	0.979	<b>0.030*</b>
	Humans taking responsibility for AI results	0.137	0.295	0.395	0.647	0.265
	Low productivity at the workplace	<b>0.001*</b>	0.061	0.685	<b>0.000*</b>	0.110
	Poor quality of work/ incorrect AI results	0.108	<b>0.036*</b>	0.070	0.138	0.212
	Lower employees cohesion at work	<b>0.003*</b>	0.379	0.487	<b>0.004*</b>	0.497
	Lower intellectual capacity and skills of humans	0.597	0.412	0.283	0.169	0.957
	Exposes knowledge and data to cyber attacks	0.427	0.336	0.446	0.310	0.988

Note: \*p-value<0.05

The results indicate that dehumanisation is a negative consequence indicated to a greater extent than expected by respondents with ages between 26 and 50 years old.

Low productivity is indicated in a higher than expected number by respondents < 25 years and also by respondents with work experience less than 5 years.

The lower cohesion of the employees at work is mentioned in a lower than expected number for persons <25 years old. At the same time, employees with more than 15 years of work experience selected this disadvantage of AI in a higher than expected number.

Losing jobs is a negative consequence indicated in a higher than expected number by women, and by respondents with operational positions. The loss of jobs is a negative consequence indicated in a greater number than expected by women and respondents in operational positions. Furthermore, this conclusion is confirmed by the results obtained after a binary logistic regression analysis (Table no. 7).

Table no. 7 Analysis of the component variables of the binary logistic regression model for the perception of AI as a negative factor leading to job loss

Source	DF	Wald Test	
		Chi-Square	P-Value
Regression	2	8.96	0.011
Gender:	1	4.26	0.039
Job Position:	1	4.40	0.036

Note: \*p-value<0.05

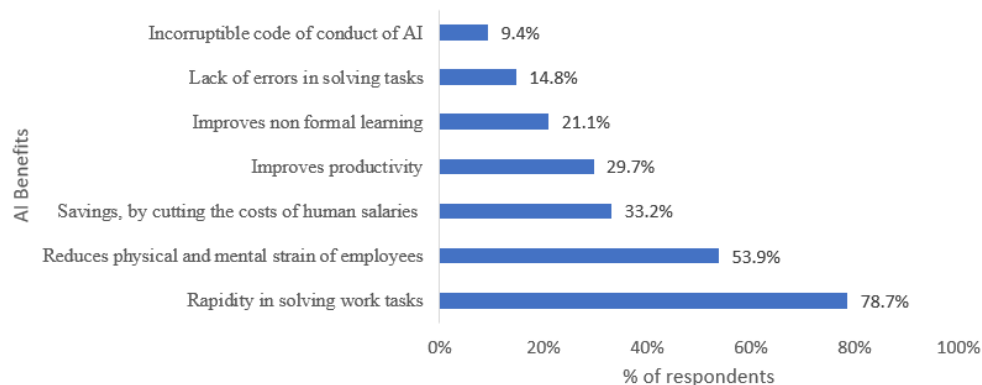
The analysis indicates that the regression model is statistically significant for 2 degrees of freedom (DF), suggesting that the included predictors (gender and job position) have a significant impact on the outcome variable. From the analysis of the model coefficients, it follows that being Female (0.419) increases the probability of perceiving job loss as a negative effect of AI by 52%, while the Operational Position at the workplace (0.529) increases this probability by approximately 70% (Table no. 8).

**Table no. 8. Odds Ratio for AI fear of losing jobs model predictors**

Level A	Level B	Odds ratio	95% CI
Gender Feminine	Masculine	1.5206	(1.0214, 2.2636)
Job Position: Operational	Management	1.6969	(1.0356, 2.7805)

A lower than expected number of respondents working in management positions chose the “poor quality of work” as a disadvantage, while operational positions employees mentioned this negative consequence in a larger than expected count. Because there are differences associated with the various sociodemographic variables, *the research Hypothesis no. 5 is thus invalidated.*

Also related to O4 was the evaluation of AI as a benefactor for the human workforce. The results of the responses of the respondents on the perceived benefits of AI in the workplace are presented in Figure no. 3. It can be noted that the majority indicated that “rapidity in solving work tasks” and “reducing the physical and mental strain of the employees” are the main benefits of AI, confirming other previous research in the field (Qiu et al., 2022). Surprisingly, one-third of respondents perceive the savings the company makes, by eliminating the jobs for human employees and using instead the AI skills, as a benefit.



**Figure no. 3. Respondents’ opinion about AI benefits at work  
(% of the total number of respondents)**

As such, we were interested in investigating the research *Hypothesis no. 6* – The perception of positive effects induced by the use of AI in work-related tasks is the same regardless of: a) gender; b) age; c) job status; d) work experience; e) type of institution in which respondents have work tasks.

The Pearson Chi square test was applied between variables indicating AI benefits at work (yes / no) and sociodemographic variables, as presented in Table no. 9.

**Table no. 9. The p-value levels for Pearson Chi Square Tests of Association between AI positive consequences at work and respondents' sociodemographic variables**

		Cross variable				
		Work experience	Position at work	Type of institution	Age	Gender
Tested variable	Rapidity in solving work tasks	<b>0.001*</b>	0.205	<b>0.009*</b>	<b>0.000*</b>	<b>0.034*</b>
	Lack of errors in solving tasks	0.122	0.656	<b>0.003*</b>	0.156	0.739
	Savings by cutting the costs of human salaries	<b>0.014*</b>	0.258	0.252	<b>0.008*</b>	0.069
	Improves productivity	<b>0.016*</b>	0.667	0.221	0.180	<b>0.000*</b>
	Reduces the physical and mental strain of employees	0.843	0.105	0.450	0.070	0.913
	Improves non formal learning	0.181	0.885	0.724	<b>0.035*</b>	0.197
	Incorruptible code of conduct of AI	0.357	0.361	0.782	0.065	0.656

Note: \* $p$ -value<0.05

As a result of applying the Pearson Chi-square test, several associations appear as statistically significant between variables. Therefore, the advantage brought about by AI 'savings, by cutting costs of human salaries' was mentioned in a higher than expected number of respondents with ages between 26 and 35 and 36 and -50 years.

The improvement of non-formal learning generated by AI is an advantage mentioned in a higher-than-expected number by respondents younger than 35 years old. In terms of the benefit of improved productivity, male respondents, as well as respondents with work experience between 5-15 years, chose in a higher-than-expected number this positive effect of using AI. The most chosen advantage – “Rapidity in solving work tasks”, was also associated with Age, Gender, Work Experience and Institution type, as respondents under 25 years, female respondents, respondents with less than 5 years work experience and respondents with work experience in private institutions acknowledged in a higher-than-expected number this benefit of AI. The lack of errors in the results produced by AI is an advantage mentioned to a higher extent by respondents with work experience in public institutions. Research *Hypothesis no. 6 is thus invalidated.*

## Conclusions

Artificial intelligence (AI) is increasingly present in our daily lives and interferes with more and more areas of human activity, with noticeable perceived benefits and downsides. Consequently, by means of quantitative research, we investigated the way AI is perceived as a threat or a benefactor for human competencies and working environments, throughout the various domains and various work experiences of people. Through this research, our aim was



to evaluate the general attitude of respondents about the impact of AI on current human jobs (O1). In general, related to this objective, it can be said *that AI is regarded to a high extent, by the majority of the respondents, as a threat to human workforce* due to AI potential to eliminate the need for human jobs. We also identified that the *respondents' willingness to help AI improve its skills and become better for the job by providing feedback and personal data is low*, thus invalidating Research Hypothesis 1. Additionally, research hypothesis 2 has been invalidated, as our analysis indicates that *most of the respondents believe that by the end of 2029, AI will be better than the human workforce*.

Determining the areas of activity where AI is perceived as the cause leading to job losses for the human workforce was our second objective (O2). *ICT - Software, web development, and cybersecurity, marketing, and engineering are the domains where most job losses are believed to occur because of AI*, thus confirming other research in the field. Additionally, Research Hypothesis 3 has been invalidated, as there was found to be an *association between age and gender, and respondents' perception of the fields of activity that will be affected by AI with job losses*.

Analysing the way various AI skills are used for work tasks by the human workforce was our third objective (O3). Research Hypothesis 4 is invalidated, as there are differences between age groups with respect to the extent of use of various types of AI to facilitate their work tasks. The analysis showed that, regardless of the type of competency for which AI assists, *the youngest segment (under 25 years old) uses various AI competencies to the greatest extent; meanwhile, the segment over 51 years old rarely or never utilises AI competencies for work-related tasks*.

Identifying the perception of AI as threat or benefactor for the human workforce, according to respondents age, gender, work status and work experience (O4) was the last, but not the least important objective of our research. *The losses of jobs, dehumanisation of the work places, and lowering of intellectual capacity and skills of humans, as they will not be used to solve problems and tasks on their own any more, are the main negative consequences of AI*, as pointed out by the majority of the respondents. *In terms of benefits, most indicated that "rapidity to solve work tasks" and "reducing the physical and mental strain of employees" are the main advantages of AI*. Both research Hypothesis 5 and research Hypothesis 6 have been invalidated, as statistically significant associations have been found between sociodemographic variables and the perception of various threats and benefits of AI.

The research has its limitations; despite the large sample size and the diversity of sociodemographic categories of the respondents analysed, non-probabilistic sampling may not reflect the attitude of the entire active population towards AI. However, the results of the study presented in this paper confirm previous research in the field on the perception of AI as a threat to the workforce due to its increasingly advanced capabilities, which paradoxically are also perceived as undeniable benefits and assistance in the workplace.

These results complement theoretical knowledge in this field by analysing the contribution of different factors, such as gender, age, experience, and job position, to shaping the perception of AI. This information provides important information for employers, providing a better understanding of how AI could best be integrated into their activities without compromising the quality of work and employee engagement. Identifying the limits to which AI can interfere with human economic and social activities without destabilising and

destroying humanity is an extremely important direction for future research. Additionally, another research question for the future, generated by the results of our research regarding the propensity of the younger generation to rely on AI competencies, is how academic education will be affected on the medium and long term by the decreasing interest of the younger generation in relying on their own capabilities competencies at work.

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