

## THE DEVELOPMENT PERSPECTIVES OF HUMAN RESOURCES IN RELATION TO ARTIFICIAL INTELLIGENCE

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**Purpose:** The purpose of the research was to identify potential HR development opportunities in the age of AI implementation in businesses, as well as the opinions of respondents regarding the use of AI in the company and HR activities.

**Design/methodology/approach:** The analysis was conducted objectively, avoiding any subjective evaluations. The literature review as well as personal study were conducted. Two research questions have been formulated: (RQ1) How do respondents evaluate the use of AI in their workplace, and what potential do they see for AI in HRM processes? (RQ2) According to respondents, what is the impact of AI on HR activities and development? 99 participants took part in the study and completed an on-line survey questionnaire. The respondents were non-stationary students from the Faculty of Management at Czestochowa University of Technology.

**Findings:** The research was cognitive in nature, and the collected data was subject to statistical analysis. The survey results revealed deficiencies in the implementation of advanced technology in HR operations among the companies surveyed. However, organizations and employees are aware of the benefits of implementing AI solutions.

**Research limitations/implications:** The study is limited by the selection of the research sample (working part-time students); in the future, it is planned to involve employees of HR departments of various enterprises and institutions in the study for greater credibility of the study results.

**Practical implications:** The use of solutions offered by AI in practice accelerates the implementation of HR activities and thus achieves better work efficiency in a shorter time. HR in the future will be completely or mostly dominated by modern technology.

**Social implications:** Some individuals approach artificial intelligence more critically, while others take a conservative stance and seek out its various 'flaws.' The use of artificial intelligence in business is inevitable, especially in the HR area, so employees from these departments must take into account major changes in the nature of their work.

**Originality/value:** The article discusses the current topic of the use of AI-based solutions in business. Artificial intelligence is becoming more prevalent in business operations as it automates processes, resulting in more efficient and effective task execution, particularly in the case of repetitive tasks.

**Keywords:** artificial intelligence, human resources, development.

**Category of the paper:** research paper.

## 1. Introduction

Companies can improve their business processes by using artificial intelligence (AI). Operational efficiency can be enhanced by combining machine learning (ML), robotic process automation (RPA), and the Internet of Things (IoT) (Rathi, 2018, pp. 113-116; Konkel, 2023, pp. 46-60). Following the trends related to AI, companies worldwide are creating and developing solutions that are intended to assist employees in their daily work and relieve them from tedious and repetitive tasks. The AI industry is currently experiencing rapid growth in investments, while governments are working to understand the implications of this technology for their citizens (Symela, Stępnikowski, 2021, pp. 21-28). According to Fountaine, McCarthy, and Saleh (2019), the forecast indicates that AI will lead to a 13 trillion USD increase in the global market over the next decade (pp. 62-73). Furthermore, over time, the relationship between smart technology and employees has undergone significant changes. The Deloitte Global Capital Trends 2020 study suggests that employment will not decrease but may even increase after implementing AI into an organization (Deloitte Global Capital Human Trends, 2020; 48% osób w Polsce..., 2023). The report from consulting company PwC indicates that 73% of employees are optimistic about the future job market and do not fear being replaced by technology in the workplace. Simultaneously, 74% of the respondents are aware of the need to acquire new competencies to maintain employment in an increasingly digitalized world. Currently, 76% of company presidents in Central and Eastern Europe identify the lack of individuals with the required competencies as the primary obstacle to business (PwC Report, 2017). According to the PwC Report (2018), 86% of respondents believe that new technologies and automation will not replace human competencies, but will rather require employees to be more flexible. The independent studies conducted also approach this matter optimistically.

It should be remembered that the goal of implementing AI into businesses is to increase efficiency, accuracy, and speed of task execution, as well as to focus on more strategic activities (Hatfield et al., 2023). Examples include the automation of administrative actions, the management of employees and clients through the utilization of Chat-bots, or the execution of decision-making processes, wherein AI is capable of making decisions based on data analysis using defined principles (Paschen, Wilson, Ferreira, 2020, pp. 403-414). All mentioned management aspects allow for increased productivity, improved quality of services provided, and competitiveness of the enterprise. On the other hand, concerning the Human Resources (HR) themselves and the Human Resource Management (HRM) process, this means that many activities (including recruitment, performance management, compensation and benefits determination, training and development provision) may be significantly automated in the near future (Sakka, El Maknoui, Sadok, 2022, pp. 1-14).

The article aimed to indicate the possibilities of HR development in the era of AI implementation in companies. Due to the dualism of the concept of HR, understood as human capital and human resource management, the conducted study also had a dualistic nature. Two research questions RQ1 and RQ2 were posed. Respondents' opinions on the use of AI in the enterprise, its impact on operations and human resource development, and the potential use of AI in HR processes were presented. A total of 99 individuals participated in the study. The study was conducted using an on-line survey questionnaire among students (mostly working students of non-stationary studies) of the Faculty of Management of the Czestochowa University of Technology in December 2023.

## **2. AI in HR processes**

Today, companies already possess the potential to use AI in HR functions and processes to inform decision-making, facilitate employee interaction with the HR department, and free up time for making better hiring decisions and investing in employee satisfaction and retention. In the HR department, in many time-consuming and repetitive tasks, AI can assist their employees to increase their productivity, thus indirectly contributing to improving job satisfaction. Automation and the use of AI can be not only become a significant part of the recruitment process but also be important in the implementation of the entire process (Tewari, Pant, 2020, pp. 1-4). According to Business Standard, employees on average spend 3 hours per day on activities that can be automated, which could potentially save hundreds, if not thousands, of working hours. Equally significant, there has been a 36 per cent increase in employment costs over the past five years, making automation an even more appealing choice for businesses. Consequently, in developed countries, businesses are increasingly compelled to optimize HR processes by employing AI solutions and automation. Businesses that embrace new technologies sooner will have a greater competitive edge and will be able to deliver their services more efficiently.

Experts believe that AI has great potential for significant transformation of HR departments. For instance, it can streamline the recruitment process by helping to search CV databases, automatically review applications, and even conduct preliminary job interviews, assessing the skills of candidates (Table 1).

AI-powered applications can also analyse CVs and cover letters to identify key skills and verify their accuracy by cross-referencing with information from social media, enabling the identification of the most promising candidates (Ginu, Mary, 2019, pp. 2278-3075). Moreover, AI can also be employed to tailor training programs to individual employees' requirements, achievable through analysing employee data to identify anomalies, trends, or specific patterns, or as support in remote work management, such as monitoring performance, assisting in

maintaining communication and collaboration between teams (Saeed, 2020, pp. 3867-3871; Buzko et al. 2016, pp. 26-29).

**Table 1.**

*Potential use cases of AI in HR processes*

Possible uses	Description
Preparing job offers	AI technology is capable of creating content templates and specific job offers.
Evaluation of potential candidates	AI, through its capacity to process vast amounts of information, can perform an accelerated analysis of candidates applying for a specific position, assisting managers in automatically taking care of every potential employee.
Automated replies	A suitably prepared Chat-bot sends automatic responses to commonly asked questions sent, for instance, by a person who seeks employment. Furthermore, AI-based HR Chat-bots can aid employees who are already hired in providing swift self-service responses and support.
Onboarding	AI can enhance the onboarding process by delivering customized content. Artificial intelligence-based chat-bots can guide new employees through the onboarding process, respond to inquiries, provide information, and send reminders about crucial documents, thereby reducing time-consuming tasks and enhancing the experience of newly employed persons.
Education and professional development	Artificial intelligence can assist in suggesting personalized training modules for professional mobility. Artificial intelligence can adapt an employee's training to personal goals by analysing data on each individual, such as their skills and preferences. Artificial intelligence also holds the potential to help HR managers identify hidden talents or identify employees ready for promotion.
Recruitment of temporary personnel	AI in HR can help organizations quickly fill vacant positions, including short-term and temporary positions. Through the use of natural language processing (NLP), AI tools for HR can automate manual tasks associated with procurement, allowing HR teams to save precious time for planning strategic initiatives and meeting customer needs.

Source: own research according to (Nowastowska, Strońska, 2019, pp. 21-32; Piasecki, 2023).

In many organizations, employees now perceive the management of people as a series of actions and tasks rather than as the individuals who guide them. These tasks are located in a virtual space, based on mobile platforms and the asynchronous flow of data. Consequently, HR has also adopted the designation: e-HR or Electronic Human Resource Management System (Nowastowska, Strońska, 2019, pp. 21-32; Li, Maolin, 2015, pp. 71-78).

## 2.2. AI in HR education and development

The possibilities of AI in HR development are quite impressive, and undoubtedly there are many interesting and futuristic changes awaiting businesses in this area. Companies which use AI-based technologies highly appreciate personalized learning and development programs, adapted to their employees' needs, taking into consideration their skills, interests, and learning preferences. Therefore, for instance, AI performs well in personalized learning: (1) personalised programmes - AI analyses employees' learning history, skills and career aspirations to create personalised development plans, aligning training with career goals; (2) data-driven insights - AI collects and analyses data from multiple sources, including performance reviews and self-assessment surveys, to identify strengths, weaknesses and interests; (3) recommendation matching - AI algorithms suggest appropriate learning materials and activities based on each employee's competency profile and interests, increasing engagement and learning

effectiveness; (4) real-time progress tracking - AI-based platforms monitor employees' developmental progress, enabling timely interventions and adjustments for optimal learning outcomes (Robert et al., 2020, pp. 545-575; Lee, Ahn, 2020; Garg et al., 2022, pp. 1590-1610).

The ability to re-qualify and acquire new skills is currently a key factor in the survival of individuals in both the contemporary and future job market, to keep up with the changes driven by digital transformation (Qamar et al., 2021, pp. 1339-1370). Nonetheless, business leaders from across the globe recognize the concerns surrounding access to key skills. According to the PwC "CEO Survey", 76% of them highlighted this area as one of the significant challenges currently and in the future years. A staggering 78% recognize that they are either in the process of or have already altered their talent management strategy to better meet future challenges. Even talented employees themselves notice the impact of AI on their work and consider reskilling or upskilling (Kostro, 2020). Talent retention and ensuring the right level of employee engagement are challenges that AI may potentially tackle. The M.A.I.A. (Matching Artificial Intelligence Assistant) platform is an example of such an application developed by PwC. It allows for the strategic planning of human resources, streamlining recruitment, developing employees, or reducing the turnover of key talents. M.A.I.A. uses artificial intelligence to analyse the organizational culture of a company, the potential of employees in terms of their competencies, and the measurement of job satisfaction (happiness index) (Walka o talenty..., 2017). Consequently, with the assistance of AI, employees can gain access to numerous possibilities that they could otherwise miss. They also receive personalized career paths, which propose development paths customized to the strengths and interests of each employee. AI employs advanced algorithms and machine learning to analyse data related to employees, enabling it to intelligently match employees to internal job offers that are in line with their individual preferences and capabilities. One of the AI tools is a competence/skill coach, powered by generative artificial intelligence and cutting-edge insights in the area of science. AI trainers professionally guide employees, providing them with successful skills development and career advancement. (Hmoud, Laszlo, 2019, pp. 21-30).

When utilizing AI solutions, it is equally important to prioritize time-saving for employees, thus enabling them to pursue more creative tasks in their professional and personal lives. This, in turn, brings them closer to the concept of work-life balance (WLB) (Žmija, 2020), or what some scholars already refer to as the model of tech-life harmony (Gajdzik, 2018, pp. 21-33).

In conclusion, from an organizational perspective, the key to success is currently investing in AI-related education, supporting entrepreneurship, and providing employees with the right training and support to adapt to new market conditions. It should also be noted that, despite advanced AI capabilities, humans are still responsible for making decisions and drawing conclusions based on the information provided.

### **3. Own research**

#### **3.3. Research methods and materials**

The study involved 99 respondents (mainly working students of non-stationary studies) from the Faculty of Management at Czestochowa University of Technology. The research was carried out in December 2023. Survey respondents provided answers to the questions contained in an on-line questionnaire. The purpose of the research was to identify potential HR development opportunities in the age of AI implementation in businesses, as well as the opinions of respondents regarding the use of AI in the company and HR activities. Statistical frequency analysis was used for processing the gathered research material. Two research questions have been formulated: (RQ1) How do respondents evaluate the use of AI in their workplace, and what potential do they see for AI in HRM processes? (RQ2) According to respondents, what is the impact of AI on HR activities and development?

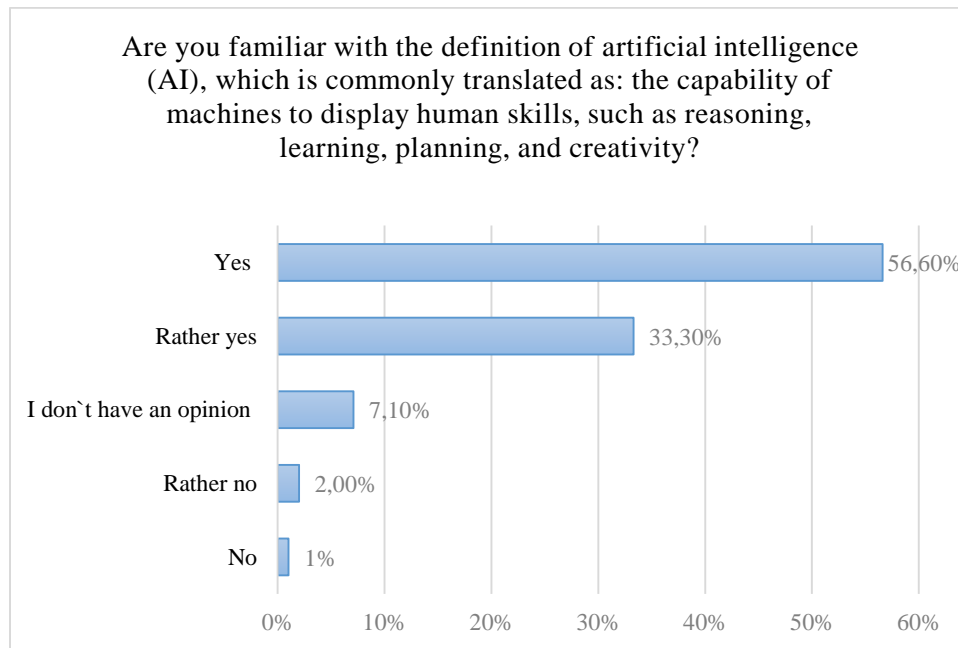
#### **3.4. Respondent's profile**

Out of the respondents, 89% are individuals between the ages of 20 and 30, 9% are individuals between the ages of 31 and 50, and the remaining are individuals over 50 years old. Women constituted the majority of respondents, as much as 70%, while 30% of the participants were men. The survey results show that 66% of the respondents are first-degree students, with the remaining 34% being second-degree students studying Management at Czestochowa University of Technology. 30% of the respondents were employed in micro-sized businesses, over 25% in large-sized businesses, 21% in small-sized businesses, over 5% in medium-sized businesses, and the remaining group identified themselves as sole proprietorships or currently unemployed. In terms of the work carried out by the respondents, over 28% indicated industrial work, over 23% indicated service work, over 19% indicated trade work, 15% stated another type of work, while the remaining portion indicated construction work or none in the case of respondents without current employment.

#### **3.5. Research findings – the use of AI in HR activities**

During the initial phase of the research, participants responded to questions that aligned with the research inquiry. (RQ1) How do respondents evaluate the use of AI in their workplace, and what potential do they see for AI in HRM processes?

The study results show (Figure 1) that only half of the respondents (56.6%) are familiar with the definition of AI, 33.3% answered “rather yes,” while the remaining participants either had no opinion or were unaware of the concept of AI.



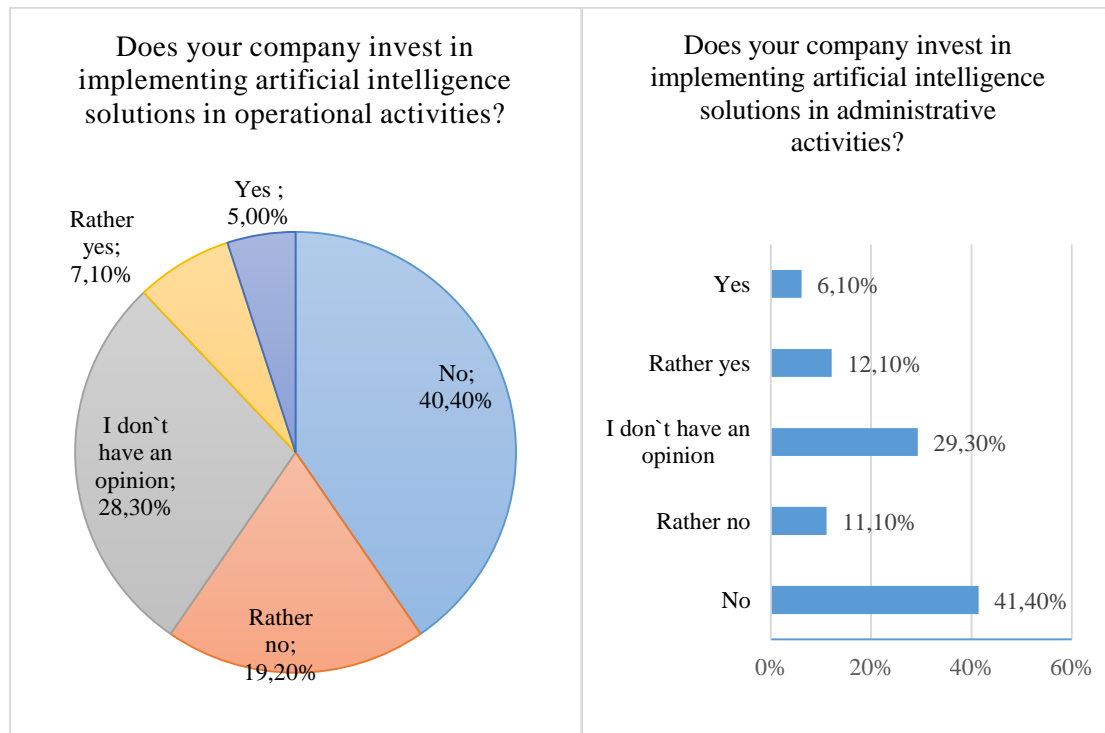
**Figure 1.** Familiarity with the concept of AI.

Source: own work based on conducted research.

Given the relatively young research group of the conducted study, it seems that the result of positive responses should be slightly higher. Moreover, considering the current widespread coverage and analysis of AI in various media outlets, it pertains not only to professional but also personal life.

AI is most frequently utilized in the operational and/or administrative functions of a company, depending on the industry and the company's requirements. In light of the above, the respondents were asked about this matter and its presence in their places of employment. Naturally, only respondents with current employment were able to answer the question, and that group constituted over 80% of the surveyed individuals (Figure 2).

In both cases, i.e. investment in the implementation of AI in operational and/or administrative activities, the results are predominantly negative ("no" - over 40%, "probably not" 19.2% and 11.1%). The same applies to the answers "I have no opinion," with percentages of 28.3% and 29.3% respectively. That result is slightly worrying, considering that in the further part of the study and in questions specifically pertaining to the HR area, respondents indicate the use of AI tools in this domain. Consequently, the lack of understanding of the aforementioned questions and the knowledge of how both areas of the company function can serve as an explanation.



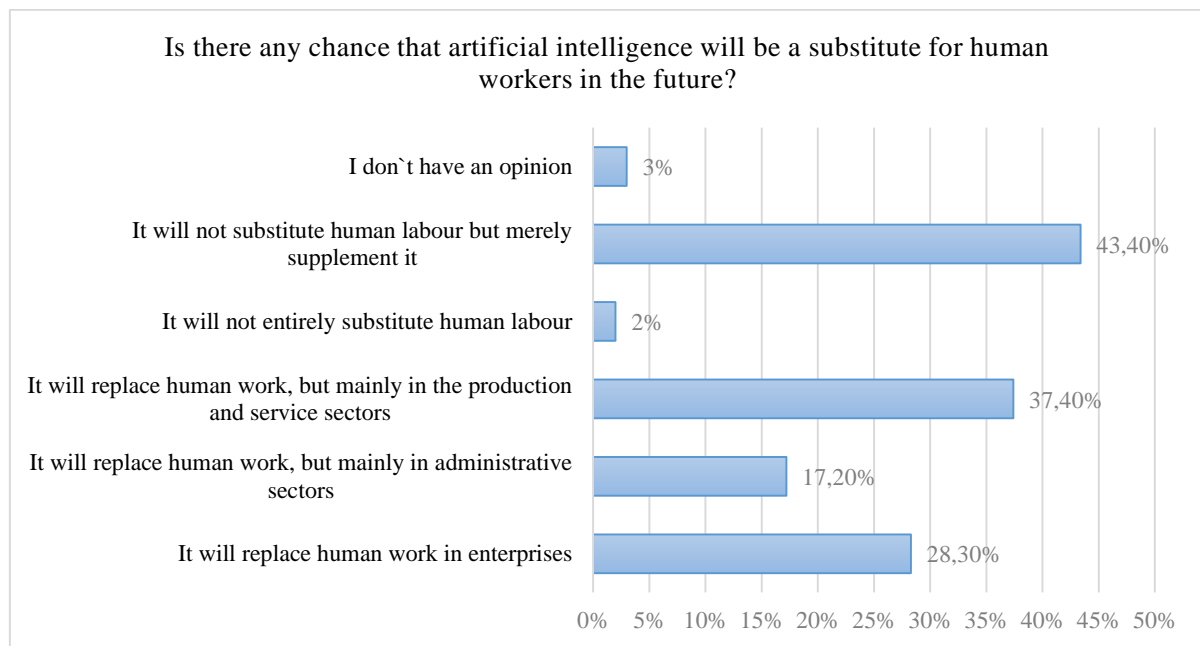
**Figure 2.** Investments in the implementation of AI in operational and administrative activities.

Source: own work based on conducted research.

The same applies to the answers “I have no opinion,” with percentages of 28.3% and 29.3% respectively. That result is slightly worrying, considering that in the further part of the study and in questions specifically pertaining to the HR area, respondents indicate the use of AI tools in this domain. Consequently, the lack of understanding of the aforementioned questions and the knowledge of how both areas of the company function can serve as an explanation.

In the subsequent question, the respondents were asked about their worries related to the replacement of human work with AI in the future, in this case, they had several answer options to select from (Fig. 3). The surveyed group of respondents generally have a positive outlook on future job opportunities and the possible replacement of people with modern technology. 43% agree that AI will not replace them at their workplaces but will only assist in their work. 37% of respondents believe that AI will replace human work, however mainly in services (data analysis, repetitive tasks) and production (automation, robotics). In terms of work in administrative departments, 17% is the area that can make greater use of modern technology (this also applies to data analysis, data processing, simulations, and repetitive tasks). The survey shows that only 2% of respondents believe that AI will not replace humans in the future at work. The responses provided by the respondents to this question do not deviate significantly from the prevailing attitudes of both AI experts and business professionals. Instead, both groups view the future with optimism and emphasize the enhancement and support of human work by AI. In addition, there is the possibility of reskilling or upskilling, which was mentioned in the theoretical part of the article and will also be mentioned in one of the next questions.

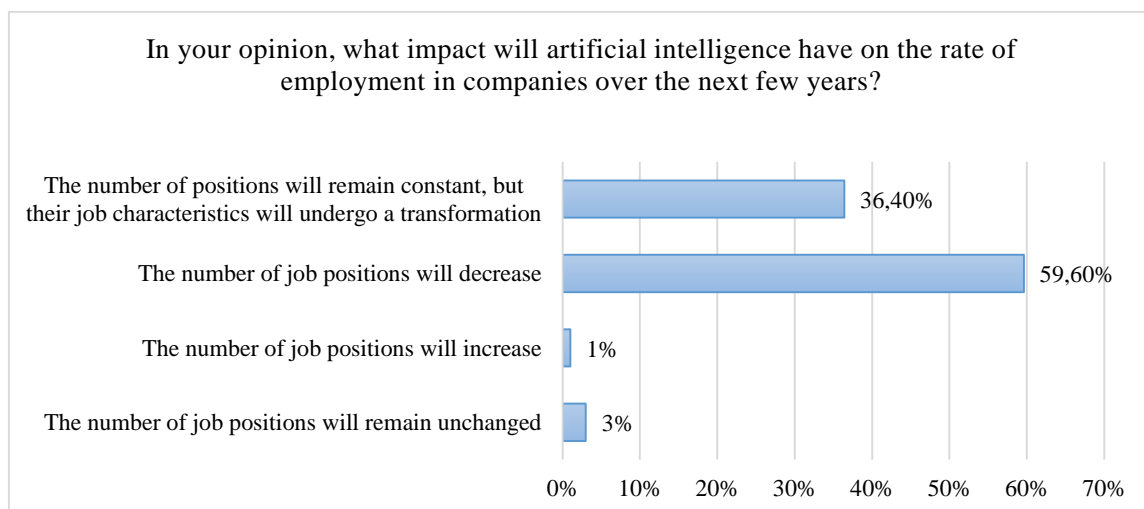




**Figure 3.** Concerns about the replacement of human labour by artificial intelligence.

Source: own work based on conducted research.

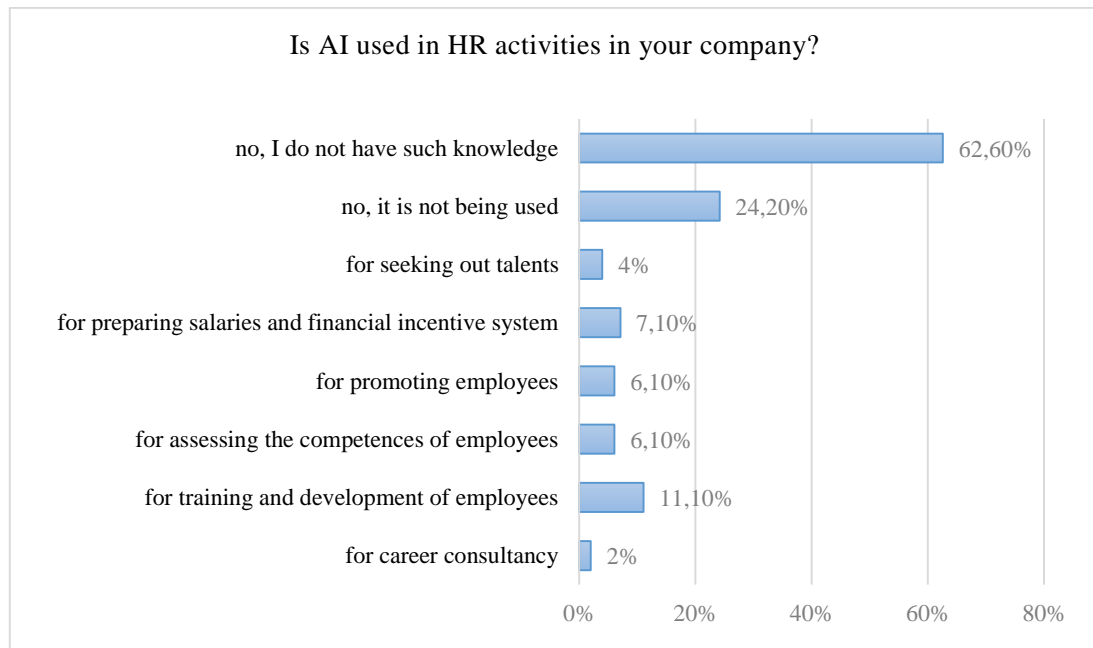
Following on from the previous question, respondents were asked about the impact of AI on the level of employment in the company in the years to come (Figure 4). Nearly 60% of respondents believe that the number of jobs will decrease, as indicated by AI researchers, but this is in addition to the aforementioned automation of jobs, which in turn will require reskilling or upskilling.



**Figure 4.** The impact that AI will have on the size of the workforce in a company in the foreseeable future.

Source: own work based on conducted research.

The subsequent questions relate strictly to HR and how it uses AI. Firstly, respondents were asked about the general possibilities of using AI to assist HR in the place where they work (Figure 5).

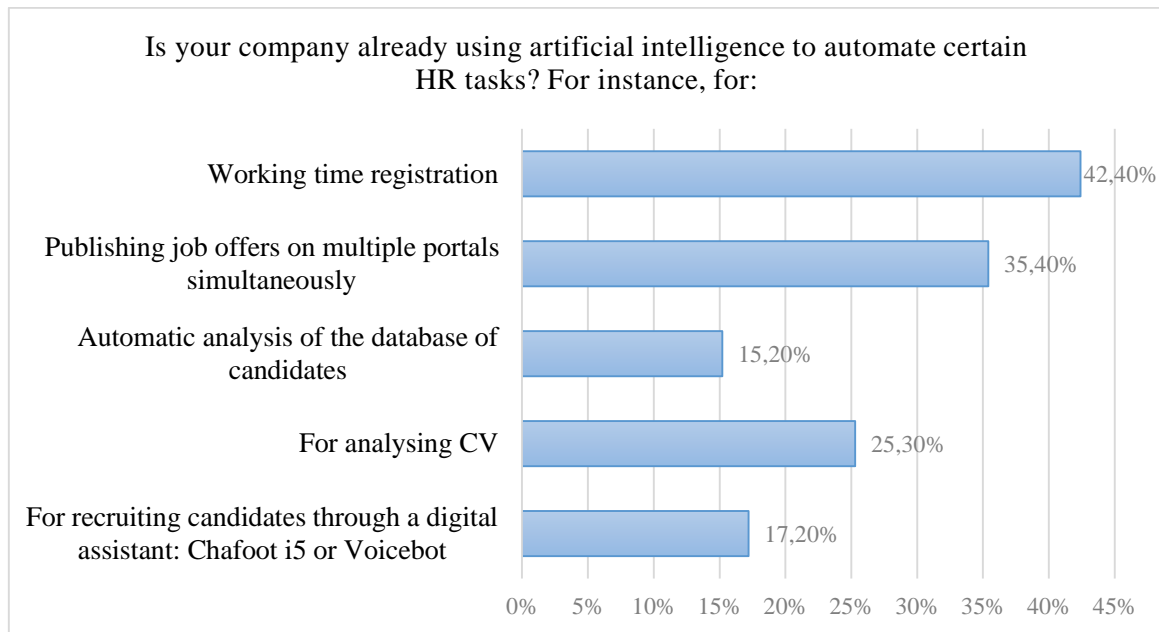


**Figure 5.** Application of AI in HR activities.

Source: own work based on conducted research.

Unfortunately, most of those surveyed (over 62%) did not know this or thought it was not used at all (24%). Significantly lower percentages of respondents reported using AI for employee training and development (11%), salary and reward design (over 7%), promotions and employee competency assessment (6%), talent acquisition (4%) and career counselling (only 2%). The results of the study show that the use of AI in HR in the companies surveyed leaves a lot to be desired, but given that the majority of respondents work in micro-companies (30%) and only 25% in large companies, there is a likelihood (especially in the large companies) that further investments will be made in the integration of AI to adapt the company to modern working conditions with advanced technology.

As much as the previous question regarding the general areas of HR and their use of AI did not yield satisfactory results, the question on the specific AI tools used for HR automation revealed a greater awareness among respondents of their presence in their workplaces (Figure 6).

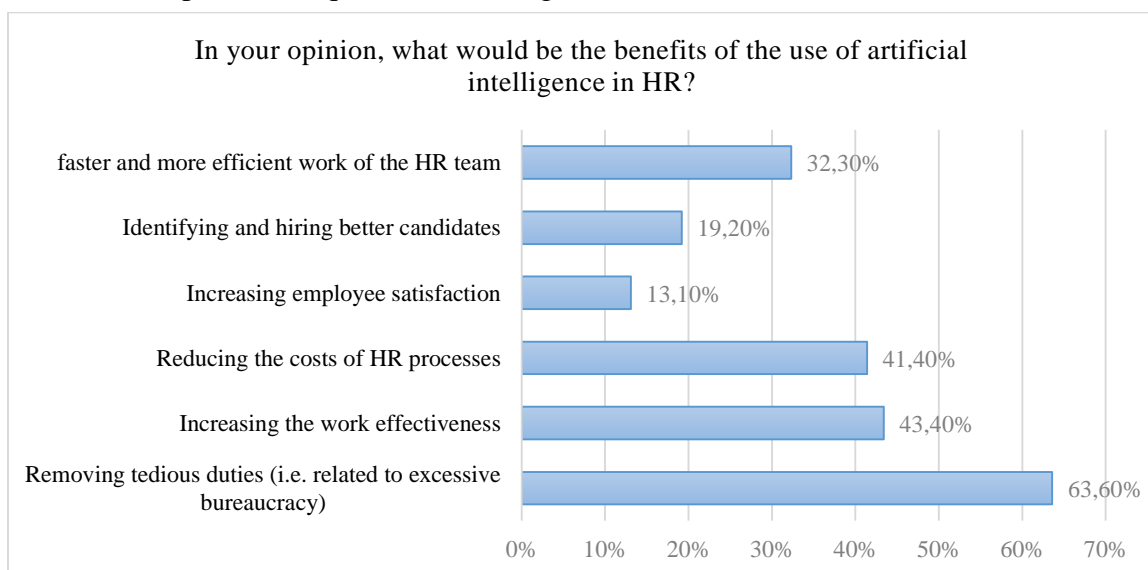


**Figure 6.** AI is employed for the automation of specific tasks related to HR.

Source: own work based on conducted research.

More than 42% of respondents confirmed the use of AI-based time registration in their company, while over 35% of respondents stated that the company simultaneously posts job offers on multiple portals; further analyses CVs (25%); recruits candidates with the aid of a digital assistant (17%) and automatically analyses the database of candidates (15%). It is apparent that the percentage of responses for more advanced AI tools is significantly lower, but companies are starting to consider using them which may indicate the beginning of further investment in this area.

Respondents referred to the benefits of implementing AI in HR when answering the last question in this part of the questionnaire (Figure 7).



**Figure 7.** Advantages of utilizing artificial intelligence in HR.

Source: own work based on conducted research.

The most commonly cited benefit for respondents (almost 64%) is the ability to avoid tedious, repetitive tasks due to AI. Over 40% of responses: reducing the costs of the HR process and increasing work efficiency, as well as the critical speed of team performance (32%), are also the benefits most frequently described by academics and business practitioners. Also important from the respondents' point of view was the identification and recruitment of better candidates through AI (19%), as described in the theoretical part of the article. The findings provided above may also point towards the participants' knowledge of the capabilities of AI and its growth potential, not only for the organisation but also for themselves. The subsequent section of the study regards this very issue.

### 3.6. Research results – HR development against AI

The second research question (RQ2): What impact (according to respondents) does AI have on HR policies and development? This was analysed in this section of the study by developing answers to five successive questions.

**Table 2.**

*Development of employees through AI*

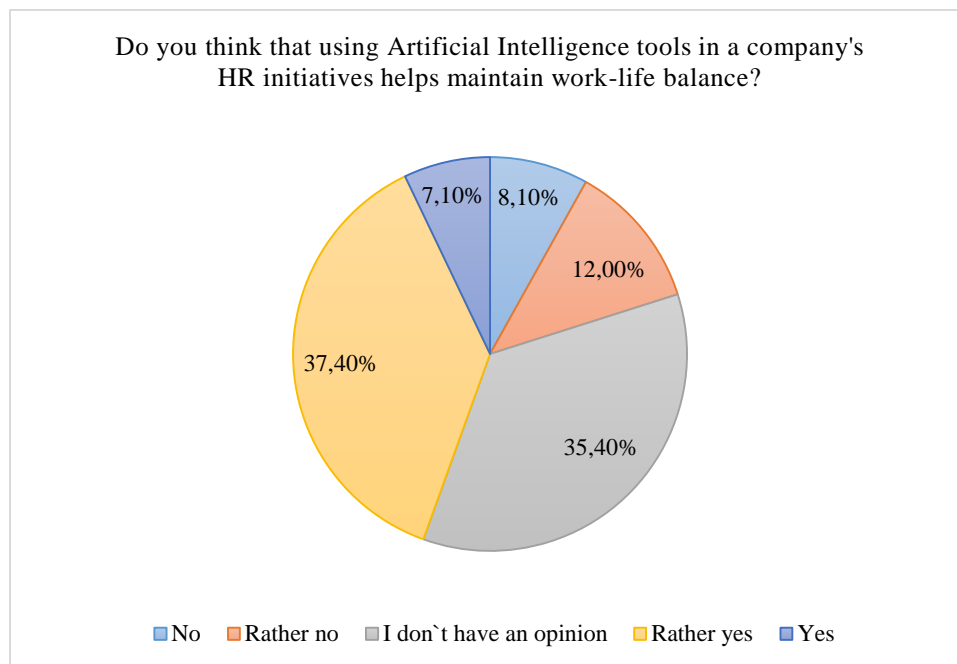
Development of employees through AI		Are the best and brightest in the organisation going to benefit the most from the developmental advantages associated with using AI?	Are you tasked with implementing Artificial Intelligence (AI) solutions in your company that are going to benefit everyone involved?	Does your organisation prioritise developing employees' digital skills?	Are you prepared to acquire new skills in the use of tools that make use of artificial intelligence in your work?
Responses					
1.	No	7.1%	18.2%	19.2%	4%
2.	Rather not	22.2%	35.4%	12.1%	4,1%
3.	I do not have an opinion.	38.4%	14.1%	33.3%	12.1%
4.	Rather yes	23.2%	29.3%	26.3%	42.3%
5.	Yes	9.1%	3%	9.1%	37.5%

Source: own work based on conducted research.

The results shown in Table 2 are the opinions of the respondents regarding the developmental benefits for themselves resulting from the implementation of AI in the company. The results are not ambiguous, as the respondents provided similar ratings to the development opportunities offered by AI for talented employees (rather yes 23.2%, yes 9.1%, rather not 22.2%) as well as for all employees (rather yes 29.3%, yes 3%, rather not 35.4%). The fluctuations in mood and potential uncertainties regarding reaping the benefits resulting from AI implementation are evident. These circumstances necessitate explicit promotion of alterations, defining their repercussions, and fostering growth. In a different scenario, this can lead to an escalation of the phenomenon of demotivation of employees and a decline in the morale of employees. The results of the next two questions are quite optimistic, i.e. in 26% (more likely yes) and 9% (yes) of cases companies declare the development of digital skills of their employees, while 42% (more likely yes) and over 37% (yes) are willing to acquire new

skills related to the operation of AI tools. Consequently, the prospect of future AI technology services is shaping up rather positively in the presence of mutual willingness. The importance of the acquisition of up-to-date skills that can be applied to the new, technologically complex reality was frequently emphasised in the article.

At the end of the survey, respondents were asked about their feelings on an equally important contemporary issue: ensuring work-life balance through AI technology (Figure 8).



**Figure 8.** Work-life Balance and AI.

Source: own work based on conducted research.

Those surveyed see strong benefits in adapting AI to suit the organisation's HR. Over 37% of respondents believe that AI solutions are more likely to provide a balance between personal and professional life, with only 7% giving a definitive answer. A significant proportion of respondents, namely 35%, had no opinion on the use of AI in the context of WLB. Therefore, it seems that until employees can physically experience the benefits of using AI, even in the context of ensuring WLB, they will not form an opinion on the subject. Despite the claims made by scientists and experts regarding the specific consequences of implementing AI, experience and familiarity with cutting-edge technology serve as key factors.

## 4. Conclusions

Human resources departments have been effective in adapting to the technological revolution brought about by AI, however, plenty of work still needs to be done. Each new change brings specific challenges, however, to reap the full benefits of such change, companies need to look for ways to tackle them. The article discussed an important contemporary issue in

the use of AI in business, with a particular focus on HR practices and the development of human capital through AI tools. In connection with the above, attempts were made to answer two research questions: (RQ1) How do respondents evaluate the use of AI in their workplace, and what potential do they see for AI in HRM processes? (RQ2) According to respondents, what is the impact of AI on HR activities and development? Responses RQ1: The completed survey only gave a partial response to that question. The employees surveyed had rather limited knowledge about the use of AI in their companies, only when asked more detailed questions about AI in their workplace were they able to recognise its specific tools (such as work time registration or CV analysis), they did not find them understandable in general questions. Most importantly, respondents are aware of the changes and consequences of implementing AI in the business, but they are optimistic about the future and point to AI as complementing and supporting their work. They believe that advanced technology will replace human labour, in particular in the case of repetitive tasks (e.g. in services) and strenuous tasks (e.g. in the industry). Such phenomena already exist in the current world, in particular in the industry - smart factories with their intelligent solutions such as robots and process automation - do not come as a surprise to anyone. Researchers also recognise the many benefits of implementing AI in HR activities. Time savings and increased efficiency are the most commonly cited.

Responses RQ2: Preparing for the AI era is not just about technology; it is first and foremost a matter of people adapting to the new reality. There will always be a need for soft skills such as creativity, teamwork and critical thinking. However, the prospect of increasing reliance on AI solutions highlights the need to invest in developing skills in data analysis, programming and understanding algorithms. It is also a good idea to keep up to date with industry trends and to attend training courses and workshops. According to the research, the companies employing the respondents are aware of this requirement and have already taken the first steps in this direction. For the respondents themselves, it was important to be able to reap the benefits of using AI solutions on a par with exceptional individuals in organisations. For those who are concerned that their current position may be automated, the key is to be flexible and to be prepared to re-qualify. This may be the perfect time to think about learning a new trade or gaining an additional skill or qualification. Most respondents in the study are prepared to undergo reskilling or upskilling. Another key benefit of AI is that it frees employees from tedious, repetitive tasks and helps them maintain a balance between their personal and professional lives, which is also recognised by respondents.

Research into the implementation of AI in HR operations in companies will continue, but on a larger scale and with a carefully selected research group consisting only of large companies. The state-of-the-art AI tools used by the most advanced companies in the regional market can be more vividly depicted through this research.

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