

Chapter 10

Advancing Human-centric Management through AI-enhanced Recruitment and Selection



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10.1. Introduction

As outlined in the previous chapter dedicated to E-HRM solutions, human resources management (HRM) in organizations is increasingly supported by more advanced technological solutions, including those related to artificial intelligence (Whysall et al., 2029). The findings of empirical research demonstrate that, on one hand, HRM can positively influence company performance results (Stor, 2023), and on the other, that HRM practices and technology are complementary resources to achieve higher results (Erro-Garcés and Aramendia-Muneta, 2023). Moreover, the findings also indicate a rising trend of using AI in HRM (Sahoo and Mishra, 2023). These observations underscore the integral role of advanced technologies in enhancing HRM effectiveness and efficiency, bridging the transition from traditional practices to more integrated, technologically driven approaches.

The HRM-supportive technologies mentioned are primarily grounded in the principles of Industry 4.0, which integrates people and digitally controlled machines with the Internet and information technologies (Suleiman et al., 2022). From the HRM perspective, the aim of these initiatives is not to replace humans with robots but to create better workplaces (Stor, 2020, p. 24). Employees benefit from new technological solutions, such as augmented reality, which offer more flexible working conditions, greater organizational support, and enhanced

development opportunities. Consequently, not only work processes but also processes related to HRM in organizations are increasingly reliant on these new technologies. Thus, digitalization and new technologies are viewed as an opportunity to improve the future for employees, management, and HR specialists (Stor and Domaradzka, 2020, p. 9).

While still leveraging Industry 4.0 solutions, HRM is also beginning to make tentative steps towards Industry 5.0 (Ghobakhloo et al., 2023). This next phase further emphasizes the synergy between humans and advanced technological systems, including AI and robotics, focusing on enhancing human-machine collaboration to elevate the role of human creativity and decision-making. This approach advocates for workplaces where technology complements human skills, fostering an environment of co-creation and mutual learning (Adel, 2022). Workers benefit from personalized work experiences and are empowered to utilize technology to improve job quality and work-life balance. Therefore, Industry 5.0 not only revolutionize production processes but also enriches HRM by incorporating ethics, sustainability, and personal fulfillment into the core of business practices. The advent of Industry 5.0 offers a transformative opportunity to redefine the essence of work, making it more humane and responsive to individual needs, thus heralding a significant shift in how work and worker engagement are perceived and implemented.

As declared by the European Commission (2021) Industry 5.0 is built upon three major pillars: resilience, sustainability, and human-centricity. These foundational elements shape the framework within which industries are evolving to integrate more ethical, sustainable, and people-focused practices. Specifically, human-centricity in Industry 5.0, emphasizes the importance of creating workplaces that enhance the collaboration between humans and machines. It focuses on elevating human roles in creativity and decision-making, advocating for technology to complement rather than replace human skills and competencies (Ivanov, 2023). This approach fosters an environment of co-creation and mutual learning, where workers benefit from personalized experiences that improve job quality and work-life balance, embedding ethics and personal fulfillment into core business practices.

Artificial intelligence (AI) is utilized across various facets of HRM, including recruitment and selection, where AI streamlines processes through resume analysis and predictive candidate screening (Ore and Sposato, 2022). AI also enhances employee development by creating personalized training programs, based on data-driven insights into individual learning needs and performance patterns (Ekuma, 2023). For performance management, or employee performance appraisal, AI automates tracking and leverages historical data to predict outcomes and suggest performance improvements (Varma et al., 2021). Additionally, AI aids in employee engagement and retention through sentiment analysis and turnover predictions, allowing for proactive engagement strategies. In HRM operations, AI boosts efficiency by automating tasks like payroll, benefits administration, and compliance tracking. Finally, AI supports HRM decision-making by providing comprehensive analytics on workforce trends and compensation strategies, enhancing overall decision quality and operational effectiveness in HRM (Zhai et al., 2024).

Among the various applications of artificial intelligence AI in HRM outlined above, this chapter particularly emphasizes AI's role in recruitment and selection. AI's integration in this HRM domain enables organizations to effectively address labor shortages, an issue highlighted in Chapter 1, through cost optimization and improved candidate matching. Furthermore, leveraging AI in recruitment and selection responds to the expectations of both potential and current employees for modern and advanced technological solutions, a point emphasized in Chapter 2. This approach is particularly relevant for engaging Generation Z, as discussed in Chapters 7 and 8, who value innovative and efficient processes. Thus, the use of AI in recruitment and selection not only enhances operational efficiency but also aligns with strategic HR objectives to attract and retain tech-savvy talent, making it a critical area of focus in the evolution of HR practices.

Considering that the leading theme of this monograph is *Human at the Center of the Organization*, and that HRM activities should be prepared for the era of Industry 5.0, which one of its fundamental pillars is human-centricity, **the main goal of this chapter** is to conduct a discussion on the selected advantages and disadvantages of using AI in recruitment and selection from the perspective of the human-centric management paradigm and to formulate fundamental recommendations within this scope for business practice.

10.2. The Impact of AI on HRM Processes

As businesses evolve in the dynamic landscape of modern industry, the deployment of AI across HRM processes is transforming organizational structures and operational dynamics. The rapid shift toward digital transformation, accelerated by global events such as the SARS-CoV-2 pandemic, has emphasized the critical role of AI in fostering a more human-centric approach in organizations. This transition highlights the importance of integrating technology in ways that prioritize the well-being and development of employees as central to organizational success. AI technologies are not just automating tasks but are reshaping how strategic HRM decisions are made and executed in alignment with human-centric management principles.

Contemporary organizations operate in a constantly changing environment where modern communication techniques and technologies are gaining importance. Some main reasons for implementing changes are demographic transformations in the labor market, changes in the structure of employee competencies, and changes in attitudes toward work. These shifts underscore the growing relevance of human-focused management strategies that support a diverse and adaptable workforce. The SARS-CoV-2 pandemic has created a new reality in the market, revealing the need to implement many automated solutions. As a natural consequence of emerging new trends in the market and the recognition of the need for change, there is a progressing digitization process (Pabian, 2021). The integration of AI within these processes supports the creation of an organizational culture that values flexibility, innovation, and employee empowerment. The use of AI in management processes has been observed for several years. Still, the pandemic has indicated new needs in this area and the previously untapped potential of organizations operating in cyberspace (Maternowska, 2022).

In the context of evolving HR paradigms, the potential of advanced techniques, machine learning, and algorithms is particularly significant. These technologies enable HRM representatives to optimize business processes, eliminate errors, and streamline data analysis to make more accurate decisions (Toczyski, 2017). This technological empowerment is a cornerstone of human-centric organizations that aim to enhance employee experiences and operational efficiency concurrently. This shift is not only about integrating new tools but also about fundamentally rethinking the roles within HR departments to enhance efficiency and effectiveness.

All this means that, as we move deeper into the digital age, the intersection of AI and HRM continues to grow more intertwined. These developments suggest a future where HRM not only adapts to changes brought about by AI but also proactively leverages these technologies to foster a more dynamic, responsive, and efficient workplace. This is essential in the era of human-centric management, where the focus is increasingly on creating work environments that prioritize the holistic well-being of every team member. This evolution is crucial for organizations aiming to maintain competitiveness in a rapidly changing world.

10.3. AI in Recruitment and Selection of Applicants

Since recruitment and selection are the main focus of this chapter, it is important to clarify how they relate to other activities undertaken within HRM. It should be noted that in this monograph, they are understood as components of staffing the organization, which in turn is treated as one of the HRM subfunctions (Stor, 2024). As for staffing itself, is understood as a set of activities seeking to obtain the right people for the organization and fulfilling the vacancies in the appropriate way so that a company can function efficiently and continuously. The goal of staffing is to match the qualifications and competencies of the job candidates with the needs of the organization. In this approach, staffing is composed of three stages (Stor, 2023, p. 60):

- 1) recruitment – activities that rely on encouraging applicants to apply for the job openings,
- 2) selection – identification, measurement, and evaluation of these applicants' qualities that are necessary to be admitted to the post and choosing the most appropriate individual/ individuals from a pool of recruited applicants,
- 3) placement – introducing and familiarizing new employees with the processes of work and its environment so that they perform their work efficiently and with engagement.

Staffing the organization may cover various types of HRM activities that aim to bring new people into the organization (from external labor market) or current employees into their new positions (from internal labor market) and making sure that they serve as valuable assets to the workforce (Stor, 2023, p. 60). However, as already mentioned, only two components of staffing are considered in this chapter, i.e. recruitment and selection. At this point, it is worth emphasizing that one of artificial intelligence's most commonly supported processes is candidate recruitment and selection. This may be due to the processing of large amounts

of data, the repetitiveness of tasks, or their prioritization (Stylec-Szromek, 2018). In any case, it can be said that AI opens up new possibilities for HR departments by changing employee recruitment and selection processes. Introducing automation through CV assessment, competency analysis, and conducting initial interviews eliminates time-consuming tasks, allowing recruitment teams to focus on candidates with the most significant potential (Messeri Crockett, 2024).

Building on the exploration of AI in recruitment and selection, the details in Table 22 provide a comprehensive look at specific applications of AI technologies in these areas. It describes various HRM activities where AI plays a crucial role, offering both descriptions and technological solutions that enhance these processes. This focus on practical implementations showcases how AI tools not only automate but also refine the recruitment and selection processes, ensuring an optimal match between organizational needs and candidate capabilities. These insights further illuminate how AI can transform the efficiency and effectiveness of HRM practices in selecting and engaging potential employees.

Table 22. AI applications in recruitment and selection processes with activities and technological solutions

HR Activity	Description and Technological Solutions
Resume screening	AI tools employ natural language processing (NLP) and machine learning algorithms to automatically parse and analyze resumes. This technology extracts relevant information such as skills, experience, and education, allowing for quick identification of candidates who match job requirements.
Candidate sourcing	AI is utilized to scan various online platforms, including job boards, social media sites, and professional networks, to find candidates who may not have applied directly but possess the necessary qualifications and experience. AI systems use keyword matching and semantic search techniques to expand the talent pool beyond active applicants.
Automated candidate engagement	AI-driven chatbots and automated messaging systems maintain continuous communication with candidates. These systems can answer queries, provide updates, and guide applicants through the initial stages of the application process. This interaction is based on scripts that can dynamically adapt to the questions posed by candidates, ensuring consistent and informative communication.
Interview scheduling	AI simplifies the coordination of interviews by automating the scheduling process, aligning candidate availability with hiring team schedules. Technological Solution: Automated scheduling tools sync with company calendars to facilitate hassle-free appointment setting.
Candidate assessment	AI tools analyze video interviews to assess non-verbal cues and verbal responses, which help in evaluating candidate suitability beyond traditional assessments. Technological Solution: Video interview analytics employ AI to analyze gestures, facial expressions, and voice tones to provide insights into candidates' personalities and emotional intelligence.
Enhanced decision-making	AI systems are trained to learn from historical hiring data, improving the prediction of candidate success and optimizing future hiring decisions. Technological Solution: Machine learning algorithms refine selection criteria and processes by learning from outcomes of previous hiring decisions to enhance predictive accuracy.

Source: developed based on (Horodyski, 2023; Ore and Sposato, 2022).

The integration of AI technologies in recruitment and selection embodies the principles of human-centricity, central to Industry 5.0 and human-centric management. By automating administrative tasks, AI enables HR professionals to devote more time to personal interactions, enhancing the candidate experience and emphasizing the organization's commitment to its people. This approach not only makes the recruitment and selection processes more efficient but also more attuned to the needs and aspirations of candidates, ensuring that every interaction reflects the organization's values of inclusivity, respect, and personal growth. In this way, AI tools contribute to building a workplace that values and actively supports the holistic well-being of its members, aligning with the overarching goals of human-centric organizations.

10.4. Challenges and Opportunities in AI-enhanced Recruitment and Selection

As discussed in the previous section, the integration of AI in recruitment and selection processes not only enhances the efficiency of these activities but also introduces new dimensions to how organizations engage with potential candidates. By leveraging the potential of artificial intelligence, companies can personalize job offers for specific candidates. Machine learning algorithms can analyze candidates' preferences and skills, providing them with proposals tailored to their expectations. This approach not only enhances the attractiveness of job offers but also builds a positive image of the company as an employer focused on the needs of its employees (Sircar et al., 2021). Furthermore, modern artificial intelligence systems make inferences about candidate behavior, providing valuable information about their professionalism and work culture.

It is worth noting that AI tools can constantly improve their skills and adapt to changing needs and market conditions. As they acquire new data and experiences, algorithms become more effective in identifying candidate selections. However, the PwC report (2022) results show that 43% of surveyed organizations do not use or see the need to implement artificial intelligence and machine learning in the recruitment and selection process. On the other hand, 34% of the respondents see the potential but have not yet had experience with them.

The implications of the same report also showed that only 5% of recruiters fear the introduction of new technologies in HRM. The remaining respondents (95%) believe that AI will not replace them in their positions but will support their actions. According to the participants, automated tasks related to candidate identification, initial analysis, and reaching out to qualified candidates will be streamlined (PwC, 2022). Furthermore, the study participants believe that artificial intelligence will not replace recruiters communicating with candidates (by phone, email, or in person).

However, it is worth noting that among the many benefits of using artificial intelligence tools, threats are associated with them. The synthetic comparison of the opportunities and threats posed by AI in candidate recruitment and selection is presented in Table 23.

Table 23. Advantages and disadvantages of using AI tools employee recruitment and selection

Pros	Cons
<ul style="list-style-type: none"> ■ It eliminates recruiter bias. The tool proposes questions that exclude competencies required for a specific position without considering the candidates' previous experience. ■ Sourcing and screening candidates. Verifying candidates' competencies (without direct contact with them) is possible thanks to various AI tools facilitating this process. ■ Natural Language Processing (NLP) allows for analyzing sentence structures in professional resumes and comprehensively assessing candidates' interpersonal and communication skills. ■ Automation of the candidate skills assessment process. AI-based tools analyze the results of competency tests (conducted in a virtual space) of candidates, simultaneously comparing them with the job requirements. ■ Effective performance of routine tasks through automation, improving efficiency in the recruitment process. ■ Enhanced decision-making capabilities through detailed analytics on candidate data. ■ Reduction in human biases in the recruitment process, thanks to standardized AI screening processes. 	<ul style="list-style-type: none"> ■ The time-consuming nature of creating AI tools to support employee recruitment processes. Chatbot providers used in recruitment (e.g., Ari, Textrecruit, Mya, or Hiremya.com) state that training an intelligent chatbot takes over a year. ■ There is a need to introduce a layer of human supervision. The ATS tool (algorithm for selecting candidate applications) is selected based on returns and keywords. Therefore, it is necessary to verify automated choices directly by the recruiter. ■ The possibility of losing privacy and the threat to personal data protection. Because AI development often requires access to large datasets, it is necessary to provide appropriate measures to minimize the risk of misuse. ■ Dependency on technology. Entrusting business processes (including employee recruitment) should rely on the conscious, rational, and responsible use of AI tools. ■ Fears of job losses to automation, even though jobs for human recruiters are expected to persist due to the need for human interaction. ■ Ethical concerns regarding privacy, data protection, and the potential for inheriting biases from training data. ■ General distrust in AI's ability to perform recruitment tasks without errors or biases, concerns over AI's interpretation abilities.

Source: own work based on (Gupta et al., 2021; Ore and Sposato, 2022; Salvagno et al., 2023).

The above considerations are confirmed by the results of the PARP report (2023) on the impact of artificial intelligence in Polish organizations. It turns out that 22% of respondents are concerned about the growing importance of AI and automation in their positions, and 36% fear job loss. So far, only 13% of respondents have used AI-based tools at work. On the other hand, 51% of respondents reacted positively to AI recommendations presenting the most suitable job offers. However, 27% declare a negative attitude towards AI's initial selection of candidates' resumes.

Despite the significant increase in interest in artificial intelligence, typically human skills are still in high demand. The Deloitte report (2024) indicates that 63% of surveyed organizations seek people who can solve complex problems; cognitive skills are essential for 55% of respondents, and methodological and social skills for 54% and 52%, respectively. It is also worth mentioning that according to the World Economic Forum study (2023), among the top

ten skills that will be most important in the next decade are essential human skills such as critical thinking, creativity, and people management.

Effective implementation of AI-based solutions requires significant time, resources, and commitment from the IT team and management staff. It is a complex process that requires consideration of various factors, such as analyzing organizational needs, integrating existing systems, developing appropriate algorithms, and training staff. Additionally, ensuring compliance with legal regulations and ethical principles related to the use of personal data is necessary (Jiang et al., 2022). These requirements underline the need for a thorough and ongoing commitment to refining AI applications within human resources.

As this technology evolves, implementing artificial intelligence is an iterative process that requires continuous monitoring, testing, and adjustment of solutions to meet changing needs and market conditions. While the benefits of using AI in HR can be significant, it is essential to be aware that the implementation process can be demanding and time-consuming, and success depends on proper planning, commitment, and process management (Haug and Drazen, 2023). This continuous development cycle ensures that AI tools remain effective and responsive to the dynamic nature of the workplace.

With AI's integration becoming more profound, machine learning is already changing the workplace, with innovative companies leading the way and putting people at the center of designing and implementing systems. Both companies and employees must understand that technology is a powerful ally that supports rather than replaces human abilities. Harnessing the potential of AI to drive growth and increase productivity will require organizations to prioritize talents and be open to change (Angelov et al., 2021).

10.5. Summary and Final Conclusions

The main goal of this chapter was to conduct a discussion on the selected advantages and disadvantages of using AI in recruitment and selection from the perspective of the human-centric management paradigm and to formulate fundamental recommendations within this scope for business practice. In terms of these advantages and disadvantages, this goal can be considered achieved, and the interpretation of these findings from the perspective of human-centric management together with practical recommendations will be conducted here.

Exploring the advantages and disadvantages of AI in recruitment and selection through the lens of human-centric management offers valuable insights into how technology intersects with human-focused organizational practices. The advantages clearly highlight AI's role in enhancing the accuracy and efficiency of recruitment processes. This technology-driven efficiency can be leveraged to foster a supportive and engaging hiring environment, crucial for attracting top talent in competitive markets. AI's capability to process large data sets can reduce biases traditionally present in human evaluations, promoting a more equitable and inclusive hiring process. This alignment with human-centric principles supports the broader objectives of creating transparent, fair, and diverse workplaces.

The role of AI in automating routine tasks allows HR professionals to dedicate more time to strategic decision-making and nurturing candidate relationships, aligning with the ethos of human-centricity that values personal engagement and development. However, the integration of AI also introduces challenges that could potentially conflict with the essence of human-centric organizations. A significant concern is the potential for AI to depersonalize the recruitment and selection experience. While AI can streamline processes, it may also reduce the personal interaction between recruiters and candidates—interactions that are crucial for understanding a candidate’s deeper qualities and potential fit within a company’s culture. This shift could undermine efforts to build a workplace that values individual differences and personal connections, which are core to human-centric management.

Moreover, the reliance on AI raises ethical questions, particularly regarding privacy and data security. Mismanagement of candidate data could lead to breaches of trust, impacting the organization’s reputation and its relationship with potential employees. It’s imperative for organizations to implement robust data protection measures that not only comply with legal standards but also align with ethical considerations central to human-centric practices. The challenge lies in employing AI tools responsibly, ensuring they enhance rather than compromise the recruitment and selection process.

To navigate these ethical landscapes effectively, organizations might consider establishing AI ethics committees or advisory boards that include diverse stakeholder perspectives, ensuring that AI deployments are scrutinized for fairness and inclusivity. To truly benefit from AI in a human-centric framework, organizations should adopt strategies that prioritize ethical AI use and maintain the human touch in recruitment and selection. This includes training HR teams on ethical AI practices and developing guidelines that ensure AI applications respect candidate privacy and are transparent about data usage. Furthermore, fostering a culture that views technology as a complement to human skills, rather than a replacement, can reinforce the values of human-centric management, emphasizing respect, inclusivity, and personal growth.

These reflections underscore the need for a balanced approach to AI integration, where technology serves as an enhancer of human capabilities within the framework of human-centric management. By proactively addressing these challenges, organizations can not only harness AI to streamline recruitment processes but also enhance their commitment to building workplaces that prioritize human welfare and development. By doing so, they can leverage AI to not only improve operational efficiencies but also to foster a supportive and respectful workplace environment, true to the principles of a human-centric organization.

In conclusion, the integration of AI in recruitment and selection offers significant opportunities to advance human-centric management by optimizing operational efficiency and promoting fair and unbiased hiring practices. However, it also necessitates a vigilant approach to maintain the human touch, uphold ethical standards, and ensure that technology enhances rather than detracts from the human aspects of organizational culture. As organizations continue to navigate the complexities of AI, aligning technological strategies with the core values of human-centricity — such as respect, inclusivity, and personal development — will be paramount. This strategic alignment not only supports the practical

goals of recruitment and selection but also strengthens the foundation of a workplace committed to the holistic well-being of its people, thereby sustaining competitive advantage in a rapidly evolving digital landscape.

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