

Benefits and risks of using AI in Human Resource Management: Literature review

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ABSTRACT: This article presents an integrative literature review aimed at exploring the benefits and risks associated with the use of artificial intelligence (AI) in human resource management (HRM). Based on the analysis of 67 open-access scientific articles indexed in the Scopus database, the study identifies the main areas of AI application in HRM, as well as its positive and negative impacts. The findings reveal that AI has been widely applied to processes such as recruitment and selection, training and development, performance evaluation, and talent management. The most frequently cited benefits include improved decision-making, operational efficiency, personalization of HRM practices, and enhanced organizational competitiveness. However, the literature also highlights significant risks, such as algorithmic bias, lack of transparency, resistance to technological change, and the potential dehumanization of workplace relationships. The effectiveness of AI in HRM is generally recognized as promising but highly dependent on organizational context, technological maturity, and ethical management of intelligent systems. The study concludes that successful integration of AI into HRM requires not only robust technological solutions but also a strategic approach centered on people, transparency, and fairness.

KEYWORDS: Artificial intelligence, Human resource management, Digital transformation, Benefits and risks, Algorithmic bias, Process automation, Recruitment and selection, AI ethics, Data-driven decision making, Integrative literature review

I. INTRODUCTION

Artificial Intelligence (AI) has been radically transforming organizational operations across various sectors, including Human Resource Management (HRM). The growing complexity of contemporary work environments, coupled with the need for faster, more accurate, and data-driven decision-making, has accelerated the adoption of intelligent technologies in people management processes. From the automation of administrative tasks to the personalization of learning and recruitment experiences, AI has increasingly emerged as a strategic asset within organizations. Alongside the enthusiasm surrounding AI's potential, there are rising concerns regarding the social, ethical, and organizational implications of its use. Issues such as algorithmic bias, the dehumanization of work relationships, the opacity of automated decision-making systems, and the potential displacement of jobs have generated critical debate, underscoring the need for a responsible and reflective approach. In this context, it becomes essential to comprehensively examine both the benefits and risks associated with the integration of AI in HRM. This article aims to conduct an integrative literature review on the use of AI in HRM, with the objective of identifying key areas of application, the most reported advantages, emerging risks, and the factors that influence its effectiveness. Based on the analysis of 67 peer-reviewed scientific articles, this study seeks to contribute to a deeper understanding of AI's role in reshaping HRM practices and to offer theoretical insights that support strategic, ethical, and sustainable implementation of these technologies. The article is structured as follows: Section 2 presents the literature review; Section 3 describes the methodology used for article selection and analysis; Section 4 discusses the main findings organized into thematic categories; and Section 5 outlines the general conclusions and provides recommendations for future research and organizational practice.

II. LITERATURE REVIEW

Evolution of AI and its Application in the World of Work :In recent decades, artificial intelligence has evolved from a purely theoretical concept into a transformative force in the world of work. Since 2012, with the emergence of neural network systems like AlexNet, there's been a rapid acceleration in the development and adoption of AI technologies across various industries, including Human Resource Management (HRM) (Kekez, Lauwaert & Redep, 2025). The growing interest in AI is evident in the sharp rise in academic publications and the topic's frequent spotlight at global conferences. As Kekez et al. (2025) point out, the number of studies on AI has doubled over the past ten years, with increasing attention given to ethics, algorithmic bias, and social impact, especially in the context of HRM. From an organizational standpoint, AI is now viewed as a strategic asset for tackling modern business challenges. Benabou and Touhami (2025) emphasize that incorporating AI into HRM represents a shift toward more streamlined and effective practices, with major impacts on

performance evaluation, recruitment, training, and employee lifecycle management. Literature also signals a broader paradigm shift: HRM is increasingly adopting intelligent systems capable of making real-time, data-informed decisions. This includes tools such as automated recruiting platforms, resume screening software, personalized training programs, and virtual learning assistants (Madanchian & Taherdoost, 2025; Yoo, Nimon & Patole, 2024). According to Girlovan, Horobet, Botorga, Belascu, and Lucian (2024), digital transformation and AI advancements are redefining traditional HR roles—automating repetitive tasks and applying predictive analytics to forecast workforce needs. This evolution supports the idea of "smart work," which blends technological efficiency with the strategic development of human capital.

Furthermore, several studies point to the role of AI in promoting fairer decision-making, provided that ethical and regulatory principles are upheld. For instance, Venugopal, Madhavan, Prasad, and Raman (2024) warn that, despite AI's potential to improve HRM processes, it is essential to establish governance structures that ensure transparency, fairness, and inclusiveness in automated systems.Conversely, the adoption of AI still faces cultural, technological, and structural barriers. Madanchian & Taherdoost (2025) identify resistance to change, privacy concerns, and integration challenges as recurring obstacles to implementing AI in organizational contexts.Bibliometric trend analysis confirms the rapid growth of scientific output in this area, with a particular focus on practical applications of AI in recruitment, training, performance evaluation, and talent retention (Wijaya & Qamari, 2024; Bouhsaien & Azmani, 2024).Thus, the evolution and incorporation of AI into the workplace reflect not only technological advancement but also profound reconfiguration of people management practices, demanding new skills, adaptive organizational models, and a critical reflection on the social and ethical impacts of these technologies.

Definition and typologies of AI : Artificial Intelligence can be defined as the capacity of artificial systems comprising algorithms and software programs—to interpret data, learn from it, and use that knowledge to perform tasks with a level of autonomy comparable to human behavior (Konovalova, Mitrofanova, Mitrofanova & Gevorgyan, 2022; Chowdhury et al., 2023). In the context of HRM, AI is applied to support or automate processes ranging from recruitment to talent retention, always with the aim of optimizing decision-making, forecasting trends, and improving operational efficiency.

According to Chilunjika, Intauno & Chilunjika (2022), the literature distinguishes three main types of AI:

- Narrow AI (Artificial Narrow Intelligence ANI): Performs specific tasks based on programmed instructions and limited learning, such as resume screening or sentiment analysis in text.
- General AI (Artificial General Intelligence AGI): Refers to the ability to perform any intellectual task that a human can do; still under development.
- Superintelligent AI (Artificial Superintelligence ASI): A theoretical concept in which AI would surpass human intelligence in all aspects.
 Beyond this functional classification, several technologies form the AI ecosystem applicable to HRM. The most notable include:

Machine Learning (ML): Machine learning is a core AI technique that enables systems to detect patterns and make predictions based on large volumes of data. In HRM, ML is used to predict employee turnover, analyze

candidate profiles, and map future skill needs (Rodgers et al., 2023; Berhil, Benlahmar & Labani, 2020). Deep Learning (DL): A subfield of ML, deep learning uses deep artificial neural networks to process unstructured data such as images or voice. It has been applied in facial recognition systems for time tracking and

in emotional analysis during automated interviews (Berhil et al., 2020). Natural Language Processing (NLP): NLP enables systems to understand and interpret human language, both written and spoken (Berhil et al., 2020; Chowdhury et al., 2023). Applications include:

- Sentiment analysis in performance evaluations.
- Chatbot interaction during onboarding or FAQs.
- Automated extraction of information from resumes.
- Robotic Process Automation (RPA).
- Cognitive Systems and Collective Intelligence

It is important to note that the applicability of these typologies depends on the organization's goals, the digital maturity of the HR team, and the existing technological infrastructure. The responsible adoption of these tools requires not only technical competence but also an ethical approach aligned with human-centered values.

Digital Transformations in HR Departments : Digital transformation has radically reshaped Human Resource (HR) departments, driving a shift from predominantly administrative roles to more strategic, data-driven functions supported by emerging technologies, particularly AI. This evolution is closely associated with the advancement of Human Resource Information Systems (HRIS) and the integration of intelligent solutions that automate processes, personalize employee experiences, and enhance the analytical capabilities of the HR function (Albloush et al., 2025; Benabou & Touhami, 2025). The digital transformation of the Human Resources sector began with the automation of operational tasks but quickly expanded into more strategic areas such as recruitment, training, performance evaluation, talent management, and decision-making support. With the advent of artificial intelligence, these processes have become even more powerful-from tools that predict employee turnover to personalized learning assistants-enabling organizations to act with greater agility and precision, while also aligning more closely with business goals (Irmatova et al., 2025; Benabou & Touhami, 2025). According to Benabou and Touhami (2025), the presence of artificial intelligence in HR is driving three major shifts: the automation of repetitive tasks, human-machine collaboration, and the transformation of decision-making processes. Automation allows HR professionals to focus on more strategic activities; collaboration calls for new ways of interacting; and data-driven decisions bring insights based on evidence, moving beyond intuition (Benabou & Touhami, 2025).

Research by Irmatova et al. (2024) shows that countries with higher levels of digital readiness-like the Netherlands and Israel-have seen more success in preparing their workforce for the demands of the digital economy. In these contexts, developing both basic and advanced digital skills has become a key factor in successfully integrating AI into HR practices (Irmatova et al., 2025). Conversely, as noted by Madanchian & Taherdoost (2025), AI adoption faces significant barriers, including organizational resistance, technological infrastructure limitations, privacy concerns, and the absence of digital leadership. Overcoming these obstacles requires a strategic approach focused on cultural change, continuous training, and the revision of internal policies to ensure sustainable digital transformation (Madanchian & Taherdoost, 2025). In addition, the introduction of technologies such as Generative AI intensifies integration challenges and redefines business models and workplace structures. Chowdhury, Budhwar & Wood (2024) advocate for a new strategic framework in HR management that embraces innovation while upholding core values such as fairness, transparency, and respect for employees. In this new paradigm, the role of HR professionals is doubly challenged: on one hand, they must develop technical proficiency in emerging digital tools; on the other, they are increasingly called upon to act as ethical and human-centered mediators in an era defined by automation and algorithmic intelligence (Cai, Zhang & Zhang, 2024).As a result, HR departments are evolving into centers of organizational intelligence, responsible for managing the interaction between people and technology, ensuring employee wellbeing, and supporting long-term innovation and competitiveness (Dong, Yan & Yang, 2024; Yoo, Nimon & Patole, 2024).

III. METHODOLOGY

Type of Study : This article is based on an integrative literature review, aiming to identify, compile, and critically analyze the main benefits and risks associated with the application of AI in Human Resource Management. The integrative review approach was chosen because it allows for the inclusion of various types of studies - empirical, theoretical, and methodological - enabling a comprehensive and in-depth synthesis of the knowledge available on the subject. This type of review is particularly suitable for exploring complex and multidisciplinary fields of research, such as the application of AI in HRM, where technical, organizational, ethical, and social perspectives coexist. Moreover, the integrative review provides methodological flexibility, allowing not only quantitative analysis, but also qualitative and reflective examination of the content, thereby facilitating the identification of recurring patterns, research gaps, and emerging trends in the literature (Torraco, 2005).

Search Procedures and Inclusion/Exclusion Criteria: The literature search was conducted using the Scopus database, selected for its comprehensiveness, quality, and recognition within the international scientific community. The search was carried out in March 2025, with the aim of identifying relevant publications addressing the application of artificial intelligence in human resource management. The following combinations of search terms were used: "artificial intelligence" OR "AI" AND "people management" OR "human resources" OR "human resource management", with the requirement that these expressions appear in the title of the articles. This restriction was intended to ensure the direct thematic relevance of the selected publications .The initial search yielded 385 articles. Subsequently, filters were applied based on predefined inclusion and exclusion criteria, as outlined below:

Inclusion criteria:

- Articles with titles containing expressions related to AI and HRM
- Peer-reviewed scientific publications
- Written in English
- Open access, with full text available
- Direct relevance to the topic of AI application, impacts, benefits, or risks in HRM

Exclusion criteria:

- Documents that were not scientific articles (e.g., conference proceedings, editorials, abstracts)
- Publications in languages other than English
- Articles without full-text access
- Studies that, despite a relevant title, did not substantively address the proposed theme
- Articles that were formally retracted by publishers, compromising their scientific validity After applying these criteria, the number of articles was reduced from 385 to 70. Of these, two were not accessible in full text, and one was excluded due to formal retraction, resulting in a final sample of 67 articles, which form the basis of this integrative literature review.

Data Analysis Strategy : Following the final selection of 67 scientific articles, a categorical and thematic analysis of the content was carried out to identify the main perspectives, trends, and gaps in the existing literature on the use of artificial intelligence in human resource management.

A structured database in table format was developed, in which each article was systematically coded according to predefined variables, such as:

- Area of AI application (e.g., recruitment, training, performance evaluation)
- Type of technology used (e.g., machine learning, NLP, RPA)
- Main dependent and independent variables analyzed
- Keywords and central themes addressed
- Ethical, social, and organizational implications
- Year of publication, journal title, and type of study

This coding process enabled a critical and comparative reading of the articles, allowing for the identification of recurring patterns, thematic frequencies, methodological approaches, and facilitating or inhibiting factors for the adoption of AI in organizational contexts. The analysis was conducted manually, supported by organization tools such as Microsoft Excel, allowing for the systematization of the data into relevant analytical categories. This strategy facilitated an integrative synthesis of the findings, grounded in consolidated evidence from literature, without resorting to formal statistical analysis, as the study's focus is essentially qualitative and descriptive.

IV. RESULTS

The analysis of the 67 selected articles revealed a diverse set of approaches, applications, and implications regarding the use of artificial intelligence in human resource management. The results were organized around four main thematic axes, which reflect the most recurrent and relevant dimensions observed in the studies analyzed.

Areas of AI Application in HRM: The analysis of the 67 articles revealed that artificial intelligence is being applied across multiple areas of human resource management and operational functions. The data show that the most frequently cited area in scientific literature is recruitment and selection, mentioned in 46 of the analyzed articles. AI is used in this domain through automated resume screening tools, profile-job matching algorithms, and digital interview systems based on natural language processing and facial recognition .Two additional areas, training and development and performance evaluation were each referenced in 24 articles. In the former, AI is employed to personalize learning paths, recommend content based on individual competencies, and monitor employee progress in real time. In the latter, AI supports the continuous analysis of performance indicators and provides automated feedback, helping reduce subjectivity in the evaluation process. Talent management also emerged as a significant area of application, mentioned in 15 studies, particularly in the identification of high-potential profiles, succession planning, and retention of key employees. Finally, although mentioned less frequently, performance management appeared in 11 articles, often overlapping with continuous evaluation mechanisms and goal-setting systems powered by intelligent technologies.

These findings indicate that AI is increasingly being integrated into core HRM processes, supporting task automation, predictive analytics, and the personalization of people management practices. Its application tends to concentrate in data-intensive areas where greater decision-making agility and precision are especially beneficial.

Main Benefits Identified : The analysis of the articles revealed several benefits associated with the use of artificial intelligence in human resource management. The studies converge on the positive impact of AI across various organizational dimensions, with five key benefits standing out. The most frequently cited benefit was improved decision-making, mentioned in 10 articles. AI provides broader access to both structured and unstructured data, enabling faster, more accurate, and evidence-based analysis. As a result, HR managers can make decisions grounded in data, reducing subjectivity in processes such as recruitment, performance evaluation, and talent management. Also mentioned in 10 studies, operational efficiency emerged as one of the main gains provided by AI. The automation of repetitive and administrative tasks—such as resume screening, interview scheduling, and payroll processing—results in significant time and resource savings while minimizing human errors.

In 8 articles, personalization and increased employee engagement were highlighted, thanks to AI's ability to tailor processes such as training and internal communication to individual employee needs and profiles. Chatbots, intelligent learning platforms, and continuous feedback systems are examples of solutions that offer a more relevant and interactive experience for employees. Innovation and organizational competitiveness were cited as benefits in 7 studies, reflecting AI's strategic potential in driving digital transformation. Organizations that adopt emerging technologies in HR are perceived as more adaptable and better prepared for the challenges of the future of work. Finally, operational cost reduction was noted in 3 articles, linked to the automation of processes, optimization of human resources, and elimination of inefficiencies in manual tasks. These benefits demonstrate that AI serves not only as a tool for operational support but also as a catalyst for strategic change in the way human capital is managed within organizations.

Associated Risks and Challenges : Although literature highlights several benefits resulting from the application of artificial intelligence in human resource management, it also recognizes significant risks and persistent challenges that must be considered by both organizations and academia. One of the main risks identified relates to ethical and moral concerns, including algorithmic bias and automated discrimination. Several studies warn that when algorithms are trained on biased historical data, they may replicate or even amplify existing inequalities in processes such as recruitment, promotion, or performance evaluation. This issue directly impacts employees' perceptions of organizational fairness and influences their acceptance of AI in the workplace.

Another recurring challenge is the lack of transparency in automated processes, often referred to as the AI "black box." The opacity of algorithms makes it difficult to understand the criteria behind automated decisions, raising concerns about accountability and the ability to audit sensitive decisions, especially in areas like resume screening or the allocation of bonuses and promotions. Resistance to technology adoption by HR professionals and employees was also cited as a barrier. This resistance is frequently associated with fears of job replacement, a lack of technical skills to operate intelligent systems, and concerns about the dehumanization of workplace relationships. Additional challenges include the complexity of implementation, the costs associated with adopting advanced technological solutions, and the lack of clear organizational policies to regulate the ethical and responsible use of AI in work contexts. In summary, although the transformative potential of AI in HRM is widely acknowledged, its effective adoption requires a critical, ethical, and strategic approach—one that ensures system transparency, includes employees in the change process, and promotes the development of appropriate digital skills.

Effectiveness of AI Use in HRM : The effectiveness of artificial intelligence in human resource management was assessed based on the conclusions presented in the analyzed studies. Most articles acknowledge AI's transformative potential, although they report varying degrees of impact depending on factors such as context, the technology implemented, and the organization's level of digital maturity.

The categorical analysis of conclusions revealed the following:

- 9 articles (13%) reported a clearly positive impact, highlighting significant improvements in HR process efficiency, accuracy, and quality
- 13 articles (19%) indicated a moderate impact, often dependent on how AI is implemented, its integration with human practices, and the presence of a supportive organizational culture

- Only 1 article classified AI as a highly disruptive force, emphasizing structural transformation in people management
- The majority of texts (46 articles, or 69%) presented more neutral, descriptive, or indirect conclusions, focusing on possibilities, trends, or concerns without taking a definitive stance on AI's effectiveness This distribution suggests that, although the literature points to a generally favorable outlook on AI adoption in HRM, there remains caution regarding its full effectiveness, primarily due to factors such as:
- Implementation challenges
- Dependence on technical skills
- The need for ethical and human oversight
- Contextual limitations (e.g., public sector, SMEs, developing countries)

Therefore, it can be concluded that while the effectiveness of AI in HRM is widely recognized as promising, it depends on a set of structural, organizational, and human conditions that must be met for its benefits to be fully realized.

V. CONCLUSION

This integrative literature review provided an in-depth understanding of the benefits and risks associated with the use of artificial intelligence in human resource management, based on the analysis of 67 scientific articles. The findings demonstrate that AI is playing an increasingly important role in the digital transformation of HR departments, with applications ranging from recruitment and selection to training, performance evaluation, talent retention, and strategic decision-making. Among the main benefits identified are enhanced decision-making, operational efficiency, personalized employee experiences, and increased organizational innovation. These gains show that AI can act as a catalyst for significant change, contributing to more agile, data-driven, and results-oriented HRM practices. However, the associated risks and challenges are also evident and must not be overlooked. Issues such as algorithmic bias, lack of transparency in automated processes, resistance from HR professionals, and the shortage of digital skills highlight the need for a critical and responsible adoption of AI in organizations. According to the literature, the effectiveness of AI strongly depends on the organizational context, technological maturity, and the presence of a culture that fosters collaboration between humans and intelligent systems.

It can thus be concluded that artificial intelligence represents a strategic opportunity for people management, provided it is implemented in an ethical, transparent, and inclusive manner. Literature points to a promising yet still developing path. One that requires ongoing research, adequate professional training, and robust organizational policies to ensure that technological advancements are aligned with human values and the strategic goals of organizations.

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