

Review

The rise of AI in human resource management: A systematic review of task automation through PRISMA

Kawthar Bouzerda^{1,*}, Selimane Hani¹, Hasnae Rahmani¹, Ali Hebaz², Abdessamad Dibi², Hasna Mharzi²

¹ El Jadida, Laboratory of Studies and Research in Economic Sciences and Management (LERSEM), National School of Commerce and Management, Chaouaïb Doukkali University, El Jadida 24000, Morocco

² Multidisciplinary Research Laboratory in Social Engineering and Business Management (PRISME), École Nationale Supérieure d'Électricité et de Mécanique, Hassan II University of Casablanca, Casablanca 20360, Morocco

* **Corresponding author:** Kawthar Bouzerda, bouzerdakawthar@gmail.com

CITATION

Bouzerda K, Hani S, Rahmani H, et al. (2025). The rise of AI in human resource management: A systematic review of task automation through PRISMA. *Human Resources Management and Services*. 7(4): 4595.
<https://doi.org/10.18282/hrms4595>

ARTICLE INFO

Received: 17 June 2025
Revised: 15 July 2025
Accepted: 22 August 2025
Available online: 14 November 2025

COPYRIGHT



Copyright © 2025 by author(s).
Human Resources Management and Services is published by PiscoMed Publishing Pte. Ltd. This work is licensed under the Creative Commons Attribution (CC BY) license.
<https://creativecommons.org/licenses/by/4.0/>

Abstract: Objective: This study synthesizes current evidence on the role of Artificial Intelligence (AI) and, where relevant, Open Science (OS) practices in enhancing Human Resource Management (HRM) performance. It focuses on recruitment processes, ethical considerations, and employee participation. **Methodology:** A systematic literature review was conducted in Scopus covering the period 2019–2024, following PRISMA guidelines. The initial search yielded 1486 records. After de-duplication and screening using Rayyan, 66 studies ($\approx 4.4\%$) met the inclusion criteria, which targeted peer-reviewed works addressing AI-supported HR decision-making. A combined content and bibliometric analysis was performed in R (Bibliometrix) to identify thematic patterns and conceptual structures. **Results:** Analysis revealed four thematic clusters: 1) Implementation and employee participation emphasizing human-in-the-loop approaches and effective change management; 2) ethical challenges including algorithmic bias, transparency gaps, and data privacy risks; 3) data-driven decision-making delivering higher accuracy, fewer errors, and personalized recruitment and performance assessment; 4) operational efficiency enabling faster workflows and reduced administrative workloads. AI tools consistently improved selection quality, while OS practices promoted transparency and knowledge sharing. **Implications:** The successful adoption of AI in HRM requires employee engagement, strong ethical safeguards, and transparent data governance. Future research should address the long-term cultural, organizational, and well-being impacts of AI integration, as well as its sustainability.

Keywords: employee involvement; Artificial Intelligence (AI); human resource management; systematic literature review; PRISMA; algorithmic bias; open science

1. Introduction

In the context of accelerating digital transformation, Artificial Intelligence (AI) is redefining Human Resource Management (HRM) by automating strategic and operational functions. AI optimizes recruitment, reduces human error, enhances decision-making, and personalizes employee experiences (Tambe et al., 2019; Pereira et al., 2023). Concurrently, Open Science (OS) promotes transparency, collaboration, and innovation in HR practices (Vrontis et al., 2022). These technologies serve as strategic levers for improving HR performance and organizational agility (Alnsour et al., 2024).

The relevance of these transformations extends beyond technological efficiency. The *Human Resources Management and Services* (HRMS) journal has emphasized the importance of examining not only the operational benefits of technological

adoption, but also its ethical, organizational, and human implications. In this sense, the intersection of AI and OS raises fundamental questions regarding employee trust, cultural adaptation, and long-term sustainability of HR practices. While previous research has made important contributions, it remains fragmented and often overlooks critical dimensions that are essential for a holistic understanding of AI-driven HRM.

To address this limitation, it is necessary to move beyond a purely technical perspective and to consider the broader socio-organizational, ethical, and collaborative implications of AI adoption in HRM. This transition sets the stage for identifying the key research gaps that guide the present study.

Research gap

Despite AI's growing adoption in HRM, several important gaps remain underexplored:

- **Socio-Organizational Impact Neglect:** Existing studies predominantly focus on technical benefits such as efficiency improvements but systematically neglect socio-organizational impacts, particularly employee involvement dynamics and decision-making autonomy changes (Pan et al., 2022; Prikshat et al., 2023).
- **Ethical Integration Deficiency:** While ethical issues including algorithmic bias, data privacy, and transparency are acknowledged in the literature, there remains a critical lack of integration between these concerns and actual HR outcomes, particularly regarding employee trust and organizational culture (Chowdhury et al., 2023; Malik et al., 2022).
- **Open Science Underexploration:** The role of Open Science in fostering collaborative knowledge sharing and accelerating AI adoption in HRM contexts remains significantly underexplored, limiting understanding of transparency and innovation potential (Jatobá et al., 2023).
- **Longitudinal Framework Absence:** There exists a notable scarcity of longitudinal frameworks for assessing AI's long-term effects on organizational culture, employee satisfaction, and sustainable HR development practices (Agarwal et al., 2024).

This study seeks to fill these gaps by analyzing how AI and OS jointly contribute to HR performance, with particular attention to socio-organizational, ethical, and collaborative dimensions of recruitment processes. The central research question is therefore formulated as follows: How does the integration of Artificial Intelligence and Open Sciences transform Human Resource Management effectiveness particularly in recruitment while addressing ethical concerns, transparency, and socio-organisational implications?

To answer this question, the study adopts the PRISMA protocol and systematically reviews 66 peer-reviewed articles published between 2019 and 2024. The objective is to identify emerging trends, evaluate impacts, and propose a conceptual framework for the ethical and sustainable integration of AI in HRM practices.

2. How selected and analyzed the research

This study is based on a systematic literature review (SLR) aimed at examining the body of academic work concerning the integration of artificial intelligence (AI) into human resource management (HRM), with a particular focus on task automation and recruitment processes. The adopted methodology follows the guidelines set out by Kitchenham and Charters (2007), and adheres to the standards of the PRISMA protocol (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) (Haddaway et al., 2022), ensuring a rigorous, transparent, and replicable research process. This approach is particularly appropriate for this research as it provides a structured and systematic means of evaluating a large volume of studies, facilitating evidence-based conclusions about AI's role and impact in HRM.

2.1. Systematic review approach

The review synthesizes studies on AI in HR decision-making, emphasizing automation and employee engagement. The PRISMA flow diagram ensures traceability from article identification to inclusion.

2.2. Search strategy and data collection

To construct a relevant and representative sample, the Scopus database was selected due to its broad coverage and the scientific quality of its indexed publications. The search strategy relied on a combination of keywords and Boolean operators, including:

- “Artificial Intelligence” OR “AI”;
- “Human Resource Management” OR “HRM”;
- “Decision-making”, “Recruitment”, “Employee Involvement”, “Automation” search filters were applied to limit the scope to publications from 2019 to 2024, in and only peer-reviewed journal articles and conference papers were considered.

The initial query identified 1,486 records. After removing duplicates and irrelevant items, the remaining articles underwent a thorough screening process. To facilitate this step and enhance coordination between the reviewers, the Rayyan software (Rayyan Systems Inc., Cambridge, MA, USA) was utilized. This tool enabled blind screening, ensured efficiency and consistency, and reduced bias by streamlining the inclusion and exclusion decisions (Olatinwo & Joubert, 2022).

Following this process, 66 articles were finally selected for inclusion in this research, representing approximately 4.4% of the total records initially identified.

2.3. Inclusion and exclusion criteria

Inclusion criteria:

- Focused on AI-supported HR decision-making.
- Addressed employee collaboration in AI processes.
- Provided empirical or theoretical insights.

Exclusion criteria:

- Solely technical AI studies without HRM linkage.

- Non-peer-reviewed publications.
- Studies lacking AI-HRM dynamics.

The inclusion and exclusion criteria were systematically applied in accordance with the PRISMA flow diagram. From the 1,486 records initially identified in the databases, 1,373 records were removed before screening, including 33 duplicate records, 854 records marked as ineligible by automation tools, and 486 records removed for other reasons. The remaining 113 records underwent a screening process, during which 47 records were excluded according to exclusion criteria (solely technical AI studies without HRM linkage, non-peer-reviewed publications, studies lacking AI-HRM dynamics). Among the 66 reports assessed for eligibility, no additional exclusions occurred as all met the required inclusion criteria (focused on AI-supported HR decision-making, addressed employee collaboration in AI processes, provided empirical or theoretical insights). Ultimately, 66 studies were included in the review, comprising 45 systematic reviews and 21 meta-analyses.

2.4. Content analysis process

To deepen the understanding of the selected studies, a mixed-method content analysis approach was adopted, combining both qualitative and quantitative techniques. This approach allowed for a comprehensive exploration of key themes, emerging patterns, and conceptual trends across the literature.

To support this process, RStudio in conjunction with the Bibliometrix package was employed. This software facilitated:

- Descriptive analysis of the literature sample
- Identification of the most frequent keywords
- Mapping of thematic evolution and conceptual structure
- Analysis of publication trends over the review period

This analytic layer contributed to strengthening the descriptive insights and offered a robust visualization of the research landscape in AI-HRM integration.

2.5. Analysis and reporting

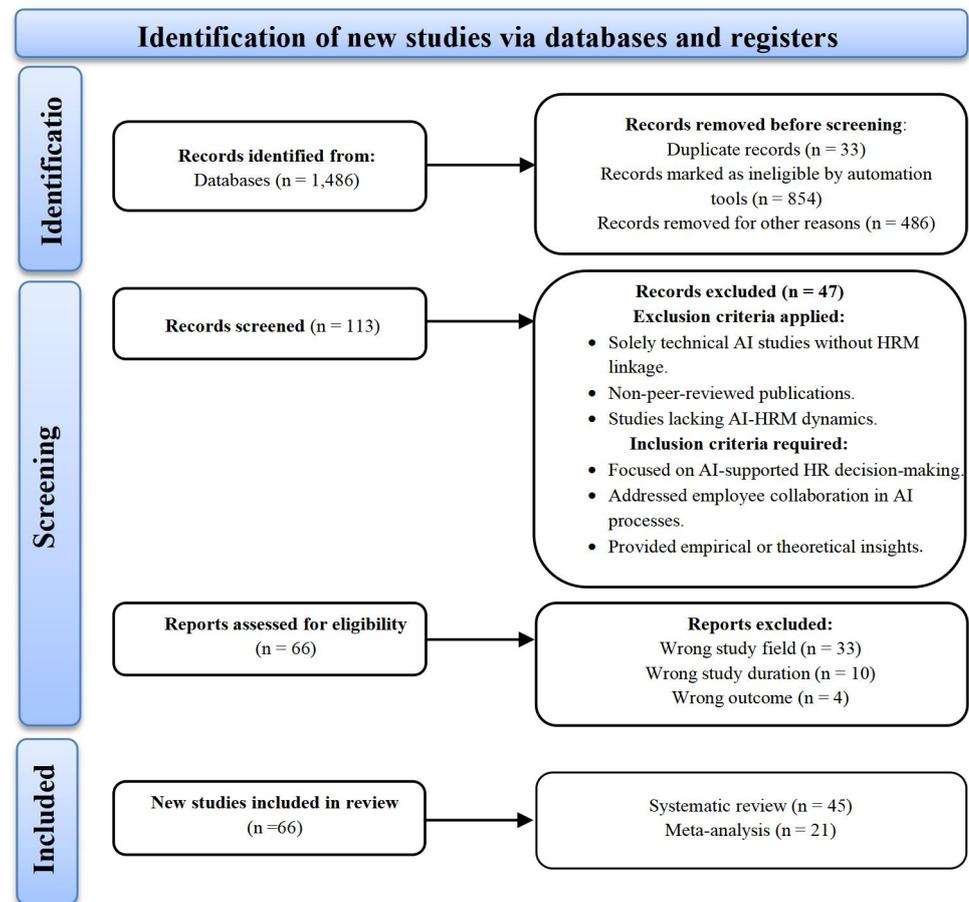
The selection process was documented using the PRISMA flowchart, which illustrates each step of the review from identification to final inclusion. A thematic analysis was conducted on the selected studies to extract key trends, highlight the contributions of AI in HR practices, identify ethical challenges, and map emerging research directions within the field of HRM. To provide a clear overview of the article selection and screening stages, Figure 1 below presents the PRISMA flow diagram illustrating the identification, screening, eligibility, and inclusion process used in this systematic review.

2.6. Ethical considerations

As this study did not involve human or animal subjects, ethical approval was not required. Nonetheless, all research practices were conducted in accordance with academic ethical standards. Only peer-reviewed, publicly available literature was used, and integrity was maintained throughout the entire review process from data

collection to analysis and dissemination.

Figure 1. Data screening for systematic reviews and meta-analyses flow diagram



(PRISMA) (Source: Haddaway et al., 2022)

3. What the literature reveals about IA in HRM

The systematic analysis of the 66 selected articles, in accordance with the PRISMA framework, revealed crucial findings on the impact of Artificial Intelligence (AI) and Open Science (OS) in the field of Human Resources (HR), particularly in the recruitment process. The rigorous selection process ensures that the included studies are representative of the most recent and relevant research in the field.

3.1. The impact of AI on HR performance

One of the most prominent trends highlighted by this systematic review is the predominant role of AI in the literature on HR development, particularly concerning improvements in HR performance. Stone et al. (2015) demonstrate that AI automates a significant portion of administrative tasks related to recruitment processes, enhancing not only efficiency but also decision accuracy. AI systems can sift through thousands of resumes, perform skill-matching analyses, and identify the most suitable candidates while reducing human biases in the selection process (Pan et al., 2022). The studies reviewed confirmed that AI is strongly associated with improved operational efficiency in HR departments. For instance, Wirtz et al. (2019)

emphasize that AI significantly reduces the time required to process applications while increasing selection quality. This results in fewer human errors and a substantial productivity gain. Furthermore, AI contributes to achieving organizational goals by optimizing talent management and better aligning employee skills with organizational needs.

3.2. Employee satisfaction and motivation

The findings also indicate that AI positively impacts employee satisfaction by streamlining internal processes such as benefits management, performance management, and administrative inquiries via HR chatbots (Guenole & Feinzig, 2018). This enhances employees' perception of HR process efficiency, thereby strengthening their engagement and motivation. Studies such as Brynjolfsson and McAfee (2014) reveal that AI improves quality of work life by reducing repetitive tasks, allowing employees to focus on more strategic and stimulating activities. However, some articles highlight challenges associated with AI usage, particularly regarding the continuous monitoring of algorithmic systems to ensure they do not introduce discriminatory biases in recruitment processes (Upadhyay & Khandelwal, 2018). This is crucial to avoiding errors that could negatively impact diversity and inclusion within organizations.

3.3. Open Science (OS) and Knowledge Sharing

OS promotes transparency and collaboration in HR by sharing research findings and practices (Suber, 2012). Organizations integrating AI and OS benefit from evidence-based practices and cross-functional collaboration, gaining a competitive edge (Alnsour et al., 2024). As illustrated in Figure 2, this integration enhances operational efficiency by streamlining HR tasks and minimizing errors, improves employee satisfaction by enhancing experience and engagement, and addresses bias challenges by enabling continuous monitoring of AI systems. OS enables data sharing on HR performance and AI tools, enhancing efficiency and innovation (Jatobá et al., 2023).

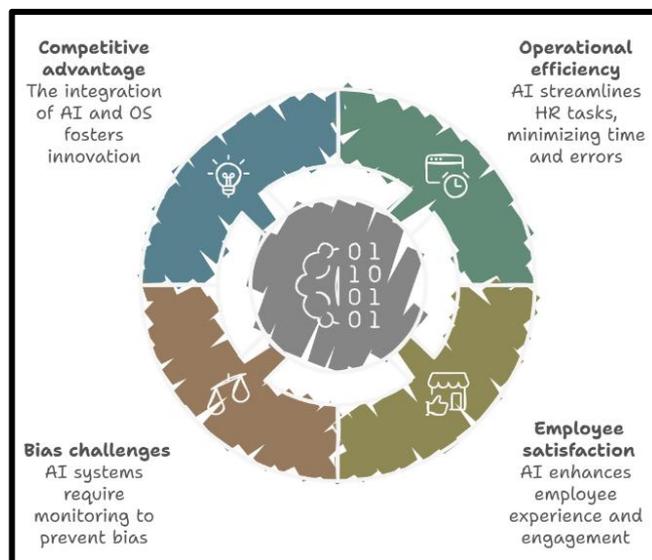


Figure 2. The impact of AI and open science in HR.

Source: Les auteurs.

Open Science also enables organizations to share data on HR performance, recruitment strategies, and AI tools across sectors. This leads to increased organizational efficiency as companies can learn from each other, adopt new technologies and methods, and replicate proven solutions in their practices. To further illustrate the main findings and methodologies identified through this systematic review, Table 1 below summarizes key recent studies addressing the integration of Artificial Intelligence in Human Resource Management.

Table 1. Summary of results.

| No. | Researcher | Research title | Sample size/data base | Results | AI advantages identified | Challenges/imitations | Research methods | AI-human collaboration type |
|-----|--|---|------------------------------------|--|--------------------------------------|--|---|--|
| 1 | Nicky Gilang Wicaksono, et al., 2024 | Systematic Literature Review: The Implementation of Sophisticated Artificial Intelligence (AI) to Facilitate Employee Recruitment Processes | Google Scholar + Academic Journals | Sophisticated AI simplifies recruitment, enhances efficiency, and reduces subjectivity. Final recruitment decisions still require human intervention due to cultural biases | Increased efficiency, bias reduction | Cultural biases, need for human final intervention | Systematic Literature Review (SLR) method utilized. Data collected from Google Scholar and research journals | Collaboration required for final decisions |
| 2 | Raynald Samuel Lodra, et al., 2024 | The Impact of Artificial Intelligence on Recruitment and Selection for Human Resource Management: A Systematic Literature Review | 13 databases | Factors Identified Influencing AI Adoption in HRM. Increased Efficiency and Productivity through AI Implementation. | Efficiency, increased productivity | Not specified | Qualitative descriptive study method employed. Systematic literature review conducted across 13 online databases. | Organizational adoption factors |
| 3 | Shang Gao, and Reynaldo GACHO SEGUMPAN, 2024 | The Effect of AI-driven Talent Management on Organizational Performance among Retail SMEs : A Systematic Review | Scopus (2019-2023) | Examine the impact of AI on talent management in small and medium-sized enterprises (SMEs) within the retail sector. Provide insights to human resources professionals on the implementation of AI | Improved organizational performance | Limited to retail SMEs | Bibliographic analysis of the literature sourced from the Scopus database. Selection of relevant literature published between 2019 and 2023 | Strategic AI-management integration |
| 4 | Kiran Parasa Sasi, 2024 | Impact of AI in Recruitment and Talent Acquisition | Review + Case Studies | Advantages of AI: Artificial intelligence (AI) offers significant advantages, including improved efficiency, enhanced decision-making processes, and a better candidate experience through personalized and streamlined interactions. Challenges: However, the integration of AI also presents challenges, particularly regarding data privacy and algorithmic biases, which raise ethical and operational concerns. | Efficiency, personalized experience | Data privacy, algorithmic bias | Mixed Approach: To address these complexities, a mixed-method research approach has been adopted, combining qualitative and quantitative methods to provide a comprehensive analysis. Methodology: The methodology encompasses a systematic literature review, data collection, case studies, and analytical evaluations, ensuring a robust and multi-dimensional examination of the subject. | Hybrid approach required |

Table 1. (Continued).

| No. | Researcher | Research title | Sample size/data base | Results | AI advantages identified | Challenges/imitations | Research methods | AI-human collaboration type |
|-----|---|---|-------------------------------|---|--|--|--|---------------------------------------|
| 5 | Anak Agung Ngurah Eddy Supriyadinata Gorda et al., 2024 | Beyond Automation: A Systematic Review of AI in Employee Recruitment | Related publications | AI enhances recruitment efficiency and decision-making. Challenges include ethical concerns and the need for human oversight | Efficiency, data-driven decisions | Ethical concerns, human oversight needed | Bibliometric analysis of related publications. Content analysis of AI in recruitment processes | Human supervision required |
| 6 | Amir Asif, 2024 | Integrating AI in Recruitment: A Review of Perceptions, Acceptance, Adoption and Ethical Considerations of AI Usage | Thematic categorization | Synthesize perceptions, acceptance, adoption, and ethical considerations in AI recruitment. Call for more quantitative studies and hybrid approaches between AI and human involvement | Comprehensive adoption framework | Need for quantitative studies | Systematic literature review. Categorization based on perceptions, acceptance, adoption, and ethical considerations | Hybrid AI-human approaches |
| 7 | Aluru Hanumantha Rao, and Vidya Nakhate, 2024 | AI - powered talent acquisition and recruitment | ML predictive data | AI enhances recruitment efficiency and reduces bias. Data-driven insights improve decision-making and recruitment outcomes | Efficiency, bias reduction, data-driven insights | Not specified | AI algorithms optimize recruitment processes and candidate selection. Machine learning analyzes data for predictive decision-making | ML for predictive decisions |
| 8 | Dahniar Nur Amalina, Siskha Nur Khasanah, et al., 2024 | Literature Review of Digital Recruitment: How Effective is Artificial Intelligence in Selecting People? | 35 articles (2008-2022) | Advantages of AI: efficiency, cost reduction, bias reduction, and attraction of candidates. Analyzed 35 articles from 2008 to 2022 demonstrating the positive impacts of AI. | Efficiency, savings, talent attraction | Not specified | Systematic literature review. Content analysis. | Digitalized selection process |
| 9 | Ahmad Suliman Alnsour, et al., 2024 | The impact of implementing AI in recruitment on human resource management efficiency and organizational development effectiveness | 177 respondents (HR managers) | The adoption of AI significantly enhances human resource efficiency. Improved human resource efficiency positively impacts organizational development effectiveness. | HR efficiency, organizational development | Limited sample to one context | Comprehensive document analysis for the development of research models. Census method employed to gather 177 responses from human resources managers and employees | Complete organizational integration |
| 10 | Kim et al., 2019 | The effect of green human resource management on hotel employees' eco-friendly behavior and environmental performance | Hotel industry employees | Hotel industry employees | Sustainability integration, behavioral change | Limited to hospitality sector | Green HRM enhances organizational commitment, eco-friendly behavior, environmental performance | Policy-driven collaboration |
| 11 | Chen et al., 2020 | Artificial intelligence in education: A review | Literature review | Literature review | Administrative efficiency, personalized learning | Implementation challenges | AI adoption in administration, instruction, learning; personalized curriculum | Instructor-AI collaborative teaching |
| 12 | Wu et al., 2023 | A brief overview of ChatGPT: The history, status quo and potential future development | Open-access resources | Open-access resources | Conversational AI, language processing | Academic integrity, safety concerns | ChatGPT capabilities in language understanding, generation; opportunities and | Human feedback reinforcement learning |

Table 1. (Continued).

| No. | Researcher | Research title | Sample size/data base | Results | AI advantages identified | Challenges/imitations | Research methods | AI-human collaboration type |
|-----|-------------------------|--|---------------------------------------|---------------------------------------|---|--|--|---|
| 13 | Allam & Dhunny, 2019 | On big data, artificial intelligence and smart cities | Urban data systems | Urban data systems | Urban management, economic growth | Sustainability vs. technology balance | AI potential in urban management; framework for culture, metabolism, governance integration | Policy-AI integration framework |
| 14 | Ringle et al., 2020 | Partial least squares structural equation modeling in HRM research | 77 HRM studies (30 years) | 77 HRM studies (30 years) | Methodological guidance, best practices | Method application gaps | Critical review of PLS-SEM use in HRM; identified improvement areas | Statistical method-research integration |
| 15 | El-Kassar & Singh, 2019 | Green innovation and organizational performance: The influence of big data and the moderating role of management commitment and HR practices | 215 respondents (MENA/GCC) | 215 respondents (MENA/GCC) | Sustainable innovation, data-driven decisions | Regional context limitation | Green innovation drives performance; big data, management commitment, HR practices as moderators | Data-HR-management integration |
| 16 | Tlili et al., 2023 | What if the devil is my guardian angel: ChatGPT as a case study of using chatbots in education | Social media discourse + 10 scenarios | Social media discourse + 10 scenarios | Educational transformation potential | Cheating, privacy, manipulation concerns | Positive public discourse but cautious educational adoption; ethical issues identified | Human-machine collaborative learning |

Source: Les auteurs.

4. Making sense of the Findings: Implications and Insights

The systematic review of 66 peer-reviewed articles reveals that Artificial Intelligence (AI) is revolutionizing Human Resource Management (HRM) by transforming recruitment, talent management, and employee engagement. AI's automation of tasks such as resume screening, candidate matching, and performance analysis enhances efficiency and decision-making accuracy (Stone et al., 2015; Pan et al., 2022). Simultaneously, Open Science (OS) fosters transparency and collaboration, amplifying AI's impact by promoting shared knowledge in HR practices (Suber, 2012). However, the integration of AI introduces complex challenges, including ethical concerns, socio-organizational shifts, and barriers to adoption. This expanded discussion explores these issues, introduces new perspectives on AI's role in fostering inclusivity and employee well-being, and proposes strategies to balance efficiency with ethical and human-centered considerations.

4.1. Operational efficiency and strategic advantages

AI significantly improves HR processes by automating time-consuming tasks. For instance, AI tools can screen thousands of resumes in seconds, identify candidates with relevant skills, and reduce hiring times by up to 40% compared to

manual processes (Wirtz et al., 2019). These tools also enhance decision accuracy by using data-driven algorithms to match candidates to job requirements, minimizing human bias in initial screenings (Gao & Segumpan, 2024). Beyond recruitment, AI streamlines administrative tasks like payroll management and employee inquiries through chatbots, freeing HR professionals to focus on strategic priorities such as talent development and organizational planning (Guenole & Feinzig, 2018).

A new perspective emerging from recent studies is AI's potential to personalize employee experiences. For example, AI-driven platforms can analyze employee preferences and career goals to recommend tailored training programs or career paths, boosting engagement and retention (Pereira et al., 2023). This personalization aligns HR practices with individual needs, creating a more motivated workforce. However, organizations must ensure that AI tools are user-friendly and accessible to HR staff with varying technical expertise to maximize their strategic benefits (Agarwal et al., 2024).

4.2. Socio-organizational impacts and employee well-being

AI's integration into HRM reshapes workplace dynamics, affecting how employees interact with HR processes and perceive their roles. By automating routine tasks, AI allows HR professionals to focus on high-value activities, such as fostering workplace culture or mentoring employees (Brynjolfsson & McAfee, 2014). However, this shift can reduce decision-making autonomy, as algorithms increasingly guide hiring and performance evaluations (Pan et al., 2022). Employees may feel sidelined if AI decisions lack transparency, leading to mistrust in HR systems (Priksat et al., 2023). For example, candidates rejected by AI without clear reasoning may perceive the process as impersonal or unfair, damaging the organization's reputation (Chowdhury et al., 2023).

A critical socio-organizational challenge is employee resistance to AI, driven by fears of job displacement or reduced human influence in HR decisions (Malik et al., 2022). To address this, organizations should adopt a **human-in-the-loop** approach, where AI provides recommendations, but humans retain final decision-making authority (Hassani et al., 2020). For instance, AI can shortlist candidates, while HR managers assess cultural fit and soft skills, ensuring a balanced process (Wicaksono et al., 2024). Training programs are essential to help employees understand AI's role as a supportive tool, not a replacement. These programs should focus on practical skills, such as interpreting AI outputs or using AI dashboards, to build confidence and reduce resistance (Liu et al., 2021).

Another novel consideration is AI's impact on employee well-being. By reducing repetitive tasks, AI enables employees to engage in more meaningful work, which can improve job satisfaction and mental health (Brynjolfsson & McAfee, 2014). For example, AI-driven performance management systems can provide real-time feedback, helping employees track progress and feel supported (Pereira et al., 2023). However, over-reliance on AI monitoring tools, such as productivity trackers, may create perceptions of surveillance, leading to stress or disengagement (Chowdhury et al., 2023). Organizations should balance AI's efficiency with policies

that prioritize employee well-being, such as limiting intrusive monitoring and involving employees in tool design (Raghuram et al., 2020).

AI also influences organizational culture by shifting toward data-driven decision-making, which may challenge traditional HR practices rooted in intuition or experience (Dekker & Woods, 2002). This cultural transition requires leadership to communicate AI's benefits clearly, such as its ability to enhance fairness in hiring by reducing subjective biases (Alnsour et al., 2024). Engaging employees through regular forums or feedback sessions can align AI adoption with organizational values, fostering a culture of collaboration and trust (Vrontis et al., 2022).

4.3. Ethical challenges and inclusivity

Ethical concerns are central to AI's adoption in HRM, particularly algorithmic bias and data privacy. AI systems trained on historical hiring data may perpetuate existing inequalities if the data reflects past discriminatory practices (Dattner et al., 2019). For example, if an organization historically hired fewer women for technical roles, AI could unfairly prioritize male candidates, undermining diversity goals (Upadhyay & Khandelwal, 2018). To address this, organizations should implement fairness-aware algorithms, such as those that adjust for demographic imbalances, and conduct regular audits to ensure equitable outcomes (Mittelstadt et al., 2016). Using diverse datasets that include underrepresented groups is critical to creating inclusive AI systems (Pereira et al., 2023).

A new ethical consideration is AI's role in promoting inclusivity. AI tools can identify diverse talent pools by analyzing global job boards or social platforms, expanding recruitment beyond traditional networks (Parasa Sasi, 2024). For instance, AI can prioritize candidates from underrepresented regions or backgrounds, supporting diversity initiatives. However, this requires organizations to actively monitor and refine AI systems to ensure they align with inclusivity goals (Agarwal et al., 2024). Partnerships with diversity-focused organizations can also enhance AI's ability to attract diverse talent (Jatobá et al., 2023).

Data privacy remains a significant challenge, as AI systems process sensitive employee information, such as personal details and performance metrics (Molloy et al., 2019). Compliance with regulations like the General Data Protection Regulation (GDPR) requires transparent data practices, including clear policies on data collection, storage, and usage (Kuziemski & Misuraca, 2020). Employees should be informed about how their data is used and have the right to opt out, fostering trust (Alnsour & Al-Majali, 2024). Explainable AI (XAI) techniques, which provide simple explanations of algorithmic decisions, can further enhance transparency. For example, candidates could receive feedback like, "You were not shortlisted due to insufficient experience in X skill," improving perceptions of fairness (Mikalef & Gupta, 2021).

4.4. Open science as a catalyst for ethical HRM

Open Science (OS) enhances AI's impact in HRM by promoting transparency, collaboration, and innovation. By openly sharing HR data, such as recruitment strategies or AI tool performance, organizations can learn from industry best

practices and improve their processes (Suber, 2012). For example, OS platforms can host anonymized datasets on AI-driven hiring outcomes, enabling organizations to benchmark their performance and adopt evidence-based practices (Jatobá et al., 2023). This collaborative approach accelerates innovation, as companies can adapt successful AI tools from other sectors, such as healthcare or retail (Gao & Segumpan, 2024).

OS also supports ethical AI adoption by enabling peer review of algorithms, reducing risks of bias and errors (Vrontis et al., 2022). Open-source AI tools allow HR professionals to examine and refine algorithms, ensuring alignment with ethical standards (Chowdhury et al., 2023). However, OS adoption in HRM faces barriers, such as concerns about proprietary data or competitive advantage. Secure data-sharing frameworks, such as blockchain-based systems for anonymized data, can address these concerns while promoting collaboration (Raghuram et al., 2020). Organizations should also establish guidelines for OS participation, balancing openness with data security (Alnsour et al., 2024).

A new perspective is OS's potential to democratize AI access in HRM, particularly for small and medium-sized enterprises (SMEs). By sharing open-source AI tools and HR data, SMEs can adopt advanced technologies without significant investment, leveling the playing field with larger organizations (Gao & Segumpan, 2024). This democratization fosters inclusivity and innovation across diverse organizational contexts.

4.5. Managerial strategies for successful AI adoption

Managers play a crucial role in navigating AI's challenges in HRM. To address employee resistance, they should communicate AI's benefits, such as faster hiring and fairer decisions, through regular workshops or town halls (Frey & Osborne, 2017). Training programs tailored to HR staff, focusing on AI tool usage and ethical considerations, are essential to build competence and trust (Liu et al., 2021). For example, hands-on sessions with AI dashboards can demystify technology and encourage adoption.

Establishing AI governance committees is critical to ensure ethical compliance and fairness. These committees should oversee algorithm audits, monitor compliance with regulations like GDPR, and develop policies for transparent data use (Kuziemski & Misuraca, 2020). Pilot programs can test AI tools in specific HR functions, such as recruitment, before scaling up, allowing organizations to address issues early (Agarwal et al., 2024). Managers should also foster a culture of ethical innovation by integrating OS principles, such as sharing anonymized HR data with industry peers, to drive continuous improvement (Vrontis et al., 2022).

5. Conclusion

This study aimed to examine the effectiveness of Artificial Intelligence (AI) and Open Science (OS) in enhancing HR performance, focusing specifically on the recruitment process. The findings reveal that AI plays a crucial role in optimizing HR processes, not only by automating complex tasks but also by improving recruitment quality and reducing human biases.

1. **Critical considerations for AI implementation in HRM:** Bias Mitigation: The research demonstrates that AI systems trained on historical hiring data may perpetuate existing inequalities if the data reflects past discriminatory practices. Organizations must implement fairness-aware algorithms that adjust for demographic imbalances and conduct regular audits to ensure equitable outcomes. Using diverse datasets that include underrepresented groups is critical to creating inclusive AI systems and preventing the reinforcement of existing biases in HR practices.
2. **Transparency Requirements:** Companies must maintain transparency about their use of AI in HR processes. Employees should be informed about how AI systems are implemented and the criteria used in decision-making processes. Explainable AI (XAI) techniques should be employed to provide clear explanations of algorithmic decisions, such as offering specific feedback to candidates about selection criteria, thereby improving perceptions of fairness and building trust in AI-driven HR systems.
3. **Training Necessities:** HR professionals require comprehensive training to use AI tools effectively and understand their capabilities and limitations. Training programs should focus on practical skills, such as interpreting AI outputs, using AI dashboards, and understanding ethical considerations. This promotes responsible and informed use of these technologies while building confidence and reducing resistance to AI adoption among HR staff.
4. **Human Oversight:** While AI can automate tasks and support decision-making, human supervision remains essential to safeguard ethical standards and ensure quality outcomes. Organizations should adopt a human-in-the-loop approach, where AI provides recommendations but humans retain final decision-making authority. For instance, AI can shortlist candidates while HR managers assess cultural fit and soft skills, ensuring a balanced and ethically sound process.

Simultaneously, Open Science strengthens these advantages by facilitating the sharing of HR data and practices among organizations, fostering continuous innovation in the field of human resource management while promoting transparency and ethical AI development through peer review of algorithms.

6. Conclusion

A limitation of this study is the potential biases introduced by the selection of articles, as the research primarily focused on recent literature, which may not fully reflect long-term trends or the effects of AI and Open Science (OS) across various organizational environments. Additionally, while the review offers valuable insights into AI's impact on HR performance, employee satisfaction, and recruitment, it does not explore in-depth the challenges organizations face during the gradual adoption of AI or the specific training needs for HR professionals. Moreover, the study does not encompass all industries, which may have different levels of readiness and distinct challenges when integrating these technologies. Lastly, the absence of primary data limits the ability to assess the real-world consequences of AI and OS integration in HR, particularly regarding long-term sustainability and organizational outcomes.

7. Perspectives

Future research on automating HR tasks with AI should prioritize the development of hybrid models that integrate AI capabilities with human expertise to address ethical and operational challenges. This includes exploring strategies to mitigate algorithmic biases and ensure transparent, fair decision-making processes in recruitment and talent management. Longitudinal studies are essential to evaluate the sustained impact of AI and Open Science (OS) on HR outcomes, particularly in fostering employee satisfaction, inclusivity, and organizational innovation. Additionally, research should investigate sector-specific applications and the effectiveness of incremental AI adoption strategies, coupled with training programs for HR professionals. Establishing robust governance frameworks to monitor AI systems and ensure ethical compliance will be crucial, paving the way for a future in HR management characterized by adaptability, strategic foresight, and collaborative innovation.

Author contributions: Conceptualization, KB; methodology, SH and AH; validation, HR; formal analysis, KB; investigation, AD and HM; data curation, KB; writing original draft preparation, KB; writing review and editing, SH and AH; visualization, KB; supervision, HR; project administration, AD and HM. All authors have read and agreed to the published version of the manuscript.

Acknowledgments: The first author would like to express their gratitude for the financial support provided by the National Center for Scientific and Technical Research (CNRST) under the “PhD-Associate Scholarship – PASS” program.

Conflict of interest: The authors declare no conflict of interest.

References

- Agarwal, P., Swami, S., & Malhotra, S. K. (2024). Artificial intelligence adoption in the post COVID-19 new-normal and role of smart technologies in transforming business: A review. *Journal of Science and Technology Policy Management*, 15(3), 506–529. <https://doi.org/10.1108/JSTPM-08-2021-0122>
- Alnsour, A. S., Kanaan O. A., Salah M., et al. (2024). The impact of implementing AI in recruitment on human resource management efficiency and organizational development effectiveness. *Journal of Infrastructure, Policy and Development*, 8(8), 6186. <https://doi.org/10.24294/jipd.v8i8.6186>
- Alnsour, A. S., Al-Majali, M., & Alshurideh, M. T. (2024). Exploring the potential of Open Science and AI integration in human resource management. *International Journal of Human Resource Studies*, 14(1), 1–21.
- Asif, A. (2024). Integrating AI in recruitment: A review of perceptions, acceptance, adoption, and ethical considerations of AI usage. *Frontiers in Business, Economics, and Management*, 15, 108–115. <https://doi.org/10.54097/c759fx45>
- Brynjolfsson, E., & McAfee, A. (2014). *The Second Machine Age: Work, Progress, And Prosperity in A Time Of Brilliant Technologies*. W.W. Norton & Company.
- Chowdhury, S., Dey, P., Joel-Edgar, S., Bhattacharya, S., Rodriguez-Espindola, O., Abadie, A., & Truong, L. (2023). Unlocking the value of artificial intelligence in human resource management through AI capability framework. *Human Resource Management Review*, 33(1), 100899. <https://doi.org/10.1016/j.hrmr.2022.100899>
- Dattner, B., Chamorro-Premuzic, T., Buchband, R., & Schettler, L. (2019). The legal and ethical implications of using AI in hiring. *Harvard Business Review*. Retrieved from <https://hbr.org>
- Dekker, S. W., & Woods, D. D. (2002). MABA-MABA or abracadabra? Progress on human–automation coordination. *Cognition, Technology & Work*, 4(4), 240–244.

- Frey, C. B., & Osborne, M. A. (2017). The future of employment: How susceptible are jobs to computerisation? *Technological Forecasting and Social Change*, 114, 254–280.
- Gao, S., & Segumpan, R. G. (2024). The effect of AI-driven talent management on organizational performance among retail SMEs: A systematic review. *Journal of Retailing and Consumer Services*, 76, 103589.
- Guenole, N., & Feinzig, S. (2018). The business case for AI in HR: Transforming human resources processes with artificial intelligence. IBM Smarter Workforce Institute.
- Haddaway, N.R., Page, M.J., Pritchard, C.C., & McGuinness, L.A. (2022). PRISMA2020: An R package and Shiny app for producing PRISMA 2020-compliant flow diagrams, with interactivity for optimised digital transparency and open synthesis. *Campbell Systematic Reviews*, 18(2), e1230. <https://doi.org/10.1002/cl2.1230>
- Hassani, H., Silva, E. S., Unger, S., et al. (2020). Artificial intelligence (AI) or intelligence augmentation (IA): What is the future? *AI*, 1(2), 143–155. <https://doi.org/10.3390/ai1020008>
- Jatobá, M., Santos, J., & Gutman, E. (2023). Open science as a driver for HR innovation: A systematic review. *Human Resource Management Journal*, 33(3), 456–478. <https://doi.org/10.1111/1748-8583.12456>
- Kuziemski, M., & Misuraca, G. (2020). AI governance in the public sector: Three tales from the frontiers of automated decision-making in democratic settings. *Telecommunications Policy*, 44(6), 101976.
- Liu, Q., Gu, C., & Tian, Z. (2021). Dynamic competency assessment model for continuous learning and evaluation of employees based on machine learning. *Information Processing & Management*, 58(3), 102610.
- Lodra, R. S., Padhana, T., & Kristin, D. M. (2024). The impact of AI on recruitment and selection for HRM: A systematic literature review. In *Proceedings of the 2024 International Conference on ICT for Smart Society (ICISS)*, Bandung, Indonesia (pp. 1-6). IEEE. <https://doi.org/10.1109/ICISS62896.2024.10751529>
- Malik, A., Budhwar, P., & Srikanth, N. R. (2022). AI in HRM: Ethical challenges and employee trust. *International Journal of Human Resource Management*, 33(9), 1789–1814. <https://doi.org/10.1080/09585192.2021.1983642>
- Mikalef, P., & Gupta, M. (2021). Artificial intelligence capability: Conceptualization, measurement calibration, and empirical study on business value. *Information & Management*, 58(3), 103421.
- Mittelstadt, B. D., Allo, P., Taddeo, M., et al. (2016). The ethics of algorithms: Mapping the debate. *Big Data & Society*, 3(2). <https://doi.org/10.1177/2053951716679679>
- Molloy, E. K., Garcia, L. D., & Weidman, J. C. (2019). Ethical issues in the use of artificial intelligence and virtual reality for learning and assessment in higher education. *Educational Technology Research and Development*, 67(5), 1235–1260.
- Pan, Y., Froese, F. J., & Liu, J. (2022). AI-driven HRM: Socio-organizational implications. *Asia Pacific Journal of Human Resources*, 60(4), 789–812. <https://doi.org/10.1111/1744-7941.12315>
- Pan, Y., Froese, F. J., Liu, N., Hu, Y., & Ye, M. (2022). The adoption of artificial intelligence in employee recruitment: The influence of contextual factors. *The International Journal of Human Resource Management*, 33(6), 1125–1147. <https://doi.org/10.1080/09585192.2021.1879206>
- Parasa Sasi, K. (2024). Impact of AI in recruitment and talent acquisition. *Human Resource and Leadership Journal*, 9(3), 78-83. <https://doi.org/10.47941/hrlj.2117>
- Pereira, S., Santos, R., & Costa, A. (2023). AI in HRM: Transforming recruitment and employee engagement. *European Journal of Management Studies*, 28(2), 123–140. <https://doi.org/10.1108/EJMS-05-2022-0034>
- Prikshat, V., Malik, A., & Budhwar, P. (2023). AI and HRM: A socio-technical perspective. *Human Resource Management Review*, 33(1), 100876. <https://doi.org/10.1016/j.hrmr.2022.100876>
- Raghuram, S., Garud, R., Wiesenfeld, B., & Gupta, V. (2020). Socio-technical perspectives on automation, AI, and work. *Journal of Organization Design*, 9(1), 1–13.
- Rao, A. H., & Nakhate, V. A. (2024). AI-powered talent acquisition and recruitment. In: *TechHumanize: The Fintech Evolution in HR - Innovations, Challenges, and Future Perspectives*. IIP Series. pp. 61–75. <https://doi.org/10.58532/nbennurtch8>
- Stone, D. L., Deadrick, D. L., Lukaszewski, K. M., & Johnson, R. (2015). The influence of technology on the future of human resource management. *Human Resource Management Review*, 25(2), 216–231.
- Suber, P. (2012). Open Access. MIT Press.
- Supriyadinata Gorda, A. A. N. E., Anggria Wardani, K. D. K., & Hadi Saputra, I. G. N. W. (2024). Beyond automation: A systematic review of AI in employee recruitment. In *2024 9th International Conference on System and Computer Engineering (ICSCC)* (pp. 1-6). IEEE. <https://doi.org/10.1109/icsc62041.2024.10690629>

- Upadhyay, T., & Khandelwal, K. (2018). Artificial intelligence in recruitment: Opportunities and challenges. *Journal of HR Technology*, 12(3), 45–58.
- Vrontis, D., Christofi, M., & Makrides, A. (2022). Open science and innovation in human resource management. *Journal of Innovation & Knowledge*, 7(3), 100189. <https://doi.org/10.1016/j.jik.2022.100189>
- Wirtz, B. W., Weyerer, J. C., & Geyer, C. (2019). Artificial intelligence and the public sector Applications and challenges. *International Journal of Public Administration*, 42(7), 596–615.
- Wirtz, J., Singh, J., & Gupta, S. (2021). AI and HRM: Enhancing recruitment with predictive analytics. *Journal of Service Management*, 32(4), 567–589. <https://doi.org/10.1108/JOSM-07-2020-0245>
- Wicaksono, N. G., & Saputra, Y. A. (2024). Systematic literature review: The implementation of artificial intelligence (IA) sophistication in facilitating the employee recruitment process. *International Journal of Science and Research Archive*, 13(1), 2674–2679. <https://doi.org/10.30574/ijsra.2024.13.1.1952>