

A COMPREHENSIVE LITERATURE REVIEW OF THE BARRIERS AND FACILITATORS OF ARTIFICIAL INTELLIGENCE ADOPTION IN HUMAN RESOURCE MANAGEMENT: AN EXAMINATION OF ADMINISTRATIVE AND TECHNICAL CONSIDERATIONS

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Abstract

Artificial Intelligence (AI) refers to systems designed to perform tasks requiring human-like intelligence, such as learning, reasoning, decision-making, and language processing. Its integration into Human Resource Management (HRM) has gained significant attention for enhancing efficiency, accuracy, and strategic capabilities. This study defines AI, explores its HRM applications, identifies implementation barriers, and provides evidence-based recommendations. A comprehensive literature review was conducted using recent peer-reviewed articles, academic publications, and industry reports. Findings reveal AI's transformative impact on key HR functions: recruitment (e.g., automated screening), training and development (personalized learning), performance management (objective evaluations), employee engagement (sentiment analysis), and predictive analytics (turnover forecasting). However, challenges include resistance to change, ethical concerns (bias, fairness), limited digital skills, inadequate infrastructure, poor data quality, privacy issues, and high costs.

To overcome these, organizations should invest in infrastructure, build HR professionals' AI competencies, establish ethical governance frameworks, and adopt phased, pilot-based implementations. Strategic, responsible AI adoption can significantly boost HR effectiveness, organizational performance, and employee satisfaction

Clasificare JEL : M12, J24 M15

1. Introduction

The adoption of Artificial Intelligence (AI) in Human Resource Management (HRM) involves a complex interplay of challenges and enablers that organizations must strategically address to realize its potential for enhancing efficiency, decision-making, and overall HR processes. Madanchian and Taherdoost (2025) identify key barriers, including organizational resistance, where HR professionals and employees may exhibit hesitation toward change due to concerns about job security or reduced control. Additionally, Wójcik (2025) emphasizes issues related to data quality, which often result from limited digital competencies within HR teams, as well as ethical considerations such as algorithmic bias and privacy risks that can undermine trust in AI systems. These challenges are further intensified by technical and cultural obstacles that can hinder successful integration. On the other hand, Madanchian and Taherdoost (2025) highlight the importance of strong digital leadership in fostering a technology-positive organizational culture. They also point to recent advancements in natural language processing and machine learning that enhance the capabilities and attractiveness of AI tools for HR applications. Complementing these insights, Wójcik (2025) advocates for inclusive implementation strategies that actively involve stakeholders to reduce resistance, promote transparency, and facilitate successful adoption. Overall, while AI offers significant transformative potential in HRM, effective integration requires proactive management of these barriers through strong leadership, skill development, ethical considerations, and collaborative approaches to ensure sustainable success.

2. Literature Review

2.1 Definition of Artificial Intelligence

Artificial Intelligence (AI) is a multidisciplinary field focused on developing systems capable of performing tasks that typically require human intelligence. These tasks include learning, reasoning, problem-solving, perception, and language understanding. AI is generally categorized into narrow AI, designed for specific applications such as speech recognition, and general AI, which aims to replicate human cognitive abilities across multiple domains. A fundamental feature of AI is its capacity to learn and adapt through algorithms that analyse data and enhance performance over time. Additionally, AI can emulate aspects of human behaviours, including decision-making and problem-solving. Its interdisciplinary nature draws insights from computer science, psychology, and linguistics to facilitate reasoning and contextual understanding. AI has extensive applications across various sectors, such as healthcare where it supports computerized diagnostics and personalized treatment plans; finance through automated trading and fraud detection; and everyday technology including virtual assistants, recommendation systems, and image recognition tools. While AI contributes significantly to operational efficiency and innovation, it also presents ethical considerations related to privacy, bias, and workforce impacts. However, supporters argue that its potential to enhance human capabilities and improve quality of life outweighs these challenges.

3. Integration of AI in Human Resource Management

The integration of Artificial Intelligence (AI) in Human Resource Management (HRM) encompasses several key components that enhance various HR functions. These components include recruitment, training and development, performance management, employee engagement, and data analytics. Artificial intelligence (AI) is revolutionizing key functions within human resource management (HRM) by improving efficiency and supporting data-driven decision-making across various domains. In recruitment, AI enhances processes through automated resume screening and candidate matching, leading to faster hiring cycles and reduced potential for bias. Additionally, AI-powered chatbots facilitate initial candidate interactions and improve the overall applicant experience. In training and development, AI-driven platforms offer personalized learning experiences tailored to individual employee needs and preferences, with organizations exemplifying the successful implementation of AI in online skill development initiatives. In performance management, AI systems analyse employee performance data to generate insights that inform promotion decisions and identify targeted development opportunities. Predictive analytics also enable organizations to recognize potential turnover risks and develop proactive retention strategies. Furthermore, AI contributes to employee engagement through real-time feedback tools and pulse surveys, fostering a responsive and dynamic workplace culture. While these advantages are significant, organizations should also carefully consider challenges related to data privacy, algorithmic bias, and ethical governance to ensure the responsible and sustainable integration of AI into HRM practices (Gupta, 2024).

4. Administrative Barriers to AI Adoption Human Resource Management

The adoption of Artificial Intelligence (AI) in human resource management (HRM) is influenced by several organizational, technological, ethical, and cultural challenges that can hinder effective implementation. These challenges include resistance to change, often stemming from employees' concerns about job security and skepticism towards algorithm-based decision-making systems. Additionally, the significant financial investment required for AI technology acquisition and maintenance can be a deterrent for many organizations. Furthermore, another obstacle is concerned with organizational readiness which is a critical determinant in the successful adoption of artificial intelligence systems. Key factors influencing this readiness include workforce

competencies, organizational culture, and leadership endorsement, which are essential for mitigating administrative impediments. Absent robust leadership advocating for AI initiatives through resource allocation and fostering a culture receptive to innovation the integration process encounters significant challenges. Additionally, it is important to emphasize the importance of perceived ease of use and perceived usefulness of AI technologies, underscoring that positive user perceptions among HR personnel are vital for facilitating widespread adoption. A further obstacle is the limited digital proficiency among HR professionals, which can impede their ability to successfully operate and integrate AI tools into existing HR processes. Ethical and cultural considerations also play a crucial role, particularly concerns related to data privacy, confidentiality, and employee surveillance, which may cause organizations to be cautious about AI deployment (Wójcik, 2025). Moreover, the potential for algorithmic bias to perpetuate societal inequalities raises ethical concerns that can affect acceptance of AI in HR practices. Despite these hurdles, an increasing number of organizations are beginning to recognize the potential benefits of AI in HRM, reflecting a gradual move toward innovation. Overcoming these barriers effectively will require intentional efforts to foster trust, enhance transparency, and promote ongoing learning within organizational structures.

5. Technical Barriers to AI Adoption Human Resource Management

The adoption of Artificial Intelligence (AI) in human resource management (HRM) faces several significant technological challenges that hinder effective implementation. These include limited technological infrastructure, concerns about data quality and privacy, insufficient digital skills among HR professionals, and high costs associated with integration and maintenance. Many organizations lack the necessary IT systems to support AI applications, which can impede adoption efforts (Şimşek & Şimşek, 2025). Additionally, AI systems require accurate, reliable, and secure data; therefore, issues related to data quality and confidentiality pose considerable obstacles. The digital competencies of HR professionals further influence adoption, with limited skills potentially leading to resistance and suboptimal use of AI tools. Moreover, the high costs associated with acquiring, integrating, and maintaining AI technologies may discourage organizations from pursuing these innovations. Despite these challenges, addressing these barriers highlights the importance of strategic investments in digital infrastructure and capacity development. Ultimately, the potential long-term benefits of AI such as increased efficiency, improved decision-making, and greater strategic value within HRM may motivate organizations to adopt innovative approaches to overcome these hurdles.

6. Guidelines for the Optimal Integration of Artificial Intelligence in Human Resource Management Processes

The effective integration of artificial intelligence (AI) into Human Resource Management (HRM) has become a key priority in contemporary organizational strategy. As AI technologies influence HRM functions ranging from recruitment and selection to employee engagement organizations should carefully consider recommendations that facilitate successful implementation. First, gaining a comprehensive understanding of AI's capabilities and potential impacts is crucial. Research indicates that AI tools, such as machine learning and natural language processing, significantly enhance HRM processes, underscoring the importance of foundational knowledge of these technologies for HR professionals (Huchaiyah, and Kasubi, 2021). Premised on the ongoing discussion; to support effective adoption, organizations are encouraged to develop targeted training programs aimed at building AI competencies among their staff. Enhancing employee skills related to AI can alleviate concerns about technological displacement and foster a sense of empowerment. A multidimensional framework proposed that emphasizes the importance of integrating cognitive, structural, and relational resources to facilitate AI adoption within HR practices. This approach aligns with findings from relevant studies which highlight both the opportunities and challenges

associated with AI in HRM, indicating that organizations should prepare for technological advancements as well as address the human factors involved. Furthermore, it is essential for organizations to establish strong ethical guidelines and regulatory frameworks to address potential concerns related to AI deployment. The integration of AI should prioritize operational efficiency alongside considerations of data privacy, employee confidentiality, and algorithmic fairness. The preceding assertion emphasizes that AI's impact on HRM includes important ethical and regulatory considerations, recommending that organizations give these aspects appropriate attention during implementation. Ensuring transparency and accountability in AI systems is also vital for maintaining trust within the workforce. Regarding HRM practices, a phased approach starting with small-scale pilot projects and gradually expanding is advisable. The literature suggests that iterative experimentation and feedback mechanisms are effective strategies for integrating AI technologies while minimizing potential disruptions. For example, AI applications could initially be used to streamline recruitment processes, demonstrating their value before further deployment in areas such as performance management and employee development. Additionally, fostering a culture of continuous learning and adaptability is critical as AI technologies rapidly evolve. HR departments should remain agile by staying informed on emerging trends and best practices in AI, which can be achieved through ongoing training and professional development initiatives. This approach supports HR professionals in adapting to new AI tools and enhances their strategic contributions within the organization (Serey et al., 2023). In summary, successful adoption of AI in HRM requires a comprehensive strategy that includes developing HR capabilities, establishing ethical and regulatory standards, initiating pilot projects, and promoting a culture of continuous improvement. When strategically integrated, AI has the potential to significantly enhance HR practices, leading to improved organizational performance and increased employee satisfaction.

7. Conclusion

In summary, integrating Artificial Intelligence (AI) into Human Resource Management (HRM) signifies a significant advancement in organizational strategy, offering notable improvements in efficiency, decision-making, and employee-focused processes. As detailed in this study, AI applications encompass key HR functions including recruitment through automated screening and candidate matching, training via personalized learning platforms, performance management supported by data analytics, employee engagement through sentiment analysis, and predictive modeling for turnover prediction. These innovations not only enhance operational efficiency but also contribute to creating a fairer and more responsive workplace environment, ultimately improving organizational performance and employee satisfaction.

Nevertheless, the implementation of AI faces several challenges. Organizational barriers such as resistance to change, limited digital skills, ethical concerns regarding bias and privacy, and high costs of deployment highlight the importance of strong leadership and cultural change. Technical obstacles, including infrastructure limitations, data quality issues, and skill gaps, underscore the need for strategic investments in technology and staff training. To address these challenges, recommended strategies include increasing AI literacy among HR professionals, establishing ethical governance frameworks, adopting phased pilot programs, and fostering a culture of continuous learning and adaptability.

Evidence from the literature review and analysis indicates that while AI presents certain risks, responsible and strategic deployment can mitigate these concerns and enable transformative benefits. Organizations that prioritize ethical considerations, stakeholder engagement, and iterative integration are better positioned to leverage AI's potential, supporting sustainable HRM practices in an increasingly digital environment.

Future research should focus on longitudinal case studies of AI implementation across various industries and cultural contexts to evaluate long-term impacts on workforce dynamics and

equity. Additionally, exploring emerging AI technologies, such as advanced generative models, can provide deeper insights into evolving HRM practices. By addressing these areas, scholars and practitioners can further enhance strategies for AI adoption, enabling technology to augment human capabilities rather than replace them.

8. Bibliography

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