EXPLORING THE ROLE OF AI IN HRM: A LITERATURE REVIEW

Sai Lakshmi V[*]
Dr. S Nafeesa[**]

ABSTRACT

In the contemporary business landscape, artificial intelligence (AI) has emerged as a transformative force across multiple industries, with India positioning itself as a significant growth center for global technology firms, as evidenced in the World Bank's 2022 "Navigating the Storm" report. Many organizations strive to maintain competitive advantage and operational efficiency; AI-driven solutions have become increasingly essential components of modern HRM practices. The implementation of AI technologies in HRM processes offers considerable benefits, including cost reduction, time optimization, and enhanced strategic resource allocation. The application of AI in recruitment, on boarding, and performance management, which substantially reduces administrative burden for HR departments. This study examines the pivotal role of AI integration within human resource management (HRM) functions, analyzing both its strategic advantages and inherent challenges. Organizations face significant challenges including high implementation and maintenance costs, data privacy concerns, and cyber security vulnerabilities. While existing research has extensively explored AI applications in recruitment and selection processes, notable research gaps remain in other critical HRM domains including performance management, career development, training initiatives, and employee retention strategies. This study investigates the multifaceted implications of AI integration across HRM functions. AI, defined as a computer science field that leverages databases for accelerated problem-solving and decision-making, represents a genesis technology experiencing multiple developmental cycles. As an umbrella term encompassing machine learning, deep learning, and natural language processing, AI offers significant potential for automating routine tasks, thereby reducing costs, conserving time, and minimizing human error. This research contributes to the understanding of how AI technologies can be strategically deployed to enhance HRM effectiveness while addressing implementation challenges.

***KEYWORDS**: HRM, Artificial Intelligence, Global Technology Firms, Research Gaps, Decision-Making.*

Introduction

The integration of Artificial Intelligence (AI) into Human Resource Management (HRM) has emerged as a significant area of research and organizational interest. The review employs a thematic approach to present the current state of knowledge in this rapidly evolving field. Artificial Intelligence (AI) has as a transformative force in Human Resource Management (HRM), restructure traditional practices in recruitment, performance evaluation, training, and administrative functions. Organizations worldwide are increasingly adopting AI-driven solutions to enhance operational efficiency, reduce manual workloads, improve decision-making accuracy, and gain competitive advantages in talent acquisition and management. The integration of AI technologies like automated applicant tracking systems, chat bots, predictive analytics, and intelligent decision support tools is reshaping how HR departments function, shifting focus from transactional activities to more strategic contributions. While promising significant benefits in efficiency, objectivity, and scalability, this technological evolution also presents notable

---

[*] Research Scholar, The Quaide Milleth College for Men, Medavakkam, Chennai, Tamil Nadu, India.
[**] Assistant Professor & Research Supervisor, The Quaide Milleth College for Men, Medavakkam, Chennai, Tamil Nadu, India.

challenges related to implementation barriers, ethical considerations, data privacy concerns, and the need to maintain human judgment in sensitive personnel matters. This literature review examines the current landscape of AI applications in HRM, exploring implementation approaches, realized benefits, persistent challenges, and future directions as organizations navigate the complex balance between technological innovation and the fundamentally human nature of workforce management.

AI Transformation of Core HR Functions

- **Recruitment and Selection**

AI has fundamentally transformed recruitment processes by enhancing efficiency and effectiveness (Rizwan Khan et al., 2023). Automated tools like Applicant Tracking Systems streamline candidate evaluation, enabling swift, cost-effective selection while managing high volumes of applications (Ranjai Meshram, 2023). AI's potential to transform recruitment management despite implementation challenges and emphasize how AI-enhanced analysis improves efficiency, scalability, and decision quality in hiring processes. Notably, AI tools facilitate access to broader and more diverse candidate pools, potentially reducing traditional biases in recruitment (Kshetri, 2021).

- **Performance Management and Employee Development**

AI enables more objective performance management systems and facilitates data-driven employee development strategies (Nouf Abdulla, 2024). AI enables intelligent decision-making, personalized training, and enhanced performance evaluation, AI improves training and orientation processes, leading to better employee performance and satisfaction. AI-enabled tools not only streamline operations but reduce manual efforts and enhance decision accuracy across core HR functions including training and employee engagement (Saxena ,2020) .

- **Administrative Functions and Process Automation**

AI's role in enhancing operational efficiency, particularly in data collection and analysis functions. The automation of routine tasks , big data analysis , and increased processing speed represent significant advantages of AI implementation in HR (Tabor-Błażewicz, 2023). How organizations like SAT, Face book, and GE utilize AI tools such as chat bots and automated systems to improve efficiency and reduce administrative workloads (Vivek Yawalkar ,2019).

Benefits and Strategic Value of AI in HRM

- **Enhanced Efficiency and Decision Quality**

Multiple studies highlight AI's capacity to enhance HR efficiency through automation and data-driven insights. AI significantly increases efficiency, effectiveness, and decision-making quality in HR practices. Digitalization reduces human error, bias, and operational costs, making HR practices more effective overall(Khan & Khan ,2023).

- **Strategic Transformation and Value Creation**

AI implementation helps shift HR from transactional to strategic functions. Sun Yi (2024) notes how AI adoption could transform HR managers' roles from transactional tasks to more strategic positions. This transformation contributes to improved competitiveness and sustainable development of organizations (Limin Han, 2024). Several researchers) emphasize that AI integration helps organizations remain competitive in rapidly changing business environments.

- **Sustainability and Ethical Considerations**

AI's potential in promoting sustainable and green HR practices, highlighting applications in energy management and smart building technologies. AI adoption can lead to cost savings, improved employee health, and enhanced corporate reputation. This dimension adds important ethical and sustainability perspectives to AI's strategic value in HR(Rastogi & Pandya ,2023).

Implementation Challenges and Considerations

- **Technical and Organizational Barriers**

Despite promising benefits, organizations face significant challenges in AI implementation. found that only a few companies have fully incorporated AI into recruitment processes, with organizational readiness being the main obstacle to adoption(Rizwan Khan et al.,2023). Identified challenges including organizational culture, technological infrastructure, policies, and human resource skills (Agustono et al,2023).

- **Ethical Concerns and Human Element**

Ethical considerations represent a critical dimension of AI implementation in HRM and reports that primary disadvantages of AI include absence of human empathy difficulty in comprehending complex issues and limited creativity (Tabor-Błażewicz ,2023) .Many researcher highlighted concerns regarding system bias and ethical considerations in AI-driven HR processes. Emphasize the ongoing need for human oversight and judgment to ensure AI applications in HR are implemented ethically and effectively (Menaka ,2023).

Literature Review

Nouf Abdulla, (2024) explored the integration of artificial intelligence into human resource management practices, emphasizing its potential to enhance productivity and efficiency within organizations. The researcher explains how AI tools streamline recruitment processes, improve onboarding experiences, and facilitate objective performance management while addressing challenges like system bias and ethical concerns.

Sun Yi, (2024) explored how artificial intelligence can be effectively utilized in HR recruitment and analyzed the current scenario of traditional recruitment processes. While AI integration presents challenges, it offers valuable opportunities for enhancing recruitment and could transform HR managers' roles from transactional tasks to more strategic positions, improving overall efficiency and effectiveness.

Limin Han, (2024) studied the feature of big data and the application of AI like decision-making, personalized training, and performance evaluation in HR. The researcher concluded that leveraging big data and AI can significantly improve HR efficiency, decision quality, and employee satisfaction while advocating for enterprises to address challenges such as data privacy, security, and ethical issues.

Agustono et al., (2023) evaluated companies' capability to implement AI in HR practices, finding that AI can significantly increase efficiency, effectiveness, and decision-making quality. Their research identified challenges including organizational culture, technological infrastructure, and human resource skills, recommending that future efforts focus on training, infrastructure development, and fostering an organizational culture that supports AI adoption.

Saklani & Khurana, (2023) emphasized that organizations must adopt new technologies, particularly AI, to enhance operational efficiency in human resource management. AI is highlighted as an essential tool that facilitates various HR functions such as recruitment, performance analysis, and data collection, ultimately contributing to improved productivity and employee satisfaction.

Ranjai Meshram, (2023) found that AI can significantly enhance the recruitment process by streamlining candidate evaluation and improving contact with potential employees. The results indicate a major association between AI implementation and improved candidate sourcing, reduced ambiguity, and enhanced workforce planning in organizations, reinforcing the value of AI in modern HR practices.

Rastogi & Pandya, (2023) explored the potential of AI in promoting sustainable and green HR practices and analyzed how AI can identify energy consumption patterns and facilitate energy management. The researchers concluded that while challenges exist, embracing AI opportunities can lead to a greener future, improved organizational performance, and sustainable HR practices.

Tabor-Błażewicz, (2023) identified that major benefits of AI in HR include automation of routine tasks (94%), big data analysis (90%), and speed (72%), while main disadvantages include absence of human empathy (82%), difficulty in comprehending complex issues (72%), and limited creativity (48%). The researcher concluded that AI has significant potential to improve HR processes but faces barriers like ethical concerns and lack of understanding.

Khan & Khan, (2023) explained the impact of Industry 4.0 and AI on Human Resource Management, exploring how digitalization and AI tools enhance HR processes. Their research found that AI significantly streamlines recruitment, enhances training and orientation processes, and reduces human error and operational costs, though challenges include the need for skills development and potential resistance to change.

Rizwan Khan et al., (2023) found that only a few companies have fully incorporated AI into their recruitment processes despite its potential to make recruitment more efficient and effective. The main obstacle to adoption is organizational readiness, including technological infrastructure and cultural acceptance, suggesting future efforts should focus on improving organizational preparedness.

Vikas, Tomer, & Panwar, (2023) determined that AI-enhanced analysis can improve efficiency, scalability, and decision quality in the recruitment process. Their research focused on how AI can help identify and address biases through analyzing interview data more comprehensively, promoting fair and inclusive hiring practices while considering ethical issues like privacy and security.

Menaka ,(2023) explained AI's role in recruitment, performance monitoring, and employee development, noting that implementation faces challenges like potential biases in algorithms and organizational reluctance to fully adopt AI. The researcher concluded that while AI can transform HR functions substantially, organizations should balance AI use with human judgment to mitigate ethical issues and biases.

Kshetri ,(2021) employed multiple case studies of AI tools used in HRM within countries in the Global South, finding that AI deployment enhances efficiency in recruitment and employee management while helping access a broader and more diverse candidate pool. The research concluded that AI has significant potential to transform HRM practices in emerging economies despite challenges related to data access and infrastructure.

Saxena, (2020) observed that AI has progressively transformed core HR processes such as recruitment, onboarding, training, and employee engagement by streamlining operations, reducing manual efforts, and enhancing decision accuracy. The research concluded that HR professionals need to adapt to technological changes brought by AI despite challenges including reliance on data accuracy and resistance to change.

Yawalkar ,(2019) documented how organizations like SAT, Facebook, and GE are utilizing digital technologies to enhance HR functions, with AI tools improving efficiency, reducing administrative workloads, and speeding up candidate selection. The research concluded that while AI offers significant benefits, successful implementation requires overcoming challenges related to technology integration and maintaining the human element in HR roles.

Tambe, Cappelli, & Yakubovich,(2018) found that many companies are unprepared to utilize AI effectively due to data limitations or ethical concerns. The authors concluded that successful AI integration into HR management requires organizations to adopt principles that prioritize both economic efficiency and social appropriateness, combining technical solutions with ethical strategies to maintain fairness and employee trust.

Future Research Directions

The literature reveals several significant research gaps. Most studies note insufficient empirical research on implementation challenges across different organizational contexts and limited investigation into HR professionals' readiness and resistance barriers. future research can focus on broader social and ethical impacts of AI in HR, while several authors call for more longitudinal and case study research to understand AI's evolving impact over time. Additional research needs include exploring advanced AI technologies, measuring impact on company performance, developing context-specific frameworks, and addressing implementation challenges with practical solutions.

Conclusion

AI has transformative potential in HRM, offering significant benefits in efficiency, decision quality, and strategic capability. However, successful implementation requires addressing technical, organizational, and ethical challenges. As AI continues to evolve, the balance between technological capability and human judgment remains crucial for maximizing AI's positive impact on HR practices. Future research should focus on developing practical frameworks for ethical AI implementation and measuring the long-term impact of AI on organizational .The literature review reveals that AI is profoundly transforming human resource management across multiple dimensions. Research consistently demonstrates AI's capacity to enhance efficiency, improve decision quality, and enable more strategic HR functions. Key benefits include streamlined recruitment processes, objective performance management, personalized employee development, and reduced administrative burden. However, successful implementation requires addressing significant challenges, including organizational readiness, technological infrastructure, ethical considerations, and the need to maintain human judgment in sensitive HR processes. The future of AI in HRM lies in balancing technological capabilities with human expertise, ensuring ethical governance, and developing context-specific implementation frameworks. As organizations continue to navigate digital transformation, AI adoption in HR represents not merely a

technological shift but a fundamental reimagining of how organizations manage their human capital to create sustainable competitive advantage.

References

1.   Abdulla, N. (2024). The human resources management and artificial intelligence. *Journal of Human Resource and Leadership*, 9(3), 13–18. https://doi.org/10.47604/jhrl.2635

2.   Saklani, N., & Khurana, A. (2023). Influence of artificial intelligence in human resource management: A comprehensive review. *International Journal of Engineering and Management Research, 13*(5).https://doi.org/10.31033/ijemr.13.5.3

3.   Jose, Sajin. "Innovation in Recruitment and Talent Acquisition: A Study on Technologies and Strategies Adopted for Talent Management in IT Sector." International Journal of Marketing and Human Resource Management, vol. 10, no. 2, 2019, pp. 1–8. http://www.iaeme.com/IJMHRM/issues.asp?JType=IJMHRM&VType=10&IType=2.

4.   Sun, Y. (2023). Efficiency optimization of enterprise recruitment management in the context of artificial intelligence. The University of Melbourne.

5.   Meshram, R. (2023). The role of artificial intelligence (AI) in recruitment and selection of employees in the organization. Russian Law Journal, 11(9s), 322-332.

6.   Han, L. (2024). Research on big data and artificial intelligence driven human resource management innovation. Frontiers in Business, Economics and Management, 14(1), 7.

7.   Rastogi, S., & Pandya, Y. (2023). The role of AI in human resource management practices. International Journal of Scientific Research in Engineering and Management, 7(12), 1-5. https://doi.org/10.55041/IJSREM27769

8.   Tabor-Błażewicz, J. (2023). Artificial intelligence adoption in human resources management. In M. Hajdas (Ed.), Game changers in management (pp. 30–43). Wrocław University of Economics and Business Publishing House.

9.   Khan, S. N., & Khan, S. U. (2023). A review of industry and AI impact on human resource management. Journal of Advancement in Computing, 2(1). https://doi.org/10.36755/jac.v2i1.60

10.   Rizwan khan et al. (2023). Revolutionizing human resource management: The transformative impact of artificial intelligence (AI) applications (pp. 306–326). International Journal of Social Science and Entrepreneurship, 3(4).

11.   Vikas, Tanuja Tomer, & Rajneesh Panwar. (2023). AI-enabled interview analysis: Unveiling insights and enhancing decision-making in human resource management. International Journal of Scientific Research in Engineering and Management, 07(07), 1-9. https://doi.org/10.55041/IJSREM24357

12.   Kshetri, N. (2021). Evolving Uses of Artificial Intelligence in Human Resource Management in Emerging Economies in the Global South: Some Preliminary Evidence. Management Research Review. https://doi.org/10.1108/MRR-03-2020-0168

13.   Saxena, A. (2020). The growing role of artificial intelligence in human resource. EPRA International Journal of Multidisciplinary Research (IJMR), 6(8). https://doi.org/10.36713/epra4924

14.   Menaka, R. (2023). Role of artificial intelligence (AI) in human resource management (HRM) in recent era. Shanlax International Journal of Management, 11(2), 32–38. https://doi.org/10.34293/management.v11i2.6664

15.   Agustono, D. O. S., Nugroho, R., & Fianto, A. Y. A. (2023). Artificial Intelligence in Human Resource Management Practices. Proceedings of the International Conference on Advance & Scientific Innovation (ICASI), 958–970. https://doi.org/10.18502/kss.v8i9.13409

16.   Vivek V. Yawalkar. (2019). A study of artificial intelligence and its role in human resource management. International Journal of Research and Analytical Reviews, 6(1), 22-24. https://doi.org/10.XYZ

17.   Tambe, P., Cappelli, P., & Yakubovich, V. (2018). Artificial intelligence in human resources management: Challenges and a path forward. SSRN Electronic Journal. https://doi.org/10.2139/ssrn.3263878.

❑❑❑