

IMPACT OF ARTIFICIAL INTELLIGENCE AND AUTOMATION ON HUMAN RESOURCE MANAGEMENT IN NIGERIA

Usman Adamu Babayayi,¹ Abubakar Sadiq Sulieman,² Jamilu Inuwa,³ Jibril Ramalan⁴

ABSTRACT:

This review synthesizes the existing literature on the impact of artificial intelligence (AI) and automation on Human Resource Management (HRM) practices. The study explores literature and reveals how AI disrupts the traditional way of conducting HRM practices with tech innovative ideas to harness and promote the HRM practices in 21st-century industries, and its scope includes areas like efficiency and productivity, recruitment and talent acquisition, workforce development and training, and lastly, ethical considerations and challenges. A comprehensive search was conducted across academic databases, HRM journals, and conference proceedings, resulting in a selection of relevant studies. The study strictly aims to ascertain how AI affects HRM, and the research uses theoretical literature review as a research method. Plethora of publications serve as the research materials for this study, which employs a theoretical literature review methodology. The authors discovered that AI has an impact on HR professionals' abilities, job displacement, and position creation. AI should be encouraged by *HR managers to boost productivity*.

Author's Affiliation:

Federal University Dutsin-ma
Katsina ¹²³⁴

Keywords:

Artificial intelligence; Automation;
Human resource management;
Productivity;..

Corresponding Mail:

uababayayi@fudutsinma.edu.ng

assuleiman@fudutsinma.edu.ng

inu wajamyl@gmail.com

rjibril@fudutsinma.edu.ng

Introduction

The advent of artificial intelligence (AI) and automation has transformed various organizational functions, notably human resource management (HRM). It was believed that AI and automation bring drastic changes in multiple industries with new challenges and possible opportunities in the organizations (Bannett 2022; Wilson & Doherty 2018). Researchers in the field of HRM, such as Ekuma (2023), stressed the importance of integrating AI and automation into HRM processes as pivotal because it enhances efficiency, accuracy, and strategic decision-making. This submission was supported by the work of Eze in (2024) which emphasized on AI integration in industries, including Nigeria, enhances workforce efficiency and has the potential to create new jobs, although it may also lead to an imbalanced workforce, affecting HRM practices and strategies.

International bodies have highlighted the importance of adopting AI and automation in HRM. The International Labour Organization (ILO, 2023) emphasizes that technological innovations, including AI, are transforming work dynamics and necessitate adaptive HR strategies to manage this transition effectively. Similarly, the World Economic Forum (WEF, 2021) highlights that AI-driven HR practices can lead to more equitable and efficient workplaces. Statistically, Gartner's (2018) research on AI adoption in global organizations surveys underscores AI as the foremost strategic technology, highlighting its potential to revolutionize decision-making processes, reshape business models and ecosystems, and enhance customer experiences, thereby driving the success of digital initiatives. According to the survey, 59% of organizations are currently in the information-gathering phase to formulate their AI strategies, while the remaining percentage has already initiated piloting or implementing AI solutions, indicating a significant momentum toward AI integration across diverse industries.

On this note scholars, such as Bhatt and Maduli (2022), stressed that AI and automation have caused a serious shift in the organization which calls for re-evaluation of how work and the total systems should transform in order to accommodate the revolution. They argue that such technological advancement in organizations calls for massive transformation. However, it is in this regard that researchers such as Gowrsishankkar, Shanmugan, and Muhammed (2024) pay closer attention and observe a complex pattern of how organizations move around between total

automation or mixing traditional methods in conducting HRM practices, which they tag as a cautious approach towards the unforeseen consequences of AI.

In addition to the undesirable impact of AI and automation of work, scholars such as Olusegun, Owulabi and Danduravan (2024) submitted that AI negatively impacts employee quality of work life and organizational performance in Nigeria, highlighting drawbacks such as lack of creativity, emotional intelligence, and ethical decision-making, which challenge the effectiveness of AI in human resource management. On the other hand, Johnson and Gueutal (2012) earlier assert that integrating technology into HRM is essential for organizations aiming to maintain competitiveness in a rapidly evolving digital landscape. Moreover, Holland et al. (2015) discuss how electronic monitoring and surveillance, facilitated by AI, can enhance HR processes while also presenting ethical considerations.

This difference in perspective not only reflects the complexities inherent in the integration of AI and automation in HRM but also highlights the need for a balanced discussion that acknowledges the opportunities and challenges presented by technological advancements. In this context, it becomes crucial to critically analyse and understand the multidimensional impact of the integration of AI and automation in HRM. This exploration should not be limited to the functional application of AI and automation in HRM but should also extend to its strategic significance. Indeed, as organizations increasingly rely on technology to improve operational efficiency, it becomes imperative to understand the broader impact of these technologies on HRM outcomes. This is especially true given that HRM professionals are tasked with balancing technical efficiency with ethical considerations and human factors, and the evidence base is critical for informed decision-making. The debate about the role of AI and automation in HRM therefore concerns not only its operational efficiency but also its potential impacts on society and human development, including issues of equity, job security and skills development (Agarwal, Gupta, & Roshani, 2023).

This article aims to contribute to this ongoing discussion by highlighting literature reviews concerning the relationship between AI, automation and HRM practices in Nigeria and the future of organizations and how employees could face challenges, opportunities and mixed reactions regarding the automation of work and the impact of AI algorithms in the workplace. Despite these acknowledged benefits, several challenges necessitate ongoing research. Concerns about data

privacy, potential biases in AI algorithms, and the displacement of HR professionals due to automation are pertinent issues that warrant comprehensive examination. Addressing these problems is crucial to fully harness the potential of AI and automation in enhancing HRM performance.

Literature Review

A comprehensive review of existing literature reveals the multidimensional impact of AI and automation on human resource management. AI applications in HRM include recruitment and talent acquisition, enhanced efficiency, employee development, training and retention strategies. For example, AI-driven tools can analyze large data sets to identify ideal candidates, thereby streamlining the recruitment process and reducing recruitment time. In addition, AI facilitates personalized employee development plans by assessing individual performance indicators and predicting future training needs.

Concept of Artificial Intelligence

Artificial Intelligence (AI) encompasses the development of computer systems capable of performing tasks that typically require human intelligence, such as learning, problem-solving, decision-making, perception, and language understanding. This rapidly evolving field leverages complex algorithms and vast datasets to enable machines to mimic and even surpass human cognitive abilities in specific domains. The applications of AI are diverse, ranging from healthcare diagnostics and personalized education to autonomous vehicles and financial forecasting. In Nigeria, recent contributions highlight the growing engagement with AI. For instance, Akinadewo and Adekahunsi (2025) discusses the transformative role of AI tools in healthcare, particularly in improving access to immunization information through services like Clafiya and AwaDoc. This work underscores AI's potential to bridge communication gaps and enhance public health outcomes. Furthermore, Echendu and Udeokechukwu (2025) delve into the critical area of AI and Machine Learning in healthcare, focusing on developing privacy-preserving frameworks to safeguard sensitive patient data. Their research emphasizes the ethical considerations and the need for robust data protection protocols. AI integration can be used in different sectors of the economy

and service industries. Human resource professional can play a significant role in adapting the technique of AI in managing ethical considerations and other dimension of HRM practices.

Concept of Automation

Automation refers to the creation and application of technology to make systems or processes operate automatically, minimizing human intervention. This concept is central to enhancing efficiency, productivity, and reliability across various sectors by mechanizing repetitive tasks and complex operations. Automation leverages diverse technologies, including robotics, artificial intelligence, and control systems, to achieve its objectives. In Nigeria, recent academic contributions highlight the growing interest and application of automation. For instance, Zainab Jamila (2025) explores the impact of warehouse automation on inventory accuracy in Nigeria, demonstrating how technologies like barcode scanning and RFID tagging reduce errors and improve data capture. This research underscores the practical benefits of automation in supply chain management within the Nigerian context. Furthermore, Ogungbenro, Ugwunwa, Olowoporoku, and Abraham (2025) discuss the transformative role of artificial intelligence, including robotic process automation, in revolutionizing library services in Nigerian academic institutions. Their work illustrates how automation can streamline cataloguing operations and enhance access to information, showcasing its potential beyond industrial applications. These studies collectively emphasize the increasing adoption and exploration of automation's capabilities in Nigeria, addressing both its advantages and the challenges of implementation. On this note the paper will review existing literature on the impact of AI on HRM, considering different dimensions of HRM practices, and show how AI tech can be impactful in that regard.

Enhanced efficiency and productivity

AI and automation have significantly enhanced the efficiency and productivity of HRM processes in Nigeria. Automated systems have streamlined tasks such as payroll management, employee data tracking, and performance monitoring, reducing the likelihood of human error and freeing up HR professionals to focus on more strategic initiatives. For instance, AI-powered tools have been instrumental in optimizing recruitment processes, enabling organizations to quickly identify top candidates and reduce the time-to-hire (Gowarishankkar et al., 2024; Toe & Goh, 2022).

Moreover, AI-driven analytics has enabled human resource managers to make data-driven decisions, improving organizational performance. For example, predictive analytics can forecast employee turnover rates, allowing HR departments to implement proactive retention strategies (Toe & Goh 2022; Olaniyi et al, 2024) This shift towards data-driven decision-making has been particularly beneficial in the Nigerian banking sector, where AI has been used to enhance customer deposits through improved HR practices (Adewoye & Olugbenga 2017).

Tiwari (2020) argues that AI does not completely eliminate human workers and that organizations need to focus on their workforce needs and future impacts. He stresses that AI can be used to perform tasks that typically involve human knowledge, such as data description, interpretation, and prediction. AI is being increasingly used in HR activities like hiring, training, and performance review, but most organizations still lag behind in fully incorporating AI into their HR processes due to deployment costs. There are concerns about how AI may affect job growth and employment in the future, but employees who master the usage have an added advantage.

Recruitments and talent acquisition

AI has revolutionized the recruitment process in Nigeria, making it more efficient and equitable. AI-powered recruitment tools, such as applicant tracking systems (ATS), have enabled organizations to sift through large volumes of resumes and identify the most suitable candidates based on predefined criteria. This has not only reduced the time spent on manual screening but also minimized biases in the selection process (Jafri et al., 2024; Mollay et al., 2024).

Furthermore, AI has enhanced the candidate experience by providing personalized communication and timely updates throughout the recruitment process. This has led to higher candidate satisfaction and improved employer branding (Jafri et al., 2024; Trore & Sanogo, 2023). In Nigeria, where the talent market is highly competitive, AI-driven recruitment tools have become essential for attracting and retaining top talent.

In addition, AI techniques and their subset, computational intelligence techniques (CIT), are not new to human resource management, and since their introduction, a heterogeneous set of suggestions on how to use AI and computational intelligence in human resource management has improved the recruitment process in organizations. On this note, Strohmeier & Piazza (2015) argue

that the potential of AI in HRM could be explored in six selected scenarios: turnover prediction with artificial neural networks, candidate search with knowledge-based search engines, staff rostering with genetic algorithms, HR sentiment analysis with text mining, resume data acquisition with information extraction and employee self-service with interactive voice response.

Workforce development and training

AI has also played a crucial role in workforce development and training in Nigeria. AI-powered learning management systems (LMS) have enabled organizations to provide personalized training programs tailored to the specific needs of each employee. These systems use machine learning algorithms to track employee progress and recommend additional resources based on performance gaps (Jibouri 2024; Tiwari 2024)

Moreover, AI has facilitated the adoption of remote learning platforms, which have become increasingly popular in Nigeria, especially in the wake of the COVID-19 pandemic. These platforms have enabled employees to access training materials and participate in virtual classrooms, ensuring continuous skill development despite physical constraints. (Tenekwa & Watson 2024; Jobouri 2024)

In learning and development, for instance, AI and automation, with their abilities for data analysis and pattern recognition, are modernising the way learning needs are identified and addressed. AI algorithms also analyse employee feedback using natural language processing and machine learning, thereby unveiling actionable insights related to employee skill gaps and teaching needs (Agarwal et al., 2023). The implementation of AI in HRM, therefore, facilitates highly personalized learning experiences and informs the identification of skill gaps through data analytics of the employees, ensuring that each employee receives training that is most relevant and effective for them (Brynjolfsson & Mitchell, 2017; Kabudi et al., 2021).

In addition to the overall impact of AI in training and workforce development, Saklani & Khurana (2023) stress the need to improve efficiency and how human resource management is expected to automate routine tasks, streamline processes, and improve employee performance. AI is being

used in almost all aspects of HRM to evaluate job applicants, conduct interviews, and identify talent. AI can help reduce bias and increase transparency in the hiring process and can automate routine HR tasks, allowing employees to focus on more strategic work.

Furthermore, AI is being increasingly integrated into human resource management to transform employee experience and improve HR functions. AI plays a significant role in transforming and advancing various HR functions, from recruitment to performance management (Saxena, 2020). The adoption of AI has changed the role of HR managers from being focused on administrative tasks to taking a more strategic approach, and the future of business will involve a combination of human and digital (AI) resources, with AI being a driver of change and improvement in HR (Saxena, 2020).

Ethical considerations and challenges

Despite the numerous benefits of AI and automation in HRM, there are several ethical considerations and challenges that organizations in Nigeria must address. One of the primary concerns is the potential for AI systems to perpetuate biases and discrimination in recruitment and other HR processes. For instance, if an AI algorithm is trained on biased data, it may unfairly disadvantage certain groups of candidates (Gowashinkkar et al 2024; Venugopal et al, 2024)

Another significant challenge is the issue of data privacy and security. As AI systems collect and process large volumes of employee data, there is a risk of data breaches and misuse. Organizations must implement robust data protection measures to ensure the confidentiality and integrity of employee information (Oma-amougu n.d.; Praba et al., 2024).

Additionally, Tambe et al. (2019) argues that the adoption of AI for HRM faces four major challenges, namely the complexity of the HR phenomena, small data, ethical constraints, and the reaction of employees to the implementation of artificial intelligence. On top of that, Giermindl et al. (2021) and Malik et al. (2021) highlight the importance of privacy and data protection concerns, issues stemming from constant tracking, and the potential of bias in the algorithms themselves. Other barriers include, assessing the data quality to ensure the decisions and recommendations are precise, accurate and relevant (Ransbotham, et al., 2020; Kiron and Schrage, 2019).

To nurture trust and gain approval from employees, it is crucial to provide vibrant and justifiable explanations for AI-driven decisions, thus promoting clarity and impartiality (Thite, 2022). Organizations should establish clear communication channels to inform employees about the use of AI and automation in HRM processes and their potential implications, ensuring transparency and fostering a sense of fairness (Saxena & Kumar, 2020). HRM professionals must also remain updated on the evolving regulatory landscape and ethical discussions surrounding AI usage (Rodgers et al., 2023).

Methodology

We executed a systematic review of the extant literature in accordance with the protocol explained in the scholarly works (Tranfield, 2003; Denyer and Tranfield, 2009; Wolfswinkel, 2013; Hopp 2018) to guarantee that the review process is characterized by transparency and reproducibility. In light of the fact that this investigation constitutes a review of pre-existing literature, the methodology encompasses a critical examination of peer-reviewed articles, industry reports, and case studies pertinent to artificial intelligence and automation within the domain of human resource management. This analytical critique emphasizes the identification of patterns, gaps, and emerging trends to furnish a comprehensive understanding of the subject matter. The criteria employed for the selection of literature encompass relevance to the topic, the credibility of sources, and the timeliness of publications to ensure the provision of current insights.

Conclusions and Recommendations

The adoption of Artificial Intelligence (AI) and automation in Human Resource Management (HRM) offers considerable potential to improve organizational performance through the optimization of various HR functions. Nevertheless, realizing these benefits requires organizations to address several critical challenges, including ethical concerns, data protection issues, and the potential displacement of HR personnel.

Within the Nigerian context, effective integration of AI and automation necessitates a strategic implementation framework. This should encompass the formulation of AI-specific policies and

governance structures to guide ethical usage and minimize associated risks (Vonugopal et al., 2024). Furthermore, there is a pressing need to continuously up skill and reskill HR professionals to ensure alignment with evolving technological advancements. This can be facilitated through targeted professional development initiatives and collaborations with academic institutions aimed at cultivating relevant AI competencies (Muhammad & Adam, 2023; Olaniyi et al., 2024).

The influence of AI and automation on HRM practices in Nigeria is increasingly evident, particularly in the enhancement of recruitment processes, operational efficiency, and individualized employee development strategies. However, ethical and practical considerations must be systematically addressed to ensure the equitable and sustainable application of these technologies.

A strategic and forward-looking approach will enable Nigerian organizations to maximize the benefits of AI and automation in HRM, thereby enhancing their long-term competitiveness in the global market. Future research should focus on establishing ethical frameworks for AI deployment in HRM, identifying effective mechanisms for upskilling HR practitioners, and developing methods to detect and mitigate algorithmic bias. Addressing these areas will contribute to the development of more efficient, equitable, and adaptable HRM systems.

References

- Adewoye, O., & Olugbenga, O. (2017). Evaluation of the effects of E-HRM on customer deposits in selected deposits money banks in Nigeria. Emerald Publishing Limited.
- Agarwal, S., Gupta, A., & Roshani, P. (2023). Redefining HRM with artificial intelligence and machine learning. In *The adoption and effect of artificial intelligence on human resources management, Part A* (pp. 1–13). Emerald Publishing Limited. <https://doi.org/10.1108/978-1-80382-027-920231001>
- Akinadewo-Adekahunsi, D. (2025). In Nigeria, AI tools are changing how people access healthcare. Gavi.org. Available at: <https://www.gavi.org/vaccineswork/nigeria-ai-tools-are-already-changing-how-people-access-healthcare>
- Bennett, E. E. (2022). Leveraging technology to design and deliver human resource development. In *The Emerald Handbook of Work, Workplaces and Disruptive Issues in HRM* (pp. 261–276).

Emerald Publishing Limited. <https://doi.org/10.1108/978-1-80071-779420221026>

Bennett, E. E., & McWhorter, R. R. (2021). Virtual HRD's role in crisis and the post-COVID-19 professional lifeworld: Accelerating skills for digital transformation. *Advances in Developing Human Resources*, 23(1), 5–25. <https://doi.org/10.1177/1523422320973288>

Bennett, E. E., & McWhorter, R. R. (2022). Dancing in the paradox: Virtual human resource development, online teaching, and learning. *Advances in Developing Human Resources*, 24(2), 99–116. <https://doi.org/10.1177/15234223221079440>

Bhatt, P. K., & Muduli, A. (2022). Artificial intelligence in learning and development: A systematic literature review. *European Journal of Training and Development*, 47(7/8), 677–694. <https://doi.org/10.1108/EJTD-09-2021-014>

Brynjolfsson, E., & Mitchell, T. (2017). What can machine learning do? Workforce implications. *Science*, 358(6370), 1530–1534. <https://doi.org/10.1126/science.aap8062>

Echendu, U., & Udeokechukwu, C. (2025). Artificial Intelligence and Machine Learning in Healthcare: Developing Privacy-Preserving Frameworks. SSRN. Available at: https://papers.ssrn.com/sol3/papers.cfm?abstract_id=5125847

Giermindl, L. M., Strich, F., Christ, O., Leicht-Deobald, U., & Redzepi, A. (2021). The dark sides of people analytics: Reviewing the perils for organisations and employees. *European Journal of Information Systems*, 1–26.

ILO. (2023). AI in human resource management: A challenge for the human-centred agenda? ILO Working Paper.

Jafri, S., Upreti, S., Banu, F., & Saiyed, J. (2024). Effectiveness of artificial intelligence for enhancing decision-making process of recruitment in HRM process.

Jamila, Z. (2025). Warehouse Automation and Inventory Accuracy in Nigeria. *International Journal of Supply Chain and Logistics*, 9(2), 53–62. Available at: <https://www.carijournals.org/journals/index.php/IJSCL/article/view/2532>

Kiron, D., & Schrage, M. (2019). Strategy for and with AI. MIT Sloan Management Review.

Malik, A., Budhwar, P., & Srikanth, N. R. (2020a). Gig economy, 4IR and artificial intelligence: Rethinking strategic HRM. In *Human & Technological Resource Management (HTRM): New Insights into Revolution 4.0*. Emerald Publishing Limited.

Nazrullaevna, M. G. (2023). An overview of the function of human resource management in employee performance and motivation. Qo'Qon Universiteti Xabarnomasi.

<https://doi.org/10.54613/ku.v9i9.850>

Ogungbenro, O. D., Esse, U. C., Olowoporoku, I., & Christopher, A. (2025). Revolutionizing Library Services: The Impact of Artificial Intelligence on Cataloguing and Access to Information in Nigeria Academic Libraries. *Journal of Library Metadata*. Available at: <https://www.tandfonline.com/doi/full/10.1080/19386389.2025.2475418>

Rodgers, W., Murray, J. M., Stefanidis, A., Degbey, W. Y., & Tarba, S. Y. (2023). An artificial intelligence algorithmic approach to ethical decision-making in human resource management processes. *Human Resource Management Review*, 33(1), 100925. <https://doi.org/10.1016/j.hrmr.2022.100925>

Saklani, N., & Khurana, A. (2023). Influence of artificial intelligence in human resource management: A comprehensive review. *International Journal of Engineering and Management Research*, 13. https://papers.ssrn.com/sol3/papers.cfm?abstract_id=4593280

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

Saxena, R., & Kumar, Y. (2020). Influence of artificial intelligence on work, people and the firm: A multi-industry perspective. In *Human & Technological Resource Management (HTRM): New Insights into Revolution 4.0* (pp. 111–132). Emerald Publishing Limited. <https://doi.org/10.1108/978-1-83867-223-220201007>

Strohmeier, S., & Piazza, F. (2015). Artificial intelligence techniques in human resource management – A conceptual exploration. In *Intelligent Techniques in Engineering Management*. Springer. https://doi.org/10.1007/978-3-319-17906-3_7

Tambe, P., Cappelli, P., & Yakubovich, V. (2019). Artificial intelligence in human resources management: Challenges and a path forward. *California Management Review*, 61(4), 15–42.

Thite, M. (2022). Digital human resource development: Where are we? Where should we go and how do we go there? *Human Resource Development International*, 25(1), 87–103. <https://doi.org/10.1080/13678868.2020.1842982>

Tiwari, S. (2020). Artificial intelligence and its role in human resource management. *International Journal of Mechanical and Production Engineering Research and Development*, 10(3). <https://shorturl.asia/JMZSC>

Toe, Y. C., & Goh, W. L. (2022). Artificial Intelligence in Human Resource Management

Tranfield, D., Denyer, D., & Smart, P. (2003). Towards a methodology for developing evidence-

informed management knowledge by means of systematic review. *British Journal of Management*, 14(3), 207–222.

WEF. (2023). AI for human resources toolkit helps organizations overcome implementation challenges. WEF Working Paper.

Wilson, H. J., & Daugherty, P. R. (2018). Collaborative intelligence: Humans and AI are joining forces. *Harvard Business Review*, 96(4), 114–123.