

ARTIFICIAL INTELLIGENCE ADOPTION IN HUMAN RESOURCES MANAGEMENT PROCESSES: A CORPORATE START-UP CONTEXT IN DEVELOPING ECONOMIES

Arachie Augustine Ebuka^{1)*}, Nwafor Angela Ebele²⁾, Obiekezie Alphonsus Emenike³⁾, Ukadike Ifeanyichukwu
Stewarts⁴⁾

^{1,2,3,4)} Faculty of Management Sciences, Nnamdi Azikiwe University, Nigeria

e-mail: ae.arachie@unizik.edu.ng
(Corresponding Author indicated by an asterisk *)

ABSTRACT

This study examined the role of AI adoption in Human Resources Management (HRM) processes within corporate start-ups in developing economies. Adopting a mixed-methods survey research design, the study sampled 293 Limited Liability SME start-ups across five states in Nigeria, collecting quantitative data via primary questionnaires and qualitative insights through a thematic analysis of 12 peer-reviewed articles. A total of 215 valid responses were used for the analysis, representing a 73% response rate. Thematic findings revealed that AI plays a vital strategic role across key HRM functions, including talent acquisition, personalised onboarding, real-time performance tracking, employee retention analytics, and administrative task automation. Conversely, the empirical analysis indicated that the most critical challenges hindering AI adoption are practical constraints such as the perception that their businesses are too small to implement AI, a severe shortage of AI-skilled personnel, and a limited understanding of how AI functions in HR operations, among others. The study also revealed that AI adoption offers corporate start-ups in developing economies opportunities for efficient recruitment, personalised training, improved performance management, employee retention, administrative automation, and enhanced global competitiveness. The study concluded that AI is significant for the competitive agility and sustainable growth of corporate start-ups in emerging economies. It recommended, among others, a phased technology adoption approach alongside proactive management and government support such as training workshops, grants, and subsidised digital infrastructure to mitigate cost barriers and enhance AI literacy. The study's focus on start-ups in five Nigerian states limits its generalisability and therefore becomes a limitation to the study.

Keywords: Artificial Intelligence; Human Resources Management; Corporate Start-up; Developing Economies; Technology Adoption

INTRODUCTION

Technology is no longer an option for most organisations, but their lifestyle. Organisations that refuse to adopt and adapt to new technological trends in their everyday dealings, operations and interactions will soon find themselves struggling with those that do. It is in realisation of this that Okereke et al. (2025) stated that the world is progressively shifting towards omnipresent technology. A world in which technology is progressively infiltrating nearly every facet of human and organisational existence. The most common form of technology which is progressively permeating all facets of corporate organisational existence is Artificial Intelligence (AI).

Murire (2024) opines that technological breakthroughs such as AI are revolutionising the workplace and altering the timing, methods, locations, and personnel involved in task execution. Similarly, Al-Onizat (2023) posits that as technology advances swiftly, AI has infiltrated nearly every sector. Sectors such as health, manufacturing and education are some of the most widely AI-adaptive sectors. It has significantly advanced throughout nearly all sectors of the economy, including healthcare, industry, research, and manufacturing (Nwosu et al., 2026). It continues to serve as one of the most innovative contemporary approaches to ever be applied in various domains such as business, finance and health (Bharadiya et al., 2023).

Artificial intelligence (AI) tools used in industries include machine learning (ML), Natural Language Processing (NLP), among others. Kabir (2020) states that AI has become increasingly significant in the corporate sector for many applications, such as NLP, automation, and predictive analytics. All these tools can be applied in various operations in the corporate world, including customer relationship management, production processes, accounting and inventory management. Human Resources Management (HRM) is not left out in the AI craze, as many researchers have pointed out that HRM is one of the prominent areas in organisations where AI can be adopted.

The influence of AI in HRM has been progressively rising, revolutionising the execution of HR operations across nearly all fundamental domains of HRM (Nawaz et al., 2024). Traditional HR tasks, such as candidate screening, resume parsing, and performance evaluation, can now be automated through AI-driven tools (Bhardwaj et al., 2020). The integration of AI in HRM holds immense promise for the future of workforce management (Muralidhar et al., 2023).

The application of AI, including machine learning, natural language processing, and data analytics, can revolutionise HR practices (Kaushal et al., 2023); however, it was observed that some corporate organisations, especially those in developing economies, those still starting up or newly established ones, and still finding their way into corporate existence, still struggle with AI adoption. This is probably because of limited financial resources, less stable digital infrastructure, and less technological literacy compared to large companies in developed countries. They seem to play second fiddle to established corporate entities, and if this trend continues, they may not be able to grow, survive or compete with the bigger firms, leading to loss of jobs, unemployment and increased criminality.

Previous empirical studies demonstrate AI's relevance to SMEs but leave questions concerning HRM adoption among Nigerian start-ups. Abrokwah-Larbi and Awuku-Larbi (2024) surveyed 225 SME respondents and found significant relationships between AI in marketing and business performance; however, their focus was marketing rather than HRM. González et al. (2025), studying 250 Ecuadorian SMEs, identified abilities, motivation, and organisational opportunities as key factors explaining AI adoption in talent management. Similarly, Srivastava and Himanshu (2026), drawing on 140 HR professionals in India, highlighted technological interfaces, data integrity, and competitive considerations as adoption priorities. These studies provide relevant evidence but do not establish the HRM adoption priorities of corporate start-ups in Nigeria.

This study adopts the Technology–Organisation–Environment (TOE) framework as an interpretive lens for examining AI adoption in HRM. The framework considers technological, organisational, and environmental conditions, as applied to SME HRM adoption by Srivastava and Himanshu (2026). Here, it provides a basis for interpreting technological readiness, organisational resources and employee skills, alongside regulatory conditions, in understanding the adoption barriers and opportunities facing corporate start-ups.

This study addresses the contextual gaps observed in the literature through the following objectives:

1. Examine areas of AI adoption in HRM processes of corporate start-ups in developing economies.
2. Identify challenges militating against the adoption of AI in HRM processes of corporate start-ups in developing economies.
3. Identify the opportunities and prospects of AI adoption in HRM processes of corporate start-ups in developing economies.

Research Questions

1. What are the areas where AI can be adopted in HRM processes of corporate start-ups in developing economies?
2. What challenges mitigate against the adoption of AI in HRM processes of corporate start-ups in developing economies?
3. What are the opportunities and prospects of AI adoption in HRM processes of corporate start-ups in developing economies?

LITERATURE REVIEW

Artificial Intelligence in Human Resources Management

Artificial intelligence (AI) as a concept has to do with making machines function like humans. Nwosu et al. (2026) state that AI functions when machines, software and hardware start acting like intelligent humans. The intelligence of the system allows it to learn and act upon data it receives or has come across in the past. It is a system's capacity to accurately analyse external data, assimilate knowledge from that data, and apply those insights to accomplish specific objectives and activities through adaptable methods (Haenlein & Kaplan, 2019; Morgenstern et al., 2021). This capacity of AI has seen its adoption spread rapidly over the past couple of years to different sectors and processes in organisations. The Human Resources Management field has, therefore, received its fair share of AI adoption.

The use of artificial intelligence (AI) in HRM is being developed, tested, analysed, and investigated empirically in various research domains (Meijerink et al., 2021; Prikshat et al., 2021). AI in HR denotes the application of machine learning techniques, natural language processing (NLP), and predictive data analysis to automate and enhance diverse HR procedures (Sundari et al., 2024). Some of the key functions AI is used for in HRM include training and development, compensation management and welfare packages for employees. In alignment with this, Rathore (2023) posits that AI's deployment in HRM covers recruitment and selection, where tools like automated resume parsing and video interviews with facial analysis enable efficient candidate evaluation. Similarly, Kaushal et al. (2023) aver that AI drives intelligent onboarding and training, offering personalised learning pathways and virtual reality-based simulations. ML powers predictive HR analytics, assisting turnover prediction, workforce planning, and identifying high-potential employees (Bandari, 2019). It allows HR managers and organisations to use predictive analytics to assess employee development needs, design customised training programs, and manage individual career paths based on real-time measured performance data (Sundari et al., 2024).

With the help of AI in HRM, many jobs that were based on guesswork are now data-driven and executed in a faster and more accurate manner. By using AI-based predictive models, HR managers and organisations in general are able to make faster and more informed decisions through data involvement regarding employee development and talent retention. In a similar line of thought, Forrester (2023) states that AI tools and technologies help in shrinking the time it takes to come to a critical HR decision by 30%, thereby helping to improve overall HR productivity.

AI Applications in Recruitment and Selection

The places where AI can be deployed in HRM processes are variegated, one of which is in recruitment and selection. Sundari et al. (2024) avers that one of the areas that has undergone the most transformation in terms

of AI adoption in HRM is in recruitment and selection. In the past, HR operatives used to scan through hundreds, and sometimes thousands of applications by seemingly qualified candidates for jobs, but with AI deployment, this is no longer the case, as the same cumbersome process can now be done easily and more accurately. The days of relying solely on physical labour to complete the recruitment process have long since gone, with AI technology adoption (Khan et al., 2024). Contemporary AI algorithms can rapidly analyse thousands of job applications, NLP to align candidate abilities with pertinent job descriptions (Norman & Pahlawati, 2024). AI can take it a notch further by conducting automated interviews with chatbots that have been taught in conventional interviewing methodologies (Sundari et al., 2024).

The integration of AI in the recruitment and selection processes represents a significant shift from the norm. This was the view of Muralidhar et al. (2023) when they stated that AI Integration in recruitment processes signifies a paradigm shift, streamlining traditional methods with cutting-edge technology. In this light, Sundari et al. (2024) aver that AI facilitates the implementation of advanced Applicant Tracking Systems (ATS), wherein algorithms may autonomously analyse thousands of CVs and align them with job specifications based on pertinent keywords, experience, and abilities. AI algorithms in combination with ML analyse vast datasets to identify patterns and criteria for successful recruitment (Žibret, 2024).

AI-driven candidate screening automates the preliminary evaluation of candidates, effectively narrowing down applicants who meet job requirements (Kaushal et al., 2023). Moreover, automated resume parsing utilises NLP to extract relevant information from resumes, hence enhancing the assessment of abilities and experiences (Ali et al., 2022). Simultaneously, video interviews enhanced by facial analysis interpret non-verbal signals, providing nuanced insights for evaluating candidate appropriateness. AI not only improves efficiency but also emphasises candidate experience (Bankins, 2021; Dima et al., 2024). AI-powered chatbots address real-time candidate inquiries, facilitating smooth and dynamic engagement. Predictive analytics use data-driven insights to evaluate candidate performance, identifying optimal candidates through algorithmic analysis of past data (Bandari, 2019).

AI in Employee Onboarding and Training

Employee onboarding and training represent a very critical area in the HRM function, hence, has also witnessed massive usage of AI in this aspect, signalling a new phase of onboarding and training dynamics. Muralidhar et al. (2023) state that the incorporation of AI in employee onboarding and training signifies a transformative phase of tailored and effective learning experiences in HRM processes and procedures. The employee onboarding process, previously characterised by extensive paperwork and administrative duties, has undergone a significant transition due to the incorporation of AI (Žibret, 2024). AI enhances efficiency and automates typical administrative operations, including form completion, document submission, and other procedural obligations. The onboarding process accelerates, and the utilisation of AI enables HR experts to concentrate on more strategic elements of onboarding (World Economic Forum, 2021).

AI-driven onboarding commences with customised experiences that address the specific demands of each employee (Muralidhar et al., 2023). Personalised training suggestions are generated by AI algorithms that evaluate employee profiles and prior experiences to provide training modules aligned with their skill set and learning speed (Bhutoria, 2022). Furthermore, virtual reality (VR) simulations immerse new employees in realistic circumstances, facilitating practical training prior to their official positions (Almousa et al., 2019). This immersive method accelerates learning and fosters a profound comprehension of professional duties. Training is enhanced by AI's capacity to deliver real-time feedback (de Laat et al., 2020). Employees have prompt insights into their performance, promoting a culture of ongoing enhancement. Predictive analytics aid in recognising potential skill deficiencies and providing focused training interventions (Vincent-Lancrin & van der Vlies, 2020). This enables people to enhance their skills and adjust to changing job requirements. Moreover, AI-assisted training improves information retention using adaptive learning methodologies, tailoring the training material according to an employee's advancement and understanding (Muralidhar et al., 2023).

Employee training is enhanced by AI-based systems that deliver personalised training according to individual requirements (Sundari et al., 2024). Chatbots are deployed widely for these purposes, as captured by

Gryncewicz et al. (2023). They state that AI-driven chatbots serve as virtual mentors, acting as the initial point of contact for new employees by delivering real-time information regarding corporate policies, culture, and accessible resources. AI-driven chatbots and educational platforms enable employees to access training resources at any time and receive training recommendations tailored to their professional requirements (Pratama et al., 2023). They guarantee that essential information is conveyed in a uniform and standardised way (Gryncewicz et al., 2023).

AI in Workforce Planning

One of the most difficult parts of the job of HR managers is workforce planning. This is because of the difficulties associated with the predictability of the workforce, as there could be an unplanned workforce need at any time, occasioned by resignation, death or accident. When this sort of vacancy appears, it becomes difficult to predict and consequently to fill. However, the adoption and integration of AI in workforce planning can bring some form of prediction to the whole process. In the dynamic landscape of modern business, organisations are using the power of AI to upgrade their workforce planning strategies (Žibret, 2024). Conventional workforce forecasting techniques frequently depend on previous data and intuition. Conversely, AI employs advanced algorithms that examine historical trends and present market conditions to forecast future manpower needs with considerable precision (Žibret, 2024). The projection guarantees that the organisation will effectively meet staffing requirements while also emphasising the appropriate talents (Scully et al., 2020).

The potential skill gaps in an organisation can be accurately predicted through AI-enabled algorithms, hence reducing guesswork and intuitive work. AI assists in identifying skill deficiencies and areas requiring enhancement. This enables organisations to execute precise training programs, reskilling campaigns, or externally recruit necessary people (Saini & Tarkar, 2022). Advanced algorithms evaluate historical data, employee preferences, and corporate needs to generate optimised schedules that reconcile employee well-being with operational efficiency (Žibret, 2024). This improves employee satisfaction and guarantees that firms utilise their human resources efficiently while aligning them with strategic objectives (Scully et al., 2020).

AI in Performance Management

The performance management function, as an arm of HRM processes, has also witnessed its fair share of AI encroachment. Muralidhar et al. (2023) capture it thus: AI transforms performance management through the facilitation of real-time feedback systems. Through AI instrumentality, conventional annual evaluations are replaced by continuous feedback mechanisms, providing employees with prompt insights into their strengths and areas for enhancement. A greater percentage of the work of AI in performance management is carried out by algorithms. AI algorithms evaluate diverse data sources, encompassing project outcomes and peer interactions, to produce detailed performance profiles (Wamba-Taguimdje et al., 2020).

Performance management was full of subjectivism in the past, but AI is transforming it to be more data-driven and precise in predictions and evaluations. Žibret (2024) opines that hitherto, performance management was heavily reliant on subjective evaluations, but it is entering a new phase with the incorporation of AI. AI, therefore, fundamentally transforms how firms assess, evaluate, and improve employee performance. The new paradigm emphasises objectivity, efficiency, and strategic insights (Žibret, 2024). The ability to analyse concrete data through AI enhances the chances of objectivity. AI algorithms can help organisations concentrate on objective metrics, such as project completion rates, quality of output, compliance with deadlines, etc. (Žibret, 2024). The objectivity made possible by AI adoption makes for limited biases, ensuring that employees are assessed on merit and not by subjective impressions (Madanchian et al., 2023).

Data-driven decision on performance evaluation and management is made possible by AI adoption. This was the position of Khan et al. (2024) when they opined that AI technologies transform traditional performance evaluation and operational improvement approaches by enabling managers and HR consultants to rapidly access and analyse performance data, hence facilitating informed decision-making and innovative solutions. Moreover, AI facilitates the formulation of achievable performance targets tailored to an employee's competencies and job requirements (Farhan et al., 2025). This data-driven approach ensures alignment of objectives and enhances

overall organisational effectiveness (Muralidhar et al., 2023).

Holmström and Carroll (2024) assert that AI can augment performance management innovations through the integration of prompt engineering into workflows, utilising AI technologies like ChatGPT to deliver novel solutions in problem-solving, market research, content creation, decision support, and design prototyping. The strategic application of AI-driven quick engineering improves innovation and efficiency, optimising AI's capacity to transform performance management methods across many corporate functions (Khan et al., 2024). Bersin (2019) posits that incorporating AI into performance management systems could facilitate the identification and rectification of underperformance by analysing internal data to uncover issues such as inappropriate team sizes, skill deficiencies, complications arising from long-tenured employees, or insufficient diversity.

Opportunities of AI Adoption in HRM

The most immediate opportunity provided by AI is the automation of repetitive tasks (Nawaz et al., 2024; Vanisree & Shree, 2024). Traditional HR operations, such as candidate screening, resume parsing, and payroll administration, often consume significant resources (Madanchian et al., 2023). AI-driven tools, such as automated resume parsing and intelligent chatbots, process vast datasets in seconds, significantly reducing "time-to-hire" and allowing HR professionals to focus on high-value strategic initiatives (Agwu, 2026; Olaniyan et al., 2022).

Beyond efficiency, AI offers unprecedented personalisation of the employee experience (Nawaz et al., 2024; Khan et al., 2024). Machine learning algorithms can identify individual learning needs, recommending tailored training programs and career development pathways (Nawaz et al., 2024; Qin et al., 2025). This shift towards "mass personalisation" extends to compensation and benefits, where AI assists in designing flexible reward packages that align with individual aspirations, thereby fostering higher employee engagement and retention (Nawaz et al., 2024; Agwu, 2026).

Furthermore, AI enhances decision-making accuracy by providing real-time insights (Madanchian et al., 2023; Basiouny, 2025). Predictive modelling allows organisations to forecast workforce trends, identify employees at risk of attrition, and bridge skill gaps before they impact productivity (Hinge et al., 2023; Agwu, 2026). In performance management, AI-enabled systems facilitate continuous feedback and objective evaluations based on real-time metrics, moving away from rigid, often biased, annual review cycles (Agwu, 2026; Nyathani, 2023).

Challenges of AI Adoption in HRM

Adopting AI in HRM, despite the numerous advantages that come with it, still has its various flaws and challenges. There are issues of data/algorithmic bias; there are also issues of data security/privacy and skill gaps. Popo-Olaniyan (2022) assert that a principal obstacle in the use of AI in HR is the risk of algorithmic bias. If AI systems are trained on biased data, they may reinforce and intensify existing biases in human resources operations. They further explained that the handling of sensitive employee data as occasioned by AI usage in HRM raises concerns about the privacy and security of such data. Algorithmic bias can put certain groups in a disadvantageous position. It can result in discriminatory outcomes, disadvantaging certain demographic groups in recruitment, performance evaluations, and other HR processes (Popo-Olaniyan, 2022).

Algorithmic bias, lack of transparency, and fairness concerns in AI have undermined the trustworthiness and accountability of automated decision-making systems in recruitment, promotion, and performance evaluation (Wang & Zhang, 2025). There are also ethical concerns with regard to AI in HRM. Agwu (2026) opines that the rapid expansion of AI HR systems has precipitated significant ethical, legal, and social concerns. The issue of resistance also persists as an encumbrance to AI adoption in HRM processes. Employees, particularly those accustomed to manual processes for an extended period, may experience anxiety regarding job security or see a threat from technology advancements as a result of AI adoption in HRM. This opposition to AI is frequently driven by apprehensions that automation will wholly supplant human positions (Sundari et al., 2024).

Prospects: The Future of Collaborative Intelligence

The future of AI in HRM lies in human-AI collaboration (Madanchian et al., 2023; Agwu, 2026). The

concept of "augmented intelligence" suggests a relationship where AI handles complex data processing while humans focus on strategic, creative, and empathetic tasks (Madanchian et al., 2023; Agwu, 2026). This collaborative model is essential for sustainable HRM, balancing productivity with employee well-being (Agwu, 2026; Khan et al., 2024).

Emerging trends poised to revolutionise the field include:

1. Generative AI and Large Language Models (LLMs): Tools like ChatGPT are beginning to automate content creation for job descriptions and personalised performance feedback (Agwu, 2026; Khan et al., 2024).
2. Immersive Technologies (AR/VR): The integration of AI with virtual reality offers immersive onboarding and training experiences in simulated environments (Madanchian et al., 2023; Agwu, 2026).
3. Real-time Well-being Monitoring: Future AI may monitor mental health and work-life balance through sentiment analysis during digital interactions, enabling proactive interventions (Hinge et al., 2023; Agwu, 2026).
4. AI Ethics and Governance: Specialised roles such as AI Ethics Officers and standardised ethical frameworks will be crucial for maintaining accountability (Agwu, 2026; Menaka, 2023).

Table 1. Comparison of Challenges, Opportunities, and Future Directions in AI-Based HRM

Sr. No.	Aspect	Challenge	Opportunity	Future Direction
1	HR Analytics	Data privacy	Better prediction	Secure AI
2	Recruitment	Bias	Faster hiring	Fair AI
3	Talent Management	Skill gaps	Personalization	AI coaching
4	Workforce Planning	Data errors	Forecasting	Real-time AI
5	Performance AI	Lack of trust	Accuracy	Explainable AI
6	Employee Analytics	Surveillance	Engagement	Ethical AI
7	HR Automation	Job fear	Efficiency	Human-AI teams
8	Digital HRM	Complexity	Integration	Smart platforms
9	AI Governance	Regulation	Accountability	Global standards
10	Diversity AI	Bias risk	Inclusion	Fair algorithms
11	Learning AI	Overfitting	Adaptive learning	Generative AI
12	HR Systems	Cost	Scalability	Cloud AI
13	Talent Analytics	Data bias	Insights	Responsible AI
14	Cognitive HR	Transparency	Automation	Hybrid AI
15	Organizational Analytics	Uncertainty	Strategy	Predictive AI
16	HR Policy	Legal risk	Compliance	AI law
17	HR Ethics	Misuse	Trust	Governance models
18	Workforce AI	Resistance	Productivity	Training
19	Smart HR	Integration	Intelligence	Autonomous HR
20	Employee Experience	Privacy	Personalization	Ethical analytics
21	AI Decision	Opacity	Speed	Explainable models
22	HR Leadership	Skill gap	Upskilling	AI literacy
23	Sustainable HRM	Balance	Long-term value	Human-centric AI
24	Future Work	Uncertainty	Flexibility	Hybrid workforce
25	Intelligent HR	Complexity	Innovation	Responsible automation

Source: Adapted from "Artificial Intelligence and Human Resource Management: HR Analytics, Talent Management, and Ethical AI," (Agwu, 2026), *International Journal of Applied Resilience and Sustainability*, 2(2), 989–1013, <https://doi.org/10.70593/deepsci.0202041>

Table 1 shows the comparison of challenges, opportunities, and future directions in AI-based HRM as sourced from the work of Agwu (2026). It shows that while AI offers a lot of opportunities to businesses in areas of HR operations, the successful adoption is still encumbered by several challenges, which can be categorised into technological, organisational, ethical, and regulatory challenges.

Theoretical Framework

This study is anchored on the Technology–Organisation–Environment (TOE). This theory was propounded by Tornatzky and Fleischer (1990) in their seminal book, *The Processes of Technological Innovation*. This theory was developed to explain how organisations adopt and implement technological innovations. Unlike

technology-adoption theories that concentrate mainly on individual users' attitudes or behavioural intentions, TOE approaches technology adoption at the organisational level. It argues that the adoption of technological innovation is influenced by conditions within three broad contexts: the technology available to the organisation, the characteristics and resources of the organisation itself, and the external environment in which it operates (Tornatzky & Fleischer, 1990). Even in recent times, modern theories have continued to use TOE for organisational technology adoption, including artificial intelligence (AI) adoption by small and medium-sized enterprises (SMEs) (Badghish & Soomro, 2024; Sánchez et al., 2025).

The central proposition of the TOE framework is that an organisation's adoption and implementation of technological innovation are shaped by the interaction of three contexts: technological, organisational and environmental (Tornatzky & Fleischer, 1990). The technological context has to do with the technologies available within and outside an organisation and the characteristics of those technologies that may encourage or discourage adoption. Factors commonly considered under this dimension include relative advantage, compatibility, complexity, cost and the technological infrastructure required to support an innovation. The organisational context, on the other hand, deals with the internal attributes and resources of the organisation that determine its readiness to adopt a technology. These may include organisational size, financial resources, human capital, employees' technical competence, organisational culture and support from management. Covering the conditions outside the immediate control of the organisation is the environmental context. Here, conditions that can either facilitate or constrain technology adoption outside the organisation are captured. These include competitive pressure, government policies and regulations, market and customer demands, availability of technology vendors, external infrastructure and institutional support. For SMEs in particular, government support and the wider technology ecosystem can be important because smaller businesses often possess fewer internal resources with which to overcome adoption barriers.

The relationship between the TOE theory and this work is tied to the fact that it talks about technology and the determinants of its adoption in organisations. Technological adoption, based on the theory's point is rarely determined by the attractiveness or usefulness of the technology alone, rather, it is a combination of factors. An organisation may recognise the potential value of an innovation/technology such as AI but still be unable to adopt it because it lacks adequate resources, technical expertise, managerial support, infrastructure or a favourable external environment. This broader perspective has made TOE useful in studies of technologies ranging from business intelligence and cloud computing to artificial intelligence. This current study examines AI adoption in Human Resource Management (HRM) processes among corporate start-ups in developing economies. It seeks to identify areas where AI can be adopted in HRM, the challenges constraining its adoption, and the opportunities and prospects associated with its utilisation. These issues can be understood within the three dimensions proposed by TOE.

From the technological perspective, the framework helps explain whether corporate start-ups possess or can access the technological infrastructure necessary to integrate AI into HR activities such as recruitment, onboarding and training, performance management, employee retention and administrative automation. The organisational dimension has an even more direct relationship with the study, where inhibitors are looked at. Lack of AI-skilled personnel, inability to afford employees capable of managing AI systems, lack of organisational readiness, and the perception of the size of the business can all act as inhibitors to AI adoption. These factors reflect organisational readiness, human capital, financial capacity, firm size and technological knowledge, all of which fall within the organisational context of TOE. The environmental angle of the theory provides a basis for understanding external conditions that can facilitate AI adoption among start-ups in developing economies. These factors could be government intervention and policies, regulatory authorities, technological infrastructure and partnerships with technology providers. All these factors connected to the three dimensions of the TOE theory makes the theory relevant to the study.

RESEARCH METHOD

This study adopts a descriptive survey design, supported by a narrative literature synthesis. The descriptive survey was used because a questionnaire was adopted for data collection from sample respondents to get details on areas of AI adoption in HRM processes and to identify challenges affecting corporate start-ups in their bid to adopt AI in their HRM processes. The narrative literature synthesis was adopted because peer-reviewed literature was used to identify established and emerging areas, opportunities and prospects of AI adoption in HRM. The study was carried out in South-East Nigeria, which has 5 states. The population of the study consisted of 1,231 Limited Liability registered SME start-ups within the states; one respondent (owner or manager) representing one SME, with 389 from Anambra, 333 from Abia, 213 from Enugu, 109 from Ebonyi and 187 from Imo State respectively, as sourced from the Corporate Affairs Commission registration (2026). Krejcie and Morgan (1970) sample size determination formula was used to arrive at a sample size of 293. Primary data were collected through a structured questionnaire administered electronically via Google Forms, while secondary evidence was obtained from peer-reviewed journal articles. Face and content validity were conducted to establish the appropriateness and relevance of the questionnaire items with the help of experts in Instrument and Validation, the Faculty of Education, Nnamdi Azikiwe University, Awka, Nigeria, while internal consistency was assessed using Cronbach's alpha, with an 87% consistency result. Of the 293 questionnaires distributed, 223 were returned, representing a gross response rate of 76.1%; following data screening, eight questionnaires with incomplete substantive responses were excluded, leaving 215 complete responses for analysis and an effective response rate of 73.4%. No missing values were imputed, and the analysis was therefore based on complete cases. The literature-search protocol was conducted across Scopus, Web of Science, IEEE Xplore, PubMed, Emerald, ScienceDirect and Google Scholar between 20th June to 30th June 2026, using the Boolean string ("artificial intelligence" OR "AI" OR "machine learning" OR "natural language processing" OR "predictive analytics") AND ("human resource management" OR "HRM" OR "human resources" OR "talent management" OR recruitment OR onboarding OR "performance management" OR "employee retention") AND (startup OR "start-up" OR SME* OR "small and medium enterprise*" OR "emerging economy*" OR "developing economy*")**, with minor syntax adjustments across databases. The search syntax was adapted where necessary to accommodate the search requirements of the respective databases while retaining the same core concepts and Boolean operators. The search initially identified 35 articles, from which six duplicate records were removed, leaving 29 unique articles for title and abstract screening. Ten articles were excluded at this stage for failing to satisfy the relevance and eligibility criteria, leaving 19 articles for full-text assessment. Following full-text assessment, seven additional articles were excluded because they did not sufficiently address AI in HRM ($n = 3$), did not adequately reflect the relevant SME/start-up organisational context ($n = 2$), or provided insufficient evidence relevant to the study objectives ($n = 2$). Consequently, 12 articles were retained for thematic synthesis. Eligible studies were peer-reviewed journal articles written in English, published between 2021 and 2026, and directly relevant to AI application or adoption in HRM. The methodological quality and relevance of the retained articles were assessed using the Mixed Methods Appraisal Tool (MMAT), 2018 version, where applicable to the respective research designs. Relevant findings from the 12 studies were extracted and coded according to recurring AI-HRM applications, opportunities and prospects, after which related codes were compared and consolidated into higher-order themes. Two researchers independently reviewed the coding and theme classifications, while disagreements were discussed and resolved through consensus. The literature review and survey data were deliberately used to address different but complementary study objectives. Specifically, the literature synthesis addressed the first and third objectives by identifying established areas of AI application in HRM and the opportunities and prospects associated with its adoption, whereas the primary survey addressed the second objective by providing context-specific empirical evidence on the perceived challenges hindering AI adoption among corporate start-ups in South-East Nigeria. The two evidence streams were therefore analysed separately and were not treated as equivalent empirical datasets. Integration occurred only at the interpretation and discussion stage through a side-by-side comparison of the survey findings with relevant literature-derived evidence; no statistical pooling of the two sources was undertaken. The challenge items were measured on a five-

point Likert-type scale ranging from Strongly Disagree (1) to Strongly Agree (5). Given the ordinal nature of individual Likert items, frequencies and percentages were used to describe their response distributions, while means were retained as supplementary measures to facilitate comparison and ranking across items. The scale midpoint of 3.0, corresponding to the neutral/undecided response category, was used only as a descriptive reference point for indicating whether responses generally tended towards agreement or disagreement and not as an inferential cut-off for statistically accepting or rejecting an item. The literature-derived evidence was analysed thematically by identifying and grouping recurring findings into broader themes relating to areas, opportunities and prospects of AI adoption in HRM; however, these themes were kept analytically separate from the primary survey findings because they originated from published studies rather than qualitative data collected directly from the sampled firms. Consequently, the study was not treated as a conventional mixed-method design and no formal mixed-method integration table was constructed; rather, the two bodies of evidence were brought together cautiously during the discussion to compare the survey results with existing literature.

RESULTS AND DISCUSSION

Data Analysis and Findings

Examine areas of AI adoption in HRM processes of corporate start-ups in developing economies.

In achieving this objective, thematic analysis was used, with data sourced from various secondary sources (peer-reviewed journals). The thematic analysis hereunder outlines the primary areas of AI adoption in HRM processes for corporate start-ups in developing economies.

The integration of AI in HRM represents a shift from a purely administrative function to a strategic competency that leverages data for decision-making. For start-ups in emerging markets, AI acts as a "workshop" of tools designed to enhance productivity and competitiveness despite potential resource limitations.

Theme 1: AI-Driven Talent Acquisition and Recruitment

One of the areas where AI is widely adopted in the HRM process is in recruitment. This is especially relevant where a high volume of applicants is found. In this, AI helps in:

1. **Efficient Sourcing and Screening:** The adoption of AI-powered Application Tracking Systems (ATS) in recruitment processes enables firms to automate resume parsing and keyword matching, which eventually helps to reduce the time spent on manual screening by up to 70% (Madanchian et al., 2023; Zhu, 2025).
2. **Predictive Matchmaking:** Advanced algorithms, made possible by AI, help to evaluate candidate suitability based on organisational culture and specific job requirements, which is reported to be up to 78% accurate (Aydin & Turan, 2023; Zhu, 2025).
3. **Bias Reduction:** AI tools help mitigate unconscious biases in the initial phases of hiring by relying on objective data points rather than the usual human intuition (Nawaz et al., 2024; Popo-Olaniyan, 2022).

Theme 2: Personalised Employee Onboarding, Training, and Development

Start-ups can use AI to bridge digital skill gaps common in developing economies through professional growth programs that are tailored to individual needs.

1. **Adaptive Learning Paths:** The performance and interests of individual employees can be analysed using AI to recommend personalised training modules, leading to an 89% completion rate compared to standard programs (Nawaz et al., 2024; Zhu, 2025).
2. **Immersive Simulations:** In this regard, AI tools such as Virtual Reality (VR) and augmented reality can be used to make the onboarding and technical upskilling processes interactive, which has been shown to increase employee involvement by 79% (Halid et al., 2024).
3. **Real-Time Mentoring:** Natural Language Processing (NLP) mentors can provide continuous support, reducing onboarding time for new hires by approximately 30% (Thangaraju & Palani, 2025).

Theme 3: Continuous and Objective Performance Management

AI can help in transforming the performance appraisal processes by moving from the hitherto rigid annual cycles to dynamic, real-time evaluation systems.

1. **Continuous Feedback Loops:** Daily performance metrics and communication patterns can be evaluated and monitored using AI in order to provide instant, data-driven feedback to both the managers and employees (Nyathani, 2023; Sundari et al., 2024).
2. **Increased Objectivity:** Over 35 performance metrics are analysed by automated systems, and this can reduce appraisal bias by up to 40% in sectors such as the Indian IT industry (Thangaraju & Palani, 2025), which can be the same when done well in other developing economies.
3. **Predictive Performance Insights:** Predictive modelling identifies high-potential employees and forecasts future performance roadblocks, allowing for proactive managerial interventions (Madanchian et al., 2023; Nyathani, 2023).

Theme 4: Strategic Employee Engagement and Retention Analytics

In developing economies where talent retention is often a challenge, start-ups utilise AI to predict attrition and enhance the employee experience.

1. **Sentiment Analysis:** The integration of NLP tools, which are AI components, can be used to evaluate feedback from internal emails, surveys, and social media to gauge collective satisfaction and address concerns that may be brewing (Popo-Olaniyan, 2022; Triveni, 2025).
2. **Attrition Prediction:** The retention strategies of firms can be better strategised to predict turnover through the adoption of machine learning models to analyse historical patterns that will enable firms to identify employees at risk of leaving (Madanchian et al., 2023; Nawaz et al., 2024).
3. **Customised Benefits:** Flexible compensation and reward packages can be administered by AI-assisted systems to make them tailored to individual employee goals, which fosters a deeper sense of commitment (Nawaz et al., 2024; Sundari et al., 2024).

Theme 5: Operational Efficiency through HR Process Automation

The administrative workload of small business owners can be greatly reduced through the automation of repetitive HRM functions.

1. **Routine Task Automation:** Administrative chores such as payroll processing, scheduling, and benefits management, which can be largely repetitive, can be handled through expert AI models, and this will improve overall operational efficiency by 30% (Sundari et al., 2024; Zhu, 2025).
2. **AI Chatbots:** Self-service and feedback mechanisms for employees can be optimised through virtual assistants that may serve as a reliable round-the-clock system for answering routine policy questions (Nawaz et al., 2024; Sundari et al., 2024).

Identify Challenges Militating Against the Adoption of AI in HRM Processes of Corporate Start-Ups in Developing Economies

Table 2. Challenges of AI Adoption in HRM Processes

SN	Questionnaire Items	SA (5)	A(4)	U(3)	D(2)	SD(1)	Mean	Remark	Rank
1	High implementation costs limit AI adoption in the HR processes of my organization.	102	46	5	50	12	3.82	Accept	4 th
2	Lack of AI-skilled personnel hinders effective AI implementation in my business.	130	63	12	10	-	4.46	Accept	2 nd
3	My employees are resistant to the adoption of AI in HR processes.	14	49	39	70	43	2.63	Reject	10 th
4	Concerns about employee data privacy discourages me to adopt AI in my HRM processes.	30	41	11	59	74	2.51	Reject	11 th
5	AI systems may produce biased recruitment or promotion decisions.	50	72	28	49	16	3.42	Accept	6 th

6	Inadequate technological infrastructure in the country limits AI adoption in my firm.	35	79	15	60	26	3.17	Accept	9 th
7	I have ethical and legal concerns about AI integration in my business.	-	26	7	121	61	1.99	Reject	12 th
8	Not being able to afford employees that can handle AI systems in my HR processes hinders its adoption.	45	78	12	80	-	3.41	Accept	7 th
9	My business is not ready for such things now	101	14	24	31	45	3.44	Accept	5 th
10	We are still small to start thinking about such things for my business for now.	173	10	32	-	-	4.66	Accept	1 st
11	Technically gifted people refuse to come work for businesses such as mine.	44	101	3	26	41	3.38	Accept	8 th
12	I still do not understand how it can work in HR operations in my business	70	121	2	10	12	4.06	Accept	3 rd

Source: Field Survey, 2026

Table 2 presents respondents' perceptions of the challenges affecting the adoption of Artificial Intelligence (AI) in Human Resource Management (HRM) processes among corporate start-ups. The analysis here is based on the means of the individual questionnaire items, with 3 being the acceptance threshold and below 3 representing rejection of that item as a challenge. The challenges were also ranked to identify the most pressing challenge and the least pressing challenge based on the assessment of the studied corporate start-ups. From the Table, it is seen that the most significant challenge militating against the adoption of AI by small business start-ups is the perception that their businesses are still too small to begin implementing AI in HR processes, with a mean of 4.66. In the second position, with a mean of 4.46, is the lack of AI-skilled personnel, indicating that the shortage of employees with AI competencies remains a major obstacle to successful AI implementation. This is closely followed by limited understanding of how AI can be applied in HR operations, with a mean of 4.06, and ranked third. In the fourth position, with a mean of 3.82, are high implementation costs, suggesting that the financial investment required for AI technologies discourages many start-ups from adopting them. Similarly, the perception that their businesses are not yet ready for AI adoption received a high level of agreement (Mean = 3.44, Rank = 5th), reflecting concerns about organisational readiness and digital maturity.

Other challenges as reported by the respondents include the possibility that AI systems may produce biased recruitment or promotion decisions, with a mean of 3.42 and ranked sixth. In the seventh position, with a mean of 3.41, is the inability to afford AI-competent employees. Coming in a distant eighth, though still above the threshold of acceptance of 3, is the difficulty in attracting technically skilled personnel, with a mean of 3.38. The inadequacy of technological infrastructure is in the ninth position in ranking, with a mean of 3.17. These findings indicate that financial, technological, and human resource limitations jointly constrain AI adoption among corporate start-ups. However, respondents did not consider several other factors to be major barriers. These factors include employee resistance to AI adoption, which recorded a mean score of 2.63 and ranked tenth, while concerns over employee data privacy had a mean of 2.51 and ranked eleventh. The lowest score among the challenges was ethical and legal concerns regarding AI integration, with a mean of 1.99 and ranked in the twelfth place. This is not because it is not an important challenge, but probably because the respondents lack awareness of it as a challenge. These findings imply that respondents are more concerned with practical issues such as organisational size, cost, skills, and readiness than with ethical, legal, or privacy-related issues.

Identify the Opportunities and Prospects of AI Adoption in HRM Processes of Corporate Start-Ups in Developing Economies

Table 3. Thematic Analysis of Opportunities and Prospects of AI in HRM for Start-ups

Theme	Key Opportunities & Prospects	Supporting Evidence & Citations
1. Advanced Talent Acquisition & Sourcing	Startups who adopt AI in their HR processes can handle high application volumes efficiently. It projects a reduction in time-to-hire by 38% and improves candidate matching accuracy to nearly 85% by analyzing skills and cultural fit rather than just keywords.	(Madrachian et al., 2023; Thangaraju & Palani, 2025; Zhu, 2025)
2. Upskilling & Personalized Development	Personalized learning opportunities can be arranged for startups in emerging economies that face gaps in digital skills when they adopt AI.	(Halid et al., 2024; Khan et al., 2024; Thangaraju & Palani, 2025)

	Prospects include using VR/AR simulations and NLP-powered mentors to reduce onboarding time by 30% and achieve an 89% training completion rate.	
3. Objective & Real-Time Performance Tracking	The subjectivism accoutered during performance management in the past can be greatly reduced through AI adoption. Startups are provided with real-time feedback loops and predictive insights into employee potential, reducing appraisal bias by up to 40%.	(Basiouny, 2025; Nyathani, 2023; Sundari et al., 2024; Thangaraju & Palani, 2025)
4. Strategic Engagement & Attrition Prediction	In environments where competition is rife from bigger and multinational businesses for small startups, AI can make for better retention capacity for these firms through sentiment analysis of communication and machine learning models that predict turnover risk with up to 95% accuracy, allowing for proactive intervention.	(Agwu, 2026; Hinge et al., 2023; Popo-Olaniyan, 2022; Triveni, 2025)
5. Operational Agility through Automation	Operational efficiency for startups can be improved by 30% through the automation of routine administrative tasks (payroll, leave, scheduling) through Robotic Process Automation (RPA) and chatbots. This allows their teams to redirect resources toward strategic innovation and mission-centric growth.	(Al-Onizat, 2023; Nawaz et al., 2024; Sundari et al., 2024; Zhu, 2025)
6. Enhanced Global Competitiveness	Through the instrumentality of AI adoption and leveraging data, startups in developing economies like Jordan, India, and Pakistan, Nigeria and other African countries, can enhance their agility and decision making, effectively allowing them to compete to some extent with bigger corporations and multinational enterprises.	(Alkudah et al., 2024; Nawaz et al., 2024; Zafar, 2023)

Source: Peer-reviewed Journal Articles, 2023-2026

Table 3 shows the results of the thematic analysis for the opportunities and prospects of AI adoption in HRM processes among corporate start-ups in developing economies. Themes here were identified from the reviewed literature and demonstrate that AI offers numerous strategic advantages capable of transforming HRM practices and enhancing organisational competitiveness.

From the Table, the first theme is Advanced Talent Acquisition and Sourcing, and it reveals that through AI, which enables firms to process larger volumes of applications in a shorter time, recruitment processes are greatly enhanced and made more efficient. The second theme, which is Upskilling and Personalised Development, indicates that AI has the potential to bridge digital skill gaps among the workers of firms. It can achieve this through adaptive learning platforms, virtual and augmented reality simulations, and Natural Language Processing (NLP)-powered virtual mentors. These AI-enabled tools allow firms to provide personalised training experiences that improve onboarding efficiency, employee learning outcomes, and workforce competence. Objective and Real-Time Performance Tracking is the third theme, and it highlights AI's ability to transform traditional performance management through the replacement of subjective appraisal systems with continuous, data-driven performance evaluation. This is achieved by providing organisations with real-time feedback, identifying employee strengths and weaknesses promptly, and reducing human bias in performance assessment.

The fourth theme, as seen in the Table, is Strategic Engagement and Attrition Prediction, which signifies the potential of AI to improve the retention capability of firms through predictive analytics and sentiment analysis. The identification of employees who are potential candidates for attrition is better predicted by analysing the behaviour of employees, their communication patterns, and historical workforce data. This will enable the firms to implement proactive retention strategies before the actual turnover takes place. This is very significant for start-ups that are always competing for talent in the global marketplace. Operational Agility through Automation is the fifth theme, and it shows that automating repetitive HR tasks such as payroll processing, leave administration, scheduling, and routine employee enquiries through chatbots and Robotic Process Automation (RPA) helps the organisation to improve its efficiency by allowing its workforce to carry out other more strategic and value-adding activities that contribute directly to organisational growth and competitive agility. Talking about global competitiveness is the sixth theme, which is captured as "Enhanced Global Competitiveness". This theme suggests that startup firms in developing economies can compete more globally by becoming innovative and smart through the adoption of AI in their HRM functions. Start-ups in developing economies can compete both in the local and international market through the intelligent use of organisational data, because they now have operational capabilities that were hitherto available to just the bigger and multinational corporations.

Discussion of Findings

The first objective of the study was to examine areas of AI adoption in HRM processes of corporate start-ups in developing economies. The thematic findings identified five major areas: talent acquisition and recruitment; employee onboarding, training and development; performance management; employee engagement and retention; and automation of routine HR processes. Specifically, AI-enabled tools were identified as useful for résumé screening and candidate matching, personalised training, real-time performance feedback, attrition prediction, sentiment analysis, payroll administration and employee self-service. These findings demonstrate that AI application in HRM extends beyond recruitment and can support activities across different stages of the employee lifecycle. The finding is consistent with Sundari et al. (2024), whose work discussed the role of AI in automating HR activities, personalising employee experiences and supporting performance-related decision-making. It also agrees with Madanchian et al. (2023), whose systematic review identified several AI-based HRM applications and highlighted the potential of AI tools to improve the efficiency of HR processes. Similarly, Nawaz et al. (2024) provided empirical evidence of the relevance of AI capabilities, including personalisation, to improving the efficiency of HRM practices. The present finding therefore reinforces the position that AI is becoming applicable across interconnected HR functions rather than being limited to a single activity. For start-ups, this is particularly important because automation and data-driven HR tools can reduce the burden associated with performing several HR activities with limited personnel.

In the second objective, the study sought to identify challenges militating against the adoption of AI in HRM processes of corporate start-ups in developing economies. From the findings, it showed that the major barriers to AI adoption were the perception that the business was too small to adopt AI, lack of AI-skilled personnel, limited understanding of how AI can work in HR operations, high implementation cost, and lack of organisational readiness. This finding is consistent with González et al. (2025), whose study of 250 Ecuadorian SMEs identified abilities, motivation and organisational opportunities as important factors explaining AI adoption in talent management. It also broadly supports Srivastava and Himanshu (2026), whose study involving 140 HR professionals in India highlighted technological interfaces, data integrity and competitive considerations among AI adoption priorities. The current study extends these findings by demonstrating that, within the start-up context, perceived organisational size and shortage of AI competence may constitute particularly immediate barriers. A notable contrast, however, emerged regarding employee resistance, privacy, and ethical and legal concerns. These recorded relatively low means and were therefore not perceived as major barriers by the respondents, probably because of a lack of awareness. This contrasts with the findings of earlier researchers such as Popo-Olaniyan (2022), whose study emphasised algorithmic bias and the privacy and security implications of processing sensitive employee information as major challenges. Also, Agwu (2026) highlighted ethical, legal and social concerns associated with AI-based HR systems as a major concern. The difference may indicate that start-ups at relatively early stages of AI adoption are more concerned with whether they can afford, understand and operate AI than with ethical and governance problems that may become more visible as adoption becomes deeper. Consequently, the low rating of privacy and ethical concerns should not necessarily be interpreted as evidence that such risks are absent.

Identification of the opportunities and prospects of AI adoption in HRM processes of corporate start-ups in developing economies was the third objective. From this, the thematic synthesis showed that AI offers strong prospects for corporate start-ups through faster recruitment, personalised employee development, real-time performance tracking, attrition prediction, automation of routine HR activities and improved competitiveness. The findings are broadly consistent with Madanchian et al. (2023), who identified AI-supported automation and data-driven HR processes, and Nawaz et al. (2024), whose work supports the value of personalisation and AI-enabled efficiency in HRM. Agwu (2026) similarly discusses opportunities for AI in HR analytics, recruitment, talent management, workforce planning and employee experience. The reviewed literature also indicates that predictive modelling can assist organisations in anticipating workforce trends and employee attrition, while AI-enabled performance systems can facilitate continuous feedback rather than relying exclusively on conventional periodic appraisals. An important implication of this finding is that AI may help reduce some of the disadvantages associated with the small size of start-ups. Automation can reduce administrative workload, while predictive

analytics and AI-supported decision-making can provide smaller businesses with HR capabilities that traditionally demanded substantial human and financial resources.

CONCLUSION

This study examined AI adoption in human resources management processes among corporate start-ups in developing economies with particular emphasis on areas of adoption, challenges, opportunities, and future prospects. The findings from the study showed that there are various areas where AI can be adopted in the HRM operations of corporate start-ups, including areas such as talent acquisition and recruitment, employee onboarding and training, performance management, employee engagement and retention, and the automation of routine HR activities. These areas of application highlight the growing relevance of AI as a strategic tool for improving organisational efficiency, decision-making, and workforce management. The study also indicated that corporate start-ups in developing economies face significant challenges in trying to adopt AI in their HRM operations, this is despite the opportunities and prospects adoption presents. Some of these challenges are high implementation costs, inadequate AI-related skills, limited technological readiness, and poor understanding of AI applications in HR operations. Some of the prospects of AI adoption in HRM functions are enhanced recruitment processes, personalised employee training and development, improvement in performance evaluation, better employee retention capacities, and increased overall operational efficiency. The study concludes that AI has become an indispensable component of modern HRM and can serve as a catalyst for competitiveness and sustainable growth among corporate start-ups in developing economies.

RECOMMENDATIONS

The following recommendations are made, following the findings from the study:

1. The owners and managers of corporate start-ups should prioritise a phased AI adoption in HRM, beginning with relatively affordable and less complex applications such as recruitment screening, employee enquiries, onboarding and routine administrative tasks before progressing to performance management and predictive HR analytics. Implementation should be guided by a simple AI adoption plan specifying the HR function, expected benefit, cost and responsible officer. Progress should be assessed periodically using measurable indicators such as reduction in recruitment time, administrative workload, HR processing time and operating costs.
2. The owners and managers of SMEs, especially those in HR functions, should focus on prioritising AI literacy and digital competency development to address the identified shortages in AI skills and understanding. This can be achieved feasibly through periodic short courses, workshops and partnerships with technology providers, training institutions and relevant government agencies. Measurable targets such as the number of HR personnel trained annually and their demonstrated ability to use approved AI tools effectively can be set by the SMEs.
3. Governments, regulatory agencies and enterprise-development institutions should prioritise financial, infrastructural and technical support for AI adoption among start-ups through competitive grants, tax incentives, subsidised digital infrastructure, shared AI facilities and targeted innovation-support programmes. Such interventions should be designed to be accessible to genuinely resource-constrained start-ups and tied to measurable outcomes, including the number of firms supported, employees trained, AI solutions implemented and improvements in HR efficiency.

LIMITATIONS OF THE STUDY

This study is limited by some factors. The first is that the empirical component was limited to corporate start-ups in South-East Nigeria, which may restrict the generalisation of the findings to start-ups in other developing economies as stated in the topic. Secondly, the survey relied on respondents' self-reported perceptions,

which may be affected by individual knowledge and understanding of AI applications in HRM. Thirdly, the literature-based component was restricted to studies that met the specified search and eligibility criteria, meaning that some studies that may have had some good contribution to the study may have been left out. Further studies will, therefore, be highly significant because of these limitations. Other researchers may want to extend the scope of their study to other regions within Nigeria or include other developing countries. Also, other studies could make their own more empirical, in which case they will collect more data from the SME owners or managers, rather than relying on secondary qualitative data from peer-reviewed journals whose study area may be significantly different from the current scope. Similarly, a comparative study could be carried out to know if there are differences in the use of AI for HRM processes in different regions of Nigeria or different countries in developing economies and probably take it a notch further by finding out why the differences exist, if they do.

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