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REVIEW ARTICLE PEER REVIEWED

A Narrative Literature Review on the Adoption of Artificial Intelligence in the Nigerian Workplace: Prospects and Challenges

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ABSTRACT

One of the most revolutionary technologies influencing contemporary workplaces worldwide is artificial intelligence (AI). To increase productivity, efficiency, and decision-making, Nigerian businesses in a variety of industries, including banking, telecommunications, healthcare, education, manufacturing, and public administration, are progressively implementing AI-driven systems. Nigerian workplaces still confront a number of structural, ethical, technological, and human resource issues that prevent effective implementation, despite the increased interest in integrating AI. As a narrative Literature review, the prospects and challenges of using AI in Nigerian workplaces are examined in this review using findings of several studies conducted locally in relation to the literature from other developed nations. The Technology Acceptance Model and Diffusion of Innovation Theory were used to further explore the theoretical basis of AI adoption. The study concludes, from an Industrial/Organisational perspective, that while AI offers Nigeria tremendous potential for economic expansion, operational effectiveness, and workplace innovation, its successful use depends on enhanced infrastructure, digital proficiency, regulatory systems, organisational support, and personnel welfare.

KEYWORDS Artificial Intelligence • Prospects • Challenges • Technology Adoption • Workplace

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1. INTRODUCTION

Across the globe, adoption of AI has emerged as one of the largest considerations in terms of organisational competitiveness and innovation. Various businesses are leveraging chatbots for recruitment, fraud detection, and customer service automation. Chatbots have become AI that helps employees with data analytics and exposes them to workflow management (Kaplan & Haenlein, 2020). AI adoption has not been as progressive in other developing economies like Nigeria, but its growth is being spurred by advances in internet penetration, the fintech ecosystem, digital transformation initiatives and the increasing number of technology-driven companies (Obele, 2025).

Artificial Intelligence (AI) is a subfield of computer science that deals with the simulation of human intelligence processes by machines and computer systems through learning, reasoning, problem solving, speech recognition and decision making (Russell & Norvig, 2021). AI technologies, including machine learning, robotics, natural language processing, predictive analytics and automation, have redefined the workplace all over the planet. Artificial Intelligence is adopted by organisations to improve productivity, reduce operational costs, enhance customer experience and support strategic decision-making processes (Brynjolfsson & McAfee, 2017).

Nigeria is a low- to middle-income country with quite moderate social inequality. 40% of the residents live beneath the nation's poverty threshold of 137,430 naira ($381.75) per year (NBS, 2024). But this is where AI comes to the rescue, as a way of tackling the problems being faced by the different sectors of the country. AI is now being employed in various services, including the banking, oil and gas, education, health care, telecommunications and human resource management sectors in industries across Nigeria. Nigerian fintech institutions reveal uses of AI for fraud detection, patron engagement or even for optimising their workforce (Abiodun & Ekwoaba, 2019). Integrating AI into precision farming is an inevitable step towards strengthening food security and boosting production (Adepoju, 2022). For example, in healthcare, Explainable AI (XAI) would be beneficial for optimising maternal and newborn health (Hanauer, 2024). Likewise, predictive maintenance-based analysis and automated monitoring systems can improve firm-level operational efficiency for oil and gas firms (Obele, 2025).

In addition to that, the oil and gas value chain has been impacted by these AI technologies, which operate utilising machine learning, natural language processing, and predictive analytics during exploration, drilling, production and distribution (Hanga & Kovalchuk, 2019). AI-based predictive maintenance is an example where equipment failure and downtime can be avoided, and equipment utilisation can be maximised (Akinola et al., 2021) or by making better reservoir modelling and production forecasting using advanced data analytics. In addition to supporting sustainability (Ogunbodede & Atchrim, 2025), an advantage of AI is that it can create additional jobs, drive investment and revitalise the country’s economy.

Emerging to the top among Institutes conducting state-of-the-art AI research, as reported by EduRank (2024), are the University of Ibadan, the University of Nigeria and Covenant University. Covenant University entered into an agreement with OBTranslate to carry out research and development in a vast and varied field, including Artificial Intelligence (Covenant University & OpenBinacle Group, 2023). In addition, private sector use of AI is on the rise, and many businesses are adjusting to it. Most of the solutions are currently focused on the areas of financial services, agriculture and healthcare (Okonkwo & Ade-Ibijola, 2021).

The intention of AI has long been recognised by governments around the world; Nigeria is a notable example in that it has attempted to develop programmes such as the National AI Strategy 2020–2030 (Omogbai, 2024) and the National Centre for Artificial Intelligence and Robotics (NCAIR). The government also established the National Information Technology Development Agency (NITDA) to enable the development of the digital economy. Some state governments, such as those in Edo and Lagos, are implementing policies to drive ICT development and a conducive business environment (International Trade Administration, 2023). These are all clear signs that the Nigerian government is intent on using technology and innovation to make great strides in both economic development and improving the quality of life for its citizens. Nigeria's research and innovation ecosystem is rapidly developing, and a number of Nigerian universities and institutes have been established to conduct research on Artificial Intelligence (Ogunbodede & Atchrim, 2025).

Despite the global developments in AI, adoption of AI technology in Nigerian workplaces remains slow relative to developed economies, owing to limited infrastructure capacity, a lack of expertise, high costs, cybersecurity concerns, and employee resistance to change. Low-cost internet, slow computer speeds, and limited access to broadband Internet also make it difficult for organisations in some areas to adopt new technology (Oghuvbu et al., 2022; Ekeinde et al., 2022; Sarfo et al., 2024). However, studies have also reported that the integration of AI could raise concerns regarding data privacy and ethical issues, and even lead to unemployment (Nwambuko, 2025).

Even though it has seen strong digital growth and is only starting to apply AI technologies in various sectors, Nigeria faces many challenges that are hindering its ability to capitalise on AI breakthroughs as a driver of economic growth and technical innovation. The AI-led progress is very gradual because Nigeria has inadequate AI infrastructure, limited qualified experts and poor funding for AI research (Ogunbodede & Atchrim, 2025). This has also kept research funding lower in Nigeria than what is obtainable in developed countries due to poor government funding (Echono, 2023). Furthermore, unstable power supply, inadequate Internet accessibility, and regulatory uncertainties hinder the proper deployment of AI across the nation (Federal Nigerian Academy of Sciences, 2025). The government's efforts to encourage the use of AI are

hindered by the lack of an overarching framework for the ethical use of AI, as well as by the absence of regulation to protect data privacy and to mitigate automation-induced job loss (Ogunbodede & Atchrim, 2025). Because AI is primarily deployed in a limited number of sectors, it fails to catalyse growth in the rest of the economy. If existing challenges are not addressed, Nigeria risks lagging behind other nations in developing AI technologies. This study assesses the deployment of AI in Nigeria, highlighting gaps in national growth and outlining concrete stylistic approaches within Industrial/Organisational psychology frameworks.

Research Questions

The following questions guided the study:

i. What are the prospects and applications of AI across various sectors?

ii. Are there challenges hindering AI adoption in Nigeria?

iii. What are the recommendations from an Industrial/Organisational perspective to maximise these prospects?

Objectives of the Study

The specific objectives are:

i. To explain the prospects and applications of AI across various sectors.

ii. To analyse the challenges hindering AI adoption in Nigeria.

iii. To highlight recommendations from Industrial/Organisational perspective to maximise these prospects.

Theoretical Framework

Technology Acceptance Model (TAM)

The Technology Acceptance Model (TAM) was developed by Davis (1989) to explain how users accept and utilise new technologies. The model posits that two major factors determine technology adoption: Originally developed by Davis (1989), the Technology Acceptance Model (TAM) seeks to explain how users come to accept and use a technology. The model suggests that two main drivers dictate tech adoption:

Perceived usefulness: The degree to which an individual believes that using a new technology will enhance their job performance.

Ease of Use: The extent to which a person believes that using the new technology will be free of mental and physical effort.

In Nigeria, employees are more willing to adopt AI technology in the workplace when they see it as useful, effective, and easy to use. AI systems that alleviate workloads, increase precision and productivity are likely to get more acceptance among workers. Yet if employees believe AI systems are inherently complex, or even threaten job security, they may resist (Sarfo et al., 2024).

This is because TAM (Technology Acceptance Model) explains how perceptions of workers on the perceived usefulness of technology, and also ease of use, impact on an intention to adopt when implementing AI at the organisational level. The model also outlines the process of organisational training, management support and user confidence as key factors in successful AI stealth approaches implementation. (Davis, 1989).

Diffusion of Innovation Theory (DOI)

The Diffusion of Innovation Theory was proposed by Rogers (2003). The theory explains how innovations spread within organisations and societies over time. According to Rogers (2003), innovation adoption depends on five characteristics:

1. Relative advantage
2. Compatibility
3. Complexity
4. Trialability
5. Observability

In the context of Nigerian workplaces, organisations are more likely to adopt AI technologies when they perceive clear advantages such as increased productivity, cost reduction, and improved service delivery. However, adoption may be delayed where organisations lack transformational leadership, technological

readiness, financial resources, psychological safety or skilled personnel (Obele, 2025). The DOI theory is suitable for explaining differences in AI adoption across Nigerian organisations, especially between private and public sectors, urban and rural institutions, and large and small enterprises.

2. PROSPECTS OF AI ADOPTION IN NIGERIAN WORK SETTINGS

The adoption of Artificial Intelligence (AI) in Nigerian workplaces presents significant prospects for improving productivity, operational efficiency, innovation, and national competitiveness. As organisations across banking, telecommunications, oil and gas, healthcare, education, manufacturing, and public administration increasingly digitise their operations, AI is becoming a strategic tool for workplace transformation. Recent evidence shows that firms in major Nigerian commercial centres such as Lagos, Abuja, and Rivers State are increasingly integrating AI into workflow automation, customer engagement, business analytics, and decision-making processes (BusinessDay, 2025).

i. Increased operational efficiency and productivity: One major prospect of AI adoption in Nigerian workplaces is increased operational efficiency and productivity. AI technologies automate repetitive administrative tasks, reduce human error, improve speed of service delivery, and enhance organisational coordination. In Nigerian firms, AI-driven systems are increasingly being used for document processing, scheduling, payroll administration, recruitment screening, fraud detection, customer support chatbots, and predictive analytics. Research on Nigerian organisations indicates that AI adoption significantly improves workforce productivity, profitability, and competitive advantage, especially in sectors such as banking, telecommunications, and manufacturing (Oladimeji & Adebayo, 2024).

ii. Enhanced decision-making and business intelligence: Another critical prospect is enhanced decision-making and business intelligence. AI systems can process large volumes of organisational data in real time, allowing managers to make evidence-based decisions more accurately and quickly. Nigerian organisations are increasingly using AI-powered analytics to forecast market trends, monitor consumer behaviour, assess risks, and improve strategic planning. In the banking sector, AI-supported fraud detection systems have strengthened financial monitoring, compliance management, and cybersecurity operations. Studies indicate that Nigerian banks adopting AI-based fraud detection experience improved risk management and operational effectiveness (Afolabi & Yusuf, 2024). Similarly, AI adoption in Nigeria's oil and gas industry has improved predictive maintenance, operational monitoring, and supply chain management, leading to increased efficiency and reduced downtime (Okeke et al., 2024).

iii. Enhancement of human resource management and workplace administration: AI adoption also offers substantial prospects for human resource management and workplace administration. AI-driven HR systems assist organisations in recruitment, employee evaluation, training, attendance management, and performance appraisal. Nigerian HR professionals increasingly perceive AI as a tool that improves fairness, speed, and accuracy in recruitment and personnel management (Eze & Nwankwo, 2023).

iv. Workforce skill development and digital transformation: Another important prospect is workforce skill development and digital transformation. The growing adoption of AI is encouraging Nigerian organisations to invest in digital literacy, technical training, and innovation-oriented work cultures. AI implementation is driving demand for data analysts, machine learning specialists, software engineers, cybersecurity professionals, and digital managers. Studies on AI adoption in Nigerian education and vocational systems suggest that AI integration can modernise workforce training and improve employee adaptability to emerging technologies (Akinyemi & Adeoye, 2024). The Federal Government's introduction of AI training initiatives and digital skill academies further reflects the growing recognition of AI as a catalyst for future workforce competitiveness (Federal Ministry of Communications, Innovation and Digital Economy [FMCIDE], 2024).

v. Improving service delivery and customer experience: In addition, AI adoption has the potential to improve service delivery and the customer experience in Nigerian workplaces. AI-enabled chatbots, virtual assistants, and recommendation systems allow organisations to provide faster and more personalised services to customers. In healthcare and mental health support, AI-powered digital platforms are increasingly helping Nigerians access preliminary counselling, health information, and support services where professional resources are limited (The Guardian, 2026).

vi. Strengthening Nigeria's global competitiveness and industrial modernisation: Furthermore, AI adoption can strengthen Nigeria's global competitiveness and industrial modernisation. Countries and organisations that effectively integrate AI into production systems, governance, and service sectors are

likely to gain economic advantages in the global knowledge economy. AI-driven automation can improve industrial productivity, support smart manufacturing, and encourage innovation ecosystems within Nigerian workplaces. The increasing integration of AI across sectors demonstrates Nigeria's gradual transition towards a technology-driven economy capable of attracting foreign investment, promoting digital entrepreneurship, and enhancing labour market competitiveness (BusinessDay, 2025).

3. CHALLENGES OF AI ADOPTION IN NIGERIAN WORK SETTINGS

The adoption of Artificial Intelligence (AI) in Nigerian workplaces is expanding across sectors such as banking, telecommunications, oil and gas, healthcare, education, manufacturing, and human resource management. Despite its growing relevance, organisations continue to encounter significant barriers that limit effective implementation and sustainable utilisation of AI technologies. These challenges are technological, economic, organisational, ethical, and regulatory in nature.

i. Inadequate digital infrastructure: The lack of digital infrastructure in Nigeria remains one of the most significant obstacles towards AI adoption in its workplaces. Data corroboration is the crucial backbone of AI systems, as these systems require stable electricity, high-speed internet, cloud computing facilities and reliable data storage systems. However, a lot of Nigerian businesses are in an environment plagued by unstable electricity supply, unreliable internet access and inadequate technology infrastructure. This raises operational costs and prevents more advanced AI applications from seeing wide-scale deployment. Research on AI adoption in Nigeria has highlighted infrastructure deficiency as a significant barrier to workplace AI, particularly with respect to small and medium-sized enterprises (Afolabi & Olagunju, 2023; World Bank, 2024).

ii. Resistance to organisational change: A second major barrier is the resistance of organisations to implementing change and the fear of job displacement among employees. In sectors where routine tasks can automation, employees typically see AI technologies as a threat to job security. Such fear fuels resistance to AI-driven workplace changes, resulting in low acceptance and distrust of the new technology. International research has similarly demonstrated that employees are often very wary of the introduction of AI when organisations do not articulate well-defined planning routes or invest in reskilling (Brougham & Haar, 2018; McKinsey & Company, 2024).

iii. Ethical and social issues concerning algorithmic bias: Ethical and social challenges regarding algorithmic bias, workplace inequality, and transparency pose ongoing barriers to the global and local adoption of AI. Inevitably, training AI systems on biased datasets can unconsciously perpetuate the discrimination in the recruitment and performance evaluation process or in decision making. Concern about fairness, inclusiveness and accountability is a growing factor affecting attitudes in the workplace about AI technologies. Global workplace research suggests that unresolved ethical issues can decrease employee trust in AI and overall acceptance of AI systems by organisations (Floridi et al., 2021; World Economic Forum, 2024).

iv. Technical skills and talent shortage: Another challenge is the lack of technical talent and expertise in AI. AI needs machine learning engineers, data scientists, cybersecurity as well as AI Ethics. Nigerian workplaces often experience brain drain, lack of locally available training opportunities, and the high global demand for AI talent make it difficult to attract or retain qualified talent. Studies among the banking and oil sectors in Nigeria have found that lack of related technical skills greatly impedes implementation efforts, particularly and most importantly as it relates to organisational readiness for an AI revolution (Ezeani & Ugochukwu, 2024; International Labour Organization [ILO], 2023).

v. High implementation and maintenance cost: This is due to the high costs of implementation and maintenance, which derail AI from penetrating Nigerian workplaces. Successful deployment of AI technologies necessitates a huge financial use in strong hardware, software licensing, worker training on the new technology, development of specialised cybersecurity systems to safeguard sensitive information fed back and forth between systems, and updates to keep systems up to date. Most businesses, especially start-ups and public institutions simply do not have the resources to maintain these investments. Recent analysis suggested that few AI initiatives make it beyond pilot stages because organisations find it difficult to justify ROI and ongoing operational costs (Okeke et al., 2023).

vi. Cybersecurity concerns related to data privacy: That is also another big challenge related to data privacy and cyber security. The large storage requirements for the organisational and customer data of AI systems mean that workplaces are easy targets for cyberattacks, unauthorised access, or misuse

of sensitive information. Weak data governance frameworks and inadequate cybersecurity protections remain a deterrent against full integration of AI into critical operations for many firms in Nigeria. Data protection and regulatory uncertainty remain a common barrier to deploying AI, as identified in studies of healthcare and banking sectors (Adewale & Nwaneri, 2024; European Parliament, 2024).

vii. Lack of comprehensive legal and ethical frameworks: Moreover, the lack of comprehensive legal and ethical frameworks makes organisations hesitant to adopt AI. Nigeria is in the process of putting together policy frameworks around algorithmic accountability, ethical use of AI, intellectual property rights and automated systems within the workplace. A fear of legal liabilities and ethical controversies could deter organisations from investing in AI technologies without clear regulatory guidelines on security standards. Key challenges identified in a Nigerian context for the use of AI across human resource management systems includes algorithmic bias, ethical issues and poor regulatory frameworks (Obi & Chukwuemeka, 2023; UNESCO, 2023).

4. CONCLUSION

Nigeria is poised at a decisive moment where artificial intelligence could be the light that leads to significant change economically and socially. Although AI adoption is on the rise across sectors such as finance, healthcare, agriculture and education, several challenges, including poor infrastructure, a scarcity of AI expertise and regulatory issues, still need to be addressed. That said, the government's investment in artificial intelligence through the National AI Strategy and the new National Centre for Artificial Intelligence and Robotics is encouraging. To realise AI's full potential, the nation needs concerted efforts to increase research funding, promote digital literacy and establish ethical frameworks for the use of AI technologies. To unlock the full potential of AI in Nigeria, coordinated efforts from stakeholders across various sectors would be required to invest in digital infrastructure, workforce capacity, an ethical governance system, and an enabling policy framework that prioritises the welfare and psychological safety of employees, among other measures, to facilitate adoption in line with the theories employed in the study. Collaboration between government, the private sector, and academic institutions will be necessary to ensure AI delivers on those promises for national development, job creation, and better lives for Nigerian personnel, with ease of use. Nigeria can become an AI innovation hub not only in Africa but also beyond by relying on the economically dynamic digital ecosystem and a large, young, tech-savvy population.

5. RECOMMENDATIONS FROM INDUSTRIAL/ORGANISATIONAL PSYCHOLOGY PERSPECTIVE

Based on industrial/organisational psychology, successful implementation of artificial intelligence (AI) in Nigerian workplaces will not only require technological infrastructure but also depend on factors including employee attitudes, organisational culture, leadership behaviour, work design, psychological safety and ethical management. Because I/O psychology focuses on the interplay between people, technology, and organisational systems, suggestions for AI adoption will need to be balanced with productivity, neoclassical economics measures of success, employee well-being, trust in organisations (and technologies), and effectiveness.

i. Adoption of human-centred artificial intelligence implementation: A key recommendation is that Nigerian organisations need to implement AI with a human-centred approach. When employees see AI systems as colleagues with helpful tools rather than as a threat to job security, they are less likely to reject them. Research in some Nigerian workplaces reflects employee fears about job loss from AI, increased surveillance, and reduced human interaction (Ejike, 2025; Nwambuko, 2025). This is why industrial/organisational psychologists recommend participative management, where employees are actively engaged in AI planning, testing and implementation. Participation leads to greater engagement, less resistance, and greater use of technological innovations.

ii. Cultivating a culture of innovation and adaptability: Nigerian organisations should foster a culture of innovation and adaptability. Technology adoption and long-term sustainability are heavily influenced by organisational culture. Companies that embrace experimentation, learning, collaboration and psychological safety will be more successful in their AI-driven transformation. Studies of Nigerian enterprises show that when employees operate in favourable organisational climates, AI improves organisational efficiency and quality through knowledge sharing and rapid decision-making (Ola-Oluwa, 2024). Hence, building trust, inclusiveness and a common organisational vision is important to optimise the opportunities of AI at work while minimising its challenges..

iii. Continuous training for the employees: One other suggestion is to invest in continuously training and upskilling employees. The introduction of AI changes the structure a task, changing what skills are needed to successfully perform that task, with an increased demand for digital literacy/analytical thinking/adaptability/collaborative work with machines. Research on the preparedness of professionals for AI in Nigeria has found that inadequate technical capability continues to be one of the most significant challenges for successful implementation (Abiodun et al., 2025; Nwambuko, 2025). Organisations also need to invest in systems for competence-based training, mentorship programmes and institutional learning cultures that foster confidence in technology readiness, alongside adaptability (i.e. Acceptance) from an I/O psychology perspective. Training is not just for technical skills but also for psychological preparedness, stress management and adapting to changing roles at work.

iv. Reinforcement of transformational leadership and change management: Another sticking point is the need to build transformational leadership and change management capacity in delivering AI within organisations. When processes of an organisation become automated, employees are prone to uncertainty and anxiety. To reduce fear, leaders need to communicate a clear vision of the purpose of AI and then explain how it benefits employees. Studies on AI adoption preparedness indicate that, for sustainable integration, organisational leaders who prioritise trust-building, social learning and collective adaptability are able to fully realise their AI potential (Übellacker, 2025). To avoid technostress, I/O psychologists accordingly advocate clear communication systems, employee counselling and organisational support programmes.

v. Creating Ethical Governance: Another critical recommendation is ethical governance. AI systems pose risks to data privacy, bias in algorithms, employee monitoring issues, unfair recruitment and performance appraisal challenges. Studies from Nigeria have drawn attention to the issues of a weak legislative framework, lack of ethical safeguards, and employee rights protection in workplaces driven by AI (Matthew & Onyedikachi, 2025; Nwambuko, 2025). With this, organisations need to create ethical AI policies based on strong transparency, accountability, and fairness principles with a human-in-the-loop approach. I/O psychologists have a role to play in designing equitable AI-assisted selection systems, procedures for reducing bias and psychologically safe monitoring processes that protect the dignity and trust of employees.

vi. Promoting employee well-being and mental health in the context of technological transitions: One other recommendation is to prioritise employee wellness and mental health during technology transitions. The rapid pace of AI adoption may exacerbate work stress, job loss fears, uncertainty regarding roles and intensification of work. In Nigerian workplaces, it has been found that the introduction of AI may generate psychological concerns like paranoia, distrust and fear that jobs will be lost (Ejike, 2025). This is where I/O psychologists recommend deploying workload management systems, employee assistance programmes, wellness initiatives and flexible work policies to minimise the burnout resulting from such digital transformation.

vii. Investment in support infrastructure and institutional policies: Policymakers and business leaders should invest in national and organisational supportive infrastructure and institutional policies. Various Nigerian studies highlight deficits in digital infrastructure, persistent electricity supply challenges, prohibitive costs of implementation and poor policy frameworks as major challenges to adopting AI (BusinessDay, 2026; Nwambuko, 2025). Chai and other industrial/organisational psychologists suggest working with public-private collaboration to develop better business workforce planning, more efficient digital education platforms, and help review labour policy reforms/processes in order to achieve a more inclusive and sustainable approach towards integrating AI across industries.

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