Artificial Intelligence and Human Resource Management in Nigerian Deposit Money Banks

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ABSTRACT

The current adoption of Artificial Intelligence (AI) is creating a paradigm shift in HRM with focus on recruitment and selection processes. In as much as there has been a global increase in the discourse of AI in HRM, there appears to be inadequate empirical studies particularly from emerging economies, most especially in the Nigerian banking sector. In this study, we investigate the impact of AI enabled recruitment and hiring technologies (Applicant Tracking Systems, Chatbots and Predictive Analytics) on recruitment and hiring performance of some deposit money banks in Nigeria. This study employed a descriptive survey design, with a sample size of 60 management employees in three banks in Ogun State. Regression and correlation techniques were utilized to test the hypotheses and the finding is that while ATS was positively related to recruitment and hiring, chatbots and predictive analytics were negatively related and statistically non-significant. In addition, there was no statistically significant positive prediction of AI application on the effectiveness of recruitment and hiring performance. This indicates a lack of meaningful use and integration of AI enabled HR systems in the selected Nigerian banks. This study adds to the new area of AI in HRM literature in developing economy and recommends proper integration of the technology, training of users and improvement in data input and analysis and also ethical frameworks for usage.

Keywords

Artificial intelligence; human resource management; recruitment; applicant tracking systems; predictive analytics; Nigerian banks

INTRODUCTION

HRM is an essential function in every organization to meet the goals of strategic goals by recruiting and retention of efficient employees. In the current business era where it is unstable, technology is continuously upgrading, competition is high; there is a high dependency on digital tools for effective workforce planning and decision making (Tambe, Hitt & Brynjolfsson, 2018). Of all the tools AI, also termed as smart technology has shown significant improvement and transformation by reducing work time by automated processes, better predicted outcomes and evidence-based decision-making. AI can be implemented through various tools such as Applicant Tracking System (ATS) for screening of resume, Chatbots for communication with applicants, predictive analytics for future workforce planning and employee retention prediction (Wright & Ulrich, 2017). While there are various advantages of such implementation in reducing time and cost for better objective recruiting and eliminating human error (Kathuria and Aggarwal, 2023), there are still concerns regarding issues of data privacy, transparency and algorithmic bias (Mukherjee, 2022). The banking industry serves as a critical domain to study the impact of AI-driven HRM, because it depends highly on a knowledgeable workforce, strict regulations and the service provided to customers. In Nigeria, specifically, banks have faced mounting pressures to adapt their practices, bridge the digital skills divide and foster organizational agility (Oyewobi & Lawal, 2023). Although, substantial investments have been channeled into the application of fin-techs, empirical studies investigating the effects of the usage of AI-based tools on HR outcomes are minimal in the Nigerian context. Moreover, most prior work has remained predominantly conceptual or used samples from developed nations thus limiting the findings' relevance for less developed nations like Nigeria. In general,

global studies report some evidence indicating that, the use of AI can lead to positive effects on HR effectiveness and organizational performance (Alnsour et al., 2024; Tambe et al., 2022), however some studies also present inconclusive or insignificant outcomes, especially within the bounds of infrastructure, institutional and skills constraints (Kshetri, 2021). This discrepancy highlights the necessity for local empirical investigation. In the light of this premise, the present study analyzes the impact of AI on HRM within Nigerian banks, using the area of recruitment and hiring as a case in point. It is to be noted that the present study is not intended to provide a detailed investigation on the effect of three specific AI powered tools, which are Applicant Tracking System, chatbots and predictive analytics on the recruitment and hiring outcomes of some deposit money banks. Nevertheless, the present study makes contribution to the emerging literatures on digital HRM in emerging economies and to provide actionable guidelines for manager who are keen to integrate AI into the work-force to enhance work efficiency.

The study is guided by the following objectives:

i. To examine the effect of applicant tracking systems on recruitment and hiring in selected Nigerian Banks.
ii. To evaluate the influence of chatbots on recruitment and hiring outcomes.
iii. To determine the effect of predictive analytics on recruitment and hiring processes.

LITERATURE REVIEW

Conceptual Framework

Artificial Intelligence

Artificial intelligence (AI) is defined as the ability of machines to do what machines normally use human intelligence, learning, reasoning, problems and decision-making (Pandya & Kumar, 2023). It is a technology which uses algorithms, machine learning and mass amounts of data to recognize patterns, draw conclusions and continue improving itself. While contemporary AI have moved from the specialized forms, in which systems learn a specific topic of knowledge and are applied to a narrow range task, such as the ability to screen CVs or recognize voices, to the form where it learns many subjects of knowledge and is able to behave in an adaptive way to cover wider ranges of topics (Russell and Norvig, 2020), it is being utilized within an organization for automatization processes of administrative tasks, to make the analytical processes better and to aid the decision-making processes of the managers (Chung et al., 2022). The utilization of AI within HRM is focusing on recruitment, training, personnel development, personnel planning and performance appraisal to allow organizations cope with high amount of employee data in a consistent and clear way.

Applicant Tracking Systems (ATS)

Applicant tracking systems are software platforms designed to facilitate and streamline the recruitment process through functions such as job posting, resume searching, candidate ranking and communication (Stone et al., 2015). ATS platforms analyze job applicants through keyword matching, competencies frameworks and machine learning algorithms to filter the highest quality candidates who align with the requirements of a job posting (Martinez, 2018). ATS significantly decreases administrative efforts and shorten time-to-hire times while scaling recruitment to organizations that receive a large influx of applicants (Martinez, 2018). In addition to improving administrative efficiency, ATS offers organizational benefits such as maintaining an audit trail and ensures an applicant screening consistency through standardized procedures (Martinez, 2018). Algorithm bias, an overemphasis on keywords and the disqualification of viable candidates have all been highlighted as a concern associated with the ATS (Mukherjee, 2022).

Chatbots

Chatbots are conversational agents that leverage AI in order to communicate with candidates via text or voice channels. They help recruiters improve candidate experience in several ways, such as answering commonly asked questions, booking appointments and interviews, providing application status and offering on-boarding

details (Morgaji, 2021). Continuous availability and scalability allow chatbots to significantly reduce recruitment costs and handling candidate interactions at large scales. Research indicates that chatbots help to enhance response speed and the overall candidate experience, primarily in initial recruitment processes (Nguyen and Sidorova, 2017), although successful implementation requires linguistic accuracy, good contextuality and user trust. For example, in industries with low levels of candidates wanting to speak to a human or with disparate levels of digital proficiency amongst them, the benefits of employing chatbots could be limited (Adeshina, 2020).

Predictive Analytics

Predictive analytics utilize history, statistics and algorithms, typically machine learning, to identify future workforce outputs such as turnover, productivity, absence and recruitment success (Marler & Boudreau, 2017). The purpose of predictive analytics within the realm of recruitment is to determine what qualities are associated with high productivity and tenure so that organizations can hire for quality and forecast their workforce better (Rasmussen & Ulrich, 2015). Predictive analytics allow HR to be proactive with its decision making, with such things as managing talent pipelines and matching workforce supply to business demand. This type of analytics relies on quality data, interpretable information and the ability of the organization to take action on insights generated from predictive modeling (Kshetri, 2021).

Human Resource Management

The management of employees toward the attainment of organizational objectives is known as Human Resource management (HRM). Key functions of HRM include recruitment and selection, training and development, performance management, remuneration and reward system, employee relations and industrial law (Egarievwe et al., 2021). Currently HRM entails a business-centered approach that emphasizes data-driven decision making, enhancing employee experience and alignment between human capacity and business strategy (Almazrouei et al., 2023). The use of Artificial Intelligence (AI) in HRM indicates the move towards HR ecosystems driven by digital technology, combining automation with analysis-based knowledge, leading to more efficient and fair decisions and greater strategic contributions of HR, while simultaneously raises concerns for the use of AI which include concerns related to transparency, bias, data privacy and dehumanization of the process (Lateef & Okikiola, 2023; Mukherjee, 2022). The utilization of AI in HR requires organizations to adopt a human-centered governance framework in tandem with the advancement of technology.

Theoretical Framework

Human Capital Theory

According to Human Capital Theory, individuals' productivity and organizational outcomes will increase if the investment is channeled toward employee training, development and welfare (Marginson, 2017). With reference to HRM, the theory emphasizes recruiting, developing and retaining talented individuals as competitive factors. As such, AI-based recruitment tools fit into the human capital theory perspective by enabling the organization to select candidates with better abilities and potential. It will increase the efficiency and the quality of the hiring, reduce mismatches between individuals and jobs and consequently optimize human capital investment.

Resource-Based View (RBV)

The resource-based view of the firm, an established stream of the strategic management literature, asserts that organizational performance is derived from strategically valuable, rare, inimitable and non-substitutable (VRIN) resources (Barney, 1991). In modern organizations, valuable resources are predominantly intangible such as analytical capability, technology infrastructure and human capabilities. AI-based human resources systems can act as strategic resources to the extent they enhance the speed, accuracy and alignment of employee selection process with competitive position in ways that competitors cannot easily imitate (Asajile et al., 2024). Nevertheless, these gains will occur only in conjunction with specific complementary assets such as trained human capabilities, data and corporate culture.

Technology Acceptance Model (TAM)

The technology acceptance model provides a framework for the study of user' technology adoption by basing itself on the notions of perceived usefulness and perceived ease of use (Davis, 1989). Applying it to human resources contexts, the TAM proposes that HR professionals will be more willing to adopt AI technologies that assist their jobs and are perceived as having high usefulness and ease of use. Apart from usefulness and ease of use, user' acceptance of technology is also affected by factors such as trust in algorithms, data security, supportive organizational culture and training (Venkatesh & Davis, 2020).

Empirical Review

Generally, empirical research has produced significant relationships between AI implementation and HR efficiency, quality of decision-making and performance with contexts influencing the outcome of such studies.

Alnsour et al (2024), found AI implementation of recruitment practices in Jordanian commercial banks led to significant improvements in HR efficiency and organizational effectiveness with an easier interface. Using Access bank and a Nigerian university as cases, Owulo et al (2024), discovered that the use of AI tools, though they improved HR performance of recruitment and employees management, limitations in the effective implementation of the tools affected performance.

Umasankar et al (2024), demonstrated that AI applications within the framework of Industry 4.0 can improve workforce well-being, organizational sustainability and HR adaptiveness emphasizing the significance of digital HR competencies in strategy implementation. Onyeka (2024), however, observed different results on AI application on sustainable accounting practices in Nigeria based on the readiness of organizations and quality of data.

The challenges such as lack of infrastructure, shortage of skill, and institution challenges affects the results of performance of digital technologies (Kshetri, 2021). Research by Lateef and Okikiola (2023), indicates that despite the general positive perception towards AI application in HR by Nigerian organizations, the real HR performance enhancement of using AI tools still showed a moderate performance due to limited implementation of such tools, lack of training and the ethical aspect.

As evidenced, empirical studies have produced mixed results on the implications of AI on HR performance, though it promises a considerable contribution to the functionality and efficiency of HR function in general, much more emphasis has been placed on developed countries than in developing countries. It is scarce for the combined effects of ATS, chatbots and predictive analytics on recruitment and hiring performance to be empirically verified within the Nigerian banking context. This research aims at filling that gap by providing evidence at the industry level from Nigeria.

METHODOLOGY

Research Design

This research adopted a descriptive survey research design to assess the relationship between AIpowered tools and recruitment and hiring outcomes. A descriptive survey research design allows for an overview and description of the perceived behaviors, practices and outcomes across organization settings using standard instruments (Skokan, 2016).

Population and Sample

The study was conducted using all employees working in deposit money banks in Nigeria. Three deposit money banks (Access Bank Plc, United Bank for Africa Plc and Wema Bank Plc) were purposely selected out of other deposit money banks in Ilaro, Ogun State, with intent of representing relatively older and emerging new institutions. The sample consists of 60 management staff (20 in each bank) from strategic functional units such as human resource unit, operations, information technology (IT), marketing unit and customer service unit.

Sampling Technique

Purposive or judgmental sampling technique was used to select individuals that will serve as samples since the research requires personnel that will provide concrete and verifiable information about the variables under consideration. The entire population within the branches selected for data collection was used (Census technique).

Data Collection Instrument

The research collected primary data from the respondents using a self-administered questionnaire with closed-ended questions on a likert type scale. The questionnaire contained closed-ended questions to collect information on three independent variables (applicant tracking systems, chatbots and predictive analytics) and the dependent variable (recruitment and hiring outcomes). **Validity and Reliability**

Content validity was tested by content expert (academic supervisor and HR professional), where suggestions were made and adhered to in terms of relevance and comprehensibility of each item in the research instrument to a respective construct. Instrument reliability was tested using the test-retest method; the coefficient was determined as acceptable.

Data Analysis

Descriptive statistics (frequencies and percentages) and inferential statistics (Pearson correlation and multiple regression analysis) were used for data analysis at a significant level of 0.05.

RESULTS AND DISCUSSION

Table 1: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.326[a]	.106	.055	.93469

a. Predictors: (Constant), ATS, CB, PA

Source: Field Survey, April 2026

From the model summary as represented above, the independent variable relationship to the dependent variable as a whole are in a weak linear relationship since the r-squared value is 0.106. The joint effect of the independent variables and dependent variables shows that 10.6% of the variation in artificial intelligence could be explained by the combined effect of applicant track system, chat bots and predictive analytic. Adjusted R-squared of the independent variables was found to be 0.055 as shown above which showed that only 5.5% of the variation in recruitment and hiring processes in selected deposit money banks in Nigeria could be accounted for by these variables. R-squared reflects the measure of model's fit and also illustrates the extent to which artificial intelligence and human resource management processes at selected deposit money banks in Nigeria are related.

Table 2: ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	5.410	3	1.803	2.064	.116[b]
	Residual	45.429	52	.874		
	Total	50.839	55			

a. Dependent Variable: RAH

b. Predictors: (Constant), PA, CB, ATS

Source: Field Survey, April 2026

Based on the ANOVA statistics above, the value 0.116 is significant (probability values represent a 0.116 level of confidence, implying that data can be used to make inferences about the parameter of population). At the 5% level of significance, the F value was 2.064. Since F calculate is greater than F critical (0.116), the total model was significant and this implies there exists a high relationship between artificial intelligence and management of human resources in the selected deposit money institutions in Ilaro, Ogun State.

Table 3: Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	7.823	2.135		3.664	.001
	ATS	2.255	1.486	1.273	1.517	.135
	CB	-2.972	1.965	-1.266	-1.513	.136
	PA	-.494	1.095	-.255	-.451	.654

a. Dependent Variable: RAH

Source: Field Survey, April 2026

RAH = 7.823 + 2.255ATS -2.972CB -0.494PA---------- (1)

All variables were statistically significant, given the p-values were less than 0.05 at the 95% level of confidence. This model indicated that the four variables were zero and that the rate of recruiting and hiring was 7.823. In addition, the findings of the study indicated that holding all other independent variables at zero, a one unit increase in Applicant Tracking Systems, increased recruitment and hiring by 2.255 with t statistic of 1.517 and p value of 0.135 which is greater than 0.05 level of significance. The finding showed that Applicant Tracking Systems had a positive and insignificant impact on the recruitment and hiring of the selected deposit money banks in Ilaro, Ogun State. Furthermore, the finding of the study showed that holding all other independent variables at zero, a one unit increase in chat bots, decreased the recruitment and hiring by -2.972 with t statistic of -1.513 and p value of 0.136, which is greater than 0.05 level of significance. The finding revealed that chat bots had a negative and insignificant impact on the recruitment and hiring of the selected deposit money banks in Ilaro, Ogun State. The findings also revealed that holding all other independent variables at zero, a one unit increase in predictive analytic, decreased the recruitment and hiring by -0.494 with t statistic of -0.451 and p value of 0.654 which is greater than 0.05 level of significance. It revealed that predictive analytic had a negative and insignificant impact on recruitment and hiring of the selected deposit money banks in Ilaro, Ogun State. Therefore, the result shows that applicant tracking systems, chat bots and predictive analytics have negative and insignificant impacts on the recruitment and hiring at 0.05 level of significance.

DISCUSSION OF FINDINGS

The insignificant positive effect of ATS is also consistent with the research that indicated automation enhanced administrative efficiency and effectiveness in recruiting; it could not be said to influence hiring outcomes unless the system is accompanied by the utilization of other HR functions, user training and the system could be tailored to meet the specific needs of organizations (Stone et al., 2015; Mukherjee, 2022). Within the context of Nigeria banks, ATS is potentially more widely used for record-keeping and compliance reasons than for sophisticated talent analytical tools, limiting its strategic effect.

The insignificant negative impact of the chatbots means that the use of automated tools in managing candidate interactions might not be in tandem with applicants' expectations and Nigerian cultures. Similarly, it supports the work of Adeshina (2020), that job seekers might desire more personal interactions from a human rather than a chatbot especially concerning job opportunities that could have an impact on their career trajectories.

Similarly, the minimal influence of predictive analytics can be attributed to problems in data quality, analytical ability, and organizational preparedness. According to Marler and Boudreau (2017), the impact of predictive analytics is valuable only if the organization has quality data and analytical ability to transfer that information into decisions. Because the HR data are often fragmented in the developing countries, the organization does not have the ability to use analytical tools effectively (Kshetri, 2021). Combined, these results differ from what have been found in developed countries, such as impressive performance improvements resulting from AI enabled HRM (Tambe et al., 2022; Alnsour et al., 2024). It shows that institutions, digital readiness, labor expertise and regulations matter a lot when adopt AI.

CONCLUSION AND RECOMMENDATIONS

This research investigated the impact of artificial intelligence on recruitment and hiring outcomes in the Human Resource Management of chosen Nigerian deposit money banks. The data were obtained through a survey distributed to 60 management staffs and were analyzed through regression. Results indicated that AI tools like applicant tracking system (ATS), chatbot and predictive analytics could not predict recruitment and hiring outcomes. Even though ATS was positively associated with hiring outcomes while chatbot and predictive analytics are negatively related, but none of these relationships are statistically significant.

This means that Nigerian deposit money banks could be underutilizing AI in their Human Resource Management. The application of AI in HRM in the sector could have only started being integrated into the core HRM functions, leading to insignificant outcomes in recruitment and hiring effectiveness; the tools were more of an administrative or an experimental utility rather than a strategic one. In realizing the strategic potential of AI-enabled HRM, factors such as organizational readiness, data quality, skill development and organizational structure is crucial.

Based on the conclusion above, the following recommendations were made:

i. Banks should continue to invest in and refine their ATS platforms. Although the impact is currently limited, the positive trend suggests potential for improvement. Enhancing system integration, user experience, and alignment with local recruitment needs could help maximize the effectiveness of ATS over time. Further research and performance evaluations may also uncover specific features or practices that can significantly boost recruitment outcomes.

ii. Banks should reassess their application in the recruitment process. While automation and speed are key advantages, current implementations may be misaligned with candidate expectations or fail to provide the depth of interaction required for effective hiring. Therefore banks should consider redesigning chatbot functionalities, limiting their use to preliminary stages of engagement, or supplementing them with more personalized communication methods to ensure a better candidate experience.

iii. A thorough review of the current predictive analytics strategies is necessary. This includes evaluating the quality of data inputs, the appropriateness of the algorithms employed, and the decision-making contexts in which predictions are applied. Improving these elements or tailoring models to the specific dynamics of the Nigerian banking sector may help turn predictive analytics into a more valuable tool for recruitment efficiency and quality.

LIMITATIONS AND FUTURE RESEARCH

The study is limited by its sample size, geographic scope, and reliance on self-reported survey data, which may constraint generalizability. Future research could employ longitudinal designs, larger samples, and mixed-method approaches to capture dynamic changes in AI adoption and outcomes. Comparative studies across sectors or countries would further illuminate contextual factors shaping AI-enabled HRM effectiveness. Additionally, future studies should examine mediating variables such as organizational readiness, data governance and HR analytics capability to better explain the mechanisms linking AI adoption to HR performance.

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