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ARTIFICIAL INTELLIGENCE AND HUMAN RESOURCE MANAGEMENT IN SELECTED DEPOSIT MONEY BANKS IN OTA METROPOLIS, OGUN STATE, NIGERIA

By

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Abstract

In the banking industry, artificial intelligence (AI) is revolutionising human resource management (HRM) by taking over repetitive tasks, enhancing HR analytics, and boosting decision support. Artificial intelligence (AI) is transforming banking human resource management (HRM) by automating repetitive tasks, enriching HR analytics, and fortifying decision support. The impact of AI on employee performance, talent management and retention, and HR decision-making quality was studied in selected deposit money banks, Ota metropolis, Ogun State. The survey design was descriptive, and the sampling technique was a census approach. A total of 129 questionnaires were sent out, and 121 (94%) were retrieved and were clean and usable for analysis. All Cronbach's alpha values for the four constructs were adequate and ranged from 0.864 to 0.870, indicating good internal consistency. Descriptive statistics, simple linear regression and Pearson correlation analysis were used to analyse the data at the 0.05 level of significance. Based on the findings, the HR decision-making quality, talent management and retention and employee performance were all found to be significantly and positively influenced by AI ($p < 0.001$, $p < 0.001$, and $p = 0.001$, respectively). AI adoption was also statistically significant when predicting the composite HRM outcomes index and accounted for 24.3% of the variance in the HRM outcomes index ($\beta = 0.493$). The study concludes that AI can be considered as a decision support tool and can enhance the role of humans in the banking HRM system, not replace them. It suggests adopting structured staff training, ethical governance and clear data-quality policies to ensure that the use of AI optimises HRM outcomes at all times.

Keywords: artificial intelligence, human resource management, employee performance, talent management, decision-making quality.

1.0 Introduction

AI has emerged as a pivotal tool in the digital transformation journey of banks, especially those that are data-rich and service-focused. From customer service to fraud detection, credit approval to business analytics, and even to more human resource (HR) related functions, AI is making waves across all sectors of the banking industry in Nigeria (Adekunle & Bello, 2020; Okoro & Edeh, 2024; Adeyemi, 2025). In HRM in particular, AI is transforming the recruitment, selection, learning, performance and retention processes, resulting in faster, more data-driven and more consistent decisions (CIPM Nigeria, 2025).

However, the literature recognises that AI doesn't necessarily do good. AI can provide benefits in terms of speed, consistency, and objectivity, but it can also trigger concerns of algorithmic bias, privacy, lack of explainability, and employee trust if not managed carefully (Eze &

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Okafor, 2025; Ibrahim, 2025). The tensions need to be examined closely by conducting empirical studies on the impact of AI on particular HRM outcomes in the Nigerian banking sector.

Although there has been an increase in the adoption of AI in recent years, its effects on HRM in Nigerian banks are not uniformly reported. The available literature indicates the potential benefits of AI in enhancing operational efficiency and hiring efficiency, alongside performance outcomes, but also challenges in terms of technical capacity, ethical oversight, and employee receptivity (Adekunle & Bello, 2020; Nwankwo, 2026; Adeyemi, 2025). It means that the implementation of AI does not necessarily lead to positive outcomes, as it requires a suitable context and the implementation itself must be well done.

Another difficulty is conceptual disintegration. In many studies, AI is identified as an issue of banking operations or a customer service issue, but not so many have targeted HRM processes like recruitment, retention, appraisal and decision making (Okoro & Edeh, 2024; Ogbonna, 2025; Akinola & Yusuf, 2025). Likewise, research sometimes focuses on employee performance or talent management without addressing them in the context of one strategic HRM model (Adesoji & Lawal, 2024). The third is contextual, as much empirical research has been conducted with AI in HRM within Ota deposit money banks, despite the fact that Ota is a strategic commercial centre on the Lagos – Ogun border. This study, therefore, seeks to answer the following questions: What effect does AI have on the performance of the employees, employees' talent management and retention, and the quality of HR decision-making in selected deposit money banks in Ota metropolis?

The overall aim of the study is to investigate the impact of Artificial Intelligence in the outcomes of Human Resource Management in selected Deposit Money Banks in Ota metropolis. Specifically, the research aimed to analyse the effect of Artificial Intelligence on employee performance in the selected banks, determine the impact of Artificial Intelligence on talent management and retention in selected banks and assess the impact of Artificial Intelligence on HR decision-making quality in selected banks.

In short, an AI system is a computer system that can perform a task that typically requires human intelligence, such as learning, pattern recognition, natural language processing, and decision-making (Russell & Norvig, 2021). In the banking industry, AI is being applied in various ways, such as resume screening, predictive analytics, chatbots in customer service, sentiment analysis, and learning recommendation systems (Okoro & Edeh, 2024; Nwankwo, 2026). Employee performance is defined as the extent to which employees perform their duties assigned and ensure the achievement of the organisation's goals, which are measured by productivity, the quality of the work they do, timeliness and behavioural engagement (Armstrong & Taylor, 2020). In the banking industry, employee performance also involves service quality, compliance and accuracy of transactions (Adekunle & Bello, 2020). Talent management and retention is the combination of HR practices that are combined together to attract, develop, engage and retain a skilled workforce (Adesoji & Lawal, 2024). Retention is closely associated with recognition, career advancement opportunities, learning systems, and technology used in the workplace; areas where AI tools are now being leveraged in a competitive Nigerian banking labour market (Etim, 2025; Nwankwo, 2026). The consistency, evidence base, fairness and timeliness of decisions taken by HR professionals in recruitment, deployment, promotion, training and discipline is called HR decision-making quality (Adeyemi, 2025). AI enhances decision-making with data-driven suggestions and by alleviating repetitive mental tasks for HR professionals (Akinola & Yusuf, 2025).

The study was guided by the support of the Technology Acceptance Model (TAM) and Resource-Based View (RBV) of the firm. TAM as presented by Davis (1989) is based on the

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concept that the perceived usefulness and perceived ease of use of a technology are important factors in the adoption. Therefore, in banking HRM, the use of AI is more likely to yield positive HR outcomes if it is seen by the employees as being beneficial to their work and easy to use in their day-to-day practice (Adekunle & Bello, 2020). The Resource-Based View (Barney, 1991) sees AI as a strategic competency, which has the potential to provide a competitive advantage when it is valuable, rare, inimitable, and embedded in organisational routines. There is an organisational resource view of AI in HRM, which, when supported by readiness, governance, and learning systems, improves the quality of the HR decisions and HR efficiency (Okoro & Edeh, 2024; Ogbonna, 2025).

The practical evidence shows that, on the whole, there is a positive and conditional connection between AI and HR in banking. According to a study in Nigeria, AI had a significant impact of 26.3% on the performance of employees and helped streamline routine work processes (Olawale, 2019). In a follow-up study, AI was found to augment work processes and alleviate repetitive tasks in Nigerian Banks (Adekunle & Bello, 2020). Okoro and Edeh (2024) found that AI impacts recruitment, selection, performance management and learning, while Akinola and Yusuf (2025) indicated that AI is a complementary tool to enhance HR functions and organisational performance. While Etim (2025) and Nwankwo (2026) saw a relationship between AI and employee retention and employee hiring efficiency, Ibrahim (2025) and Eze and Okafor (2025) warned that AI is not equally beneficial in all settings. This study is a contribution in that it uses a specific banking cluster in Ota metropolis, and tests the ability of AI in three HRM outcomes in one combined model.

2.0 Methodology

This study used a descriptive survey research design that allows for the systematic collection of primary data from a defined population and examines relationships between constructs in a real organisational setting (Creswell & Creswell, 2018). The study was done in Ota, the metropolis of Ogun State, Nigeria. The chosen deposit money banks (DMBs) are located in the commercial corridor of Idiroko Road and fall under the tier-one and tier-two banking systems in Nigeria. The six banks studied were Access Bank, Zenith Bank, Guaranty Trust Bank, United Bank for Africa, Sterling Bank and Wema Bank.

The population under study consisted of all the staff members accessible in the six selected Deposit Money Bank (Ota metropolis), which includes 129 staff members (129 HR records, selected branches 2026) with different roles in operation and customer service, HR/administrative, IT and management roles.

Table 1: Population of the Study

Bank	Staff Strength	Percentage (%)
Access Bank	25	19.4
Zenith Bank	24	18.6
Guaranty Trust Bank (GT Bank)	18	14.0
United Bank for Africa (UBA)	20	15.5
Sterling Bank	24	18.6
Wema Bank	18	14.0
Total	129	100.0

Source: Human Resource records of the selected bank branches, 2026

Given the small size of the population, the accessibility of all of them, and the geographical concentration along one commercial corridor, a census approach was used. Therefore, N (the sample size) is equal to the population size (N = 129).



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The data was gathered by a structured questionnaire which consisted of a 5-point Likert scale ranging from Strongly Disagree (1) to Strongly Agree (5). The survey was handed out at each branch of the bank, with the approval of the bank branch management as well as the HR officers.

The test of reliability was conducted using Cronbach's alpha. In the main study, all constructs exceeded the level of 0.70 on the alpha criterion (Nunnally, 1978; Hair et al., 2019). The data were coded and analysed using SPSS version 26. The data were summarised using descriptive statistics and analysed using inferential statistics: Pearson correlation, simple linear regression and combined regression model at a 0.05 level of significance to test the three hypotheses. The decision rule for deciding whether to reject or not reject H_0 was: If $p < 0.05$, then reject H_0 ; otherwise, fail to reject H_0 .

3.0 Results

Table 2: Reliability Statistics (Cronbach's Alpha)

Construct	No. of items	Cronbach's α	Remark
AI Adoption	6	0.867	Reliable
Employee Performance	6	0.867	Reliable
Talent Management & Retention	6	0.870	Reliable
HR Decision-Making Quality	5	0.864	Reliable

Source: Field Survey, 2026

All four constructs returned Cronbach's alpha values above the 0.70 threshold (Nunnally, 1978). Values ranged from $\alpha = 0.864$ (HR Decision-Making Quality) to $\alpha = 0.870$ (Talent Management & Retention), confirming the internal consistency of the instrument.

Table 3: Mean and Standard Deviation of Constructs (n = 121)

Construct	Mean	SD	Min	Max	Decision
AI Adoption	3.722	0.662	2.0	5.0	High
Employee Performance	3.814	0.599	2.5	5.0	High
Talent Management & Retention	3.649	0.675	2.0	5.0	High
HR Decision-Making Quality	3.734	0.671	2.4	5.0	High

Source: Field Survey, 2026

Decision rule: Mean ≥ 3.50 = High; 2.50–3.49 = Moderate; < 2.50 = Low.

Employee Performance returned the highest mean score ($M = 3.81$, $SD = 0.60$), followed by HR Decision-Making Quality ($M = 3.73$, $SD = 0.67$), AI Adoption ($M = 3.72$, $SD = 0.66$), and Talent Management and Retention ($M = 3.65$, $SD = 0.68$). All four constructs were rated in the high range, indicating that respondents perceive AI adoption and the three HRM outcomes as relatively well established in their banks. The slightly lower score for talent management and retention suggests an area where AI-enabled HR interventions could still deliver meaningful gains.



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Table 4: Pearson Correlation Matrix of Study Variables (n = 121)

Variable	AIA	EP	TMR	HRDMQ
AIA	1.000**	0.294**	0.450**	0.461**
EP	0.294**	1.000**	0.509**	0.418**
TMR	0.450**	0.509**	1.000**	0.601**
HRDMQ	0.461**	0.418**	0.601**	1.000**

Note: ** $p < 0.01$, * $p < 0.05$ (two-tailed). AIA = AI Adoption; EP = Employee Performance; TMR = Talent Management & Retention; HRDMQ = HR Decision-Making Quality.

All constructs were positively and significantly correlated at $p < 0.01$. AI Adoption was most strongly correlated with HR Decision-Making Quality ($r = 0.461$, $p < 0.01$) and Talent Management and Retention ($r = 0.450$, $p < 0.01$), and more modestly with Employee Performance ($r = 0.294$, $p < 0.01$). The inter-HRM-outcome correlations were also significant, most notably between Talent Management and Retention and HR Decision-Making Quality ($r = 0.601$, $p < 0.01$); indicating that these outcomes move together but remain conceptually distinct. None of the inter-predictor correlations exceeded the 0.80 multicollinearity threshold (Hair et al., 2019).

Table 5: Simple Linear Regression Results for H0₁, H0₂, and H0₃

Hypothesis / Path	B	SE	B	T	p	R ²	F	Decision
H0 ₁ : AI Adoption → Employee Performance	0.266	0.079	0.294	3.353	0.001	0.086	11.243	Reject H ₀
H0 ₂ : AI Adoption → Talent Management & Retention	0.458	0.083	0.450	5.492	<0.001	0.202	30.157	Reject H ₀
H0 ₃ : AI Adoption → HR Decision-Making Quality	0.467	0.082	0.461	5.668	<0.001	0.213	32.126	Reject H ₀

Source: Field Survey, 2026

Significance level: $p < 0.05$. $n = 121$.

For hypothesis one, the regression result shows that AI Adoption has a positive and significant effect on Employee Performance ($\beta = 0.294$, $t = 3.353$, $p = 0.001$). The model explains 8.6% of the variance in employee performance ($R^2 = 0.086$, Adj. $R^2 = 0.079$, $F(1, 119) = 11.243$, $p = 0.001$). Since $p < 0.05$, the null hypothesis is rejected.

For hypothesis two, the regression result shows that AI Adoption significantly predicts Talent Management and Retention ($\beta = 0.450$, $t = 5.492$, $p < 0.001$). The model explains 20.2% of the variance in talent management and retention ($R^2 = 0.202$, Adj. $R^2 = 0.195$, $F(1, 119) = 30.157$, $p < 0.001$). Since $p < 0.05$, the null hypothesis is rejected.

For hypothesis three, the regression result shows that AI Adoption significantly predicts HR Decision-Making Quality ($\beta = 0.461$, $t = 5.668$, $p < 0.001$). The model explains 21.3% of the variance in HR decision-making quality ($R^2 = 0.213$, Adj. $R^2 = 0.206$, $F(1, 119) = 32.126$, $p < 0.001$). Since $p < 0.05$, the null hypothesis is rejected.



Table 6: Regression of AI Adoption on Composite HRM Outcomes

Predictor	B	SE	B	T	P	R ²	F	Decision
AI Adoption → HRM Outcomes (composite)	0.397	0.064	0.493	6.188	<0.001	0.243	38.289	Reject H ₀

Source: Field Survey, 2026

Model summary: $R = 0.493$, $R^2 = 0.243$, $\text{Adj. } R^2 = 0.237$, $F(1, 119) = 38.289$, $p < 0.001$.

The combined model is statistically significant, $F(1,119) = 38.29$, $p < 0.001$, and explains 24.3% of the variance in the composite HRM Outcomes index ($\beta = 0.493$). This confirms that, taken together, AI Adoption exerts a meaningful and statistically significant effect on HRM outcomes in the selected banks. The pattern across the simple regressions shows that AI's strongest effect is on HR decision-making quality ($\beta = 0.461$), followed by talent management and retention ($\beta = 0.450$), and then employee performance ($\beta = 0.294$).

4.0 Discussion

The results also indicate that artificial intelligence (AI) positively and significantly influences employee performance ($\beta=0.294$, $p=0.001$), which corroborates earlier research that established that AI is a complementary instrument to improve work processes in the Nigerian banks. Its relatively small effect size, however, indicates that it only works when integrated well, trained and managed. So, in Ota banks, AI enhances performance but still doesn't dictate the work execution.

AI is also found to have more influence on talent management and retention ($\beta=0.450$, $p<0.001$), reflecting positive findings on how AI-powered recruitment systems, predictive analytics and chatbot tools enhance the quality of hire and retention. This underscores the growing importance of AI in the employee lifecycle and in enhancing organisational results.

The most significant impact is seen in HR decision-making quality ($\beta=0.461$, $p<0.001$), supporting the Resource-Based View's claims of AI's benefit in judgment-intensive HR activities. AI is, in this sense, used as a decision support tool and is not meant to replace human judgment.

In general, the findings align with the study's funnel logic in that digital transformation can facilitate the adoption of AI in HRM, which can ultimately lead to better results. The results of the composite model ($\beta=0.493$, $R^2=0.243$) suggest that the value of AI is subject to its use in HR strategy, governance, and organisational learning.

5.0 Conclusion

Conclusively, the study finds that AI has a significant impact on the performance of employees, talent management and retention, and the quality of HR decision making, with the greatest impact in talent processes and decision making. It accounts for 24.3% of the variance in HRM outcomes, underscoring the strategic importance of AI. The study suggests implementing AI-enabled HR systems in institutions, investing in employee training, establishing ethical guidelines, having human oversight, and spreading the practice of responsible AI in the industry.

6.0 Recommendations

Based on the findings of the study, it was recommended that the selected deposit money banks in Ota metropolis should:

- institutionalise AI-enabled HR workflows for recruitment, predictive retention analytics, and decision making;
- invest in structured staff training programmes on the use, interpretation, and limits of AI-generated HR analytics; and



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- iii pair AI deployment with human oversight in sensitive decisions such as promotion, discipline, and termination.

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