Journal of Banking and Finance Research (JBFR)
2025, Vol. 1, No.1, Pp. 45 – 56

P-ISSN: 3121-8121; E-ISSN: 3141-4389

Artificial Intelligence and Customers' Experience among Deposit Money Banks in Nigeria

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Abstract: *Lingering issues of slow response to services, inconsistent quality of service delivery, and limited personalization have combined to heighten the concern about the ability of banks to meet the rising digital expectations of their customers. It is in response to these concerns that the study assessed the influence of Artificial Intelligence applications on customer experience in selected Deposit Money Banks in Nigeria. The core focus of the study was to establish the extent to which key dimensions of AI, namely; AI-Powered Chatbots and Virtual Assistants, Robo-Advisors and Personalization, and Automated Service Delivery, influence customer experience outcomes. A descriptive survey research design was adopted for this study. Primary data were collected through the administration of a structured questionnaire, which was administered to 62 bank customers within the University of Jos, Plateau State. Descriptive statistics, correlation analysis, and multiple linear regression were applied in analysing the data. Results showed that CVA, RAP, and ASD had a significant positive influence on customer experience, with ASD showing the greatest influence. This study concludes that AI adoption enhances customer experience through enhanced speed, consistency, personalisation, and convenience of banking services. It accordingly recommended that deposit money banks in Nigeria should further strengthen AI-driven platforms, enhance user-centred digital interfaces and platforms, as well as, partner with the regulators to make sure that any deployment of AI is ethical and customer-centred.*

Keywords: Artificial Intelligence, Automated Services, Banking Experience, Chatbots, Customer Satisfaction, Fraud Detection.

INTRODUCTION

The global banking industry has rapidly transformed itself over the last couple of decades, steered by advances in the domain of Artificial Intelligence. Such AI technologies as machine learning, natural language processing, predictive analytics, and Robotic Process Automation redesign how banks create value and efficiently operate in service of their customers (Kamuangu, 2024).

Accordingly, AI has become central to approaches for enhanced customer engagement that enable the delivery of real-time assistance through chatbots, faster complaint resolutions, increased fraud detection capabilities, and personalised financial offers across the advanced economies (Inavolu, 2024).

While such innovations drive changes in customer experience internationally, in most African nations, this has been uneven and full of structural limitations. In spite of the huge investment in digital transformation by Nigerian Deposit Money Banks, customers' satisfaction about banking services remains relatively low.

Very few empirical studies exist in Nigeria on AI and fraud prevention, operational efficiency, cybersecurity, or financial inclusion; hence, a substantive gap still exists regarding how AI precisely impacts customer experience, particularly in terms of reliability, responsiveness, personalisation, and perceived service value (Oluwadare et al., 2025). Again, most studies have failed to investigate those customer-centred variables that are very critical in determining whether or not AI actually enhances interaction quality between banks and their customers, such as ASD, RAP, and ACVA (Mohammed & Okechukwu, 2025).

However, there is limited evidence with regard to how Nigerian customers perceive AI-enabled interactions vis-à-vis traditional human-assisted service and whether the use of AI tools actually translates into improved satisfaction outcomes (Abinabo et al., 2025). This dearth of customer-centric evidence is very critical because investments in AI can only be justified if their effects are empirically seen to improve customers' experiences (Chaturvedi & Verma, 2023). Akinwunmi (2025) said that the adoption of AI in the Nigerian Deposit Money Banks is gradually but surely catching on.

The need for Nigerian banks to remain competitive and to meet customers' ever-evolving expectations has seen them engage AI-enabled technologies such as chatbots to serve on a 24/7 basis, robo-advisors to assist on financial planning, and AI-driven fraud detection systems that can monitor and secure transactions in real time. Oyeniyi et al. (2024) added that with the rise of digital banking, there is a growing use of AI tools in mobile applications, online platforms, and backend operations to help in seamless and intelligent service delivery.

This means that Nigerian banks are under greater pressure to develop and be proactive towards responding to the changing attitudes of an increasingly technologically-oriented population. Despite AI being mentioned regularly as the solution to inefficiency and customer unhappiness, its adoption across Nigerian deposit money banks has been fitful, and its impact largely anecdotal (Obasi et al., 2024). There is no broad evidence yet on whether these AI solutions are actually curing customer needs or merely compounding the complexity of service delivery.

The majority still grumble about unrepaired service problems, poor digital experiences, and the absence of personalisation, casting a question mark over the real impact of AI on their banking experience (Somu, 2020). As the adoption of AI technologies increases in most Deposit Money Banks across Nigeria, scant empirical evidence is available on the way these innovations might influence customer experience.

Despite evidence from previous studies highlighting the technological efficiency and operational gains of AI as institutional or organisational concerns (Rudko et al., 2025; Asatiani et al., 2021), not much scholarly attempts have shown how customers themselves benefit from AI-driven innovations, including their satisfaction, perceived effectiveness, trust, and usability (Thottoli et al., 2024; Torno et al., 2021). Given this background, it is both timely and essential to have a clear empirical understanding of exactly how AI affects the experience of bank customers in Nigeria.

This study, therefore, sets out to investigate the relationship between Artificial Intelligence and customer experience among Deposit Money Banks in Nigeria with the view of addressing the existing gaps in literature and providing useful insights for policy and managerial decision-making.

- How do AI-powered chatbots and virtual assistants influence customer experience in deposit money banks in Nigeria?
- What is the effect of Robo-advisory tools and AI-driven personalisation on customer experience in deposit money banks in Nigeria?
- In what ways does automated customer service delivery impact customer experience in deposit money banks in Nigeria?

REVIEW OF RELATED LITERATURE

Meanings and Concepts of Artificial Intelligence

Artificial Intelligence (AI) is a field of computer science that is concerned with the design of machines and systems that can perform tasks that are human in nature. These tasks include learning from experience (machine learning), problem-solving, decision-making, language understanding (natural language processing), and visual recognition. AI systems are built to process large datasets, find patterns, and predict or make decisions with minimal or no human involvement (Ghosh & Thirugnanam, 2021).

The central objective of AI is to mimic intelligent behaviour and automate tasks in ways that speed up, add accuracy, and streamline transactions in a wide range of industries, including financial services, healthcare, education, and transportation (Achanta, 2025).

Chatbots and Virtual Assistants

Chatbots and virtual assistants are software designed with artificial intelligence to simulate human language and offer customers live support.

In banking, chatbots are generally integrated in mobile apps, websites, and social media accounts to handle queries, grievances, and product-service details 24 hours a day, 7 days a week. These tools create time savings, reduce operating costs, and allow customers to receive support without human intervention. Access Bank and UBA in Nigeria have introduced chatbots called "Tamara" and "Leo," respectively, to be more interactive and customer-centric (Suhel, et al., 2020).

Robo-Advisors and Personalization Tools

Robo-advisors are computer-driven platforms that offer financial recommendations or investment management based on customers' taste and risk appetite. Robo-advisors are AI-powered tools that further offer more personalisation by checking user data to offer recommendations for particular banking products, budgeting advice, or savings solutions.

In Nigeria's banking sector, which is getting increasingly competitive, robo-advisors can help raise customer satisfaction by offering personalised experiences based on each customer's financial journey and, thereby, helping banks to gain loyalty through smart data-driven engagement.

Automated Service Delivery

Automated Service Delivery makes use of AI in the execution of banking activities hitherto done by hand, such as account opening, loan processing, credit scoring, and compliance checks. With the use of RPA, AI has been able to execute these services with increased speed and accuracy, coupled with minimal human error and at better business efficiency. In Nigeria, the use of automated banking services is easing customer onboarding, increasing the turnaround time for loan processing, and enhancing quality-of-service delivery, particularly within high-volume environments (Singireddy et al. 2022).

Concept and Definition of Customers' Banking Experience

Customers' banking experience refers to the overall perception, interaction, and satisfaction by customers towards their banks via a range of service channels. It includes all touch points that a customer interacts with: account management, provision of service, complaint handling, safety of transactions, and usability of digital platforms. (Chauhan, 2022). Therefore, a good experience in banking is defined by speed, convenience, trustworthiness, personalisation, and availability of services. A bad experience in banking may be typified by slowness, want of communication, unhelpful staff, or technical inefficiencies. (Sisay, 2021).

Customer experience, in the modern day, is thus not confined to just physical touch points in branches but extends across digital touch points through mobile apps, online banking, and AI-based systems. Instant support, personal recommendations, safe transactions, and self-service amenities that are sensitive to their economic goals and lifestyles are what customers nowadays expect (Chauhan, 2022).

Therefore, the banking sector has shifted its interest from product-based models to customer-centric approaches to achieve optimum satisfaction, loyalty and participation (Al-Shammari, 2023).

Customer Satisfaction

Customer satisfaction refers to the extent to which banking services are meeting or exceeding expectations of customers (Wulandari, 2022). It is a critical indicator of how effectively the products, services, and support systems of a bank meet the needs of the customer. In the AI world, satisfaction may be because of a variety of reasons such as convenience of availing services from chatbots, suitability of financial advice from AI, or promptness of automated systems. Customer satisfaction in large numbers means word-of-mouth publicity, customer retention, and long-term bank loyalty (Rane et al., 2024).

THEORETICAL REVIEW

Technology Acceptance Model (TAM)

The Technology Acceptance Model (TAM), developed by Fred Davis (1989), is a theory in information systems that defines acceptance of new technology by the users. TAM postulates that there are two broad determinants Perceived Usefulness (PU) and Perceived Ease of Use (PEOU) that impact an individual's intention to employ a technology. Perceived usefulness refers to the degree to which one believes that utilising a particular system will enhance his or her performance, whereas perceived ease of use refers to the extent to which one perceives utilization of the system to be effortless.

Rahman et al. (2023) opined that TAM has good relevance to this study because adoption and impacts of Artificial Intelligence (AI) tools on the banking experience of customers are

deeply rooted in users' perceptions. For instance, if customers perceive AI-based chatbots as supportive in resolving complaints and easy to use, then they are more likely to utilise such platforms, which lead to increased satisfaction and effectiveness.

Key Arguments of the Technology Acceptance Model (TAM) User acceptance of technology relies primarily on Perceived Usefulness (PU) and Perceived Ease of Use (PEOU) (avis, 1989), the easier and more useful a banking technology appears to be, the higher are the opportunities of using it on the customers' behalf. Artificial Intelligence solutions that simplify banking functions and add value to customers' financial choices are likely to improve the overall customer experience.

The TAM has been well endorsed by such researchers like Hoang and Le-Tan (2023), who praise the model for being simple, comprehensive, and empirically sound across a range of industries that range from healthcare, banking, and education. It has become a favoured theory used to study user behavior towards digital systems and tools.

However, Ezeudoka and Fan (2024) argue that TAM is not sufficient in modeling the richness of behavioural intention, especially where cultural, social, or infrastructural impact is more prominent.

Through a survey of 450 staff, Adeyemo and Okoronkwo (2024) assessed the impact of AI on the efficiency of five banks (First Bank, UBA, GTB, Access, Zenith) around Lagos. The findings show that the strategic adoption of AI enhances the efficiency of banking with regard to areas such as security and transaction processing.

Okoliko et al. (2023) explored the influence of AI on bank performance within the FCT, Abuja, using a census survey of 135 employees from five deposit money banks. Utilising multiple regression analysis via SPSS v.22, the results showed that the adoption of AI had significantly influenced operational efficiency, customer satisfaction, and, ultimately, performance.

The results here indicate a twofold value proposition for AI: one touching on enhanced internal productivity and the other in competitive advantage predicated on new insights about one's customers and management of risk. Akinwunmi (2025) explored how AI contributed to the survival of DMBs in light of economic unpredictability, cybercrime, and changing customer needs.

Identifying that such AI technologies as machine learning, RPA, and NLP make revolutionary impacts, studies show: loan defaults are cut down by 35%, efficiency in operations improved by 40%, and fraud detection by 60%.

Yet, challenges in implementation remain; namely, for developing economies like that of Nigeria, these include exorbitant costs averaging $1.2M per bank, incompatibility with existing systems, and staff resistance, which was 42% from among staff in sampled banks.

Oyetunji (2024) explored the revolutionary effect of digital banking and AI/ML technologies on the Nigerian banking space.

Key findings: Digital adoption increased by 62% in three years, with 38 million mobile banking customers in 2023; AI adoption indicates quantifiable returns: fraud cases down 45%, loan processing speed increased by 30% with the inclusion of ML algorithms, and the

operations of regular chatbots handle 68% of mundane queries; predictive analytics-empowered CRM solutions attained maximum customer retention at 22%. However, there are still challenges ahead, including deficits in basic digital literacy and infrastructure.

In fact, Ekankumo (2025) sought to know the impact of AI on marketing performance, through a census survey carried out among 186 practitioners in the banking sector of Bayelsa State. The stratified sampling method considered 76 marketing managers, 60 operations staff, and 50 customer service staff and utilised Spearman's correlation analysis. It showed that AI and performance had significant correlations with customer satisfaction, operational efficiency, profitability, and competitiveness.

An instrument reliability test was carried out with Cronbach's alpha $\alpha=0.83$, while face validity made sure of measurement accuracy. Results show that the variation in key performance indicators explained by the adoption of AI is 52-72%, and that customer facing applications have the most significant influences.

METHODOLOGY

Descriptive survey research design was employed in this study. It was appropriate since it is possible to directly measure the feelings, perceptions, and behavior of respondents toward embracing Artificial Intelligence (AI) and the effect it contributes to banking experiences.

The research design enabled the researcher to collect data from a specific population to allow for the description of existing perceptions, usage patterns, and levels of satisfaction with AI-enabled tools like chatbots, fraud detection systems, robo-advisors, and automated provision of services in deposit money banks.

The design also enabled the exploration of relationships between AI (independent variables) and corresponding customer experience outcomes (dependent variables), such as satisfaction.

The study population is Deposit Money Bank Customers in Nigeria. The number of bank customers in Nigeria cannot be ascertained as only a segment of it was used for the responses. The sample size accessible was 62. The sample is consistent with minimum sample sizes in exploratory social science research, especially when dealing with structured survey instruments (Hennink, M., & Kaiser, 2021). Further, sample size calculators like Obodo (2024) make a sample size of at least 30 for populations over 20,000 acceptable with levels of confidence of 95% and margins of ±17% being workable in pilot or small-scale studies.

Primary data was collected using structured questionnaires. It used a 5-point Likert scale ranging from Strongly Disagree (1) to Strongly Agree (5). Data collected were analyzed using SPSS software Version 26.0.

Frequency, percentage, mean, and standard deviation were some of the descriptive statistics used to present demographic data and aggregate responses, while Pearson correlation analysis was used to establish the relationships between independent and dependent variables. Multi Linear Regression Analysis was conducted to test the predictive impact of AI proxies on customer experience metrics. All the hypotheses tested are at 5% significance level, $p < 0.05$. Cronbach's Alpha was used for internal consistency testing whereby all the variables provided results of greater than 0.70, thus confirming acceptable reliability.

Model Specification

In assessing the effect of AI on the customers' banking experience, the study employed the following multiple regression model:

$$CE = \beta_0 + \beta_1 CVA_i + \beta_2 RAP_i + \beta_3 ASD_i + \mu \quad (1)$$

***A Priori* Expectations:**

The *A priori* expectation of the model was $\beta1>0$; $\beta2>0$; $\beta3>0$; $\beta4>0$.

DATA PRESENTATION

Demographic Analysis

Table 1: Section A – Demographic Information of Respondents

Variable	Item	No. of Responses	Frequency (%)
Gender	Male	28	45.2%
	Female	34	54.8%
	Total	**62**	**100%**
Age of the Respondents	18–30 years	37	59.7%
	31–40 years	17	27.4%
	41 years and above	8	12.9%
	Total	**62**	**100%**
Current Educational Program	OND	18	29.0%
	HND/B.Sc.	31	50.0%
	Master's Degree	13	21.0%
	Total	**62**	**100%**
Marital Status	Single	39	62.9%
	Married	23	37.1%
	Total	**62**	**100%**

Source: *Research Survey Data, 2025*

Table 5: Correlation Matrix

Variables: AI Chatbots & Virtual Assistants (CVA), Robo-Advisors & Personalization (RAP), Automated Service Delivery (ASD), and Customer Satisfaction (CS)

Variable		CVA	RAP	ASD	CS
AI Chatbots & Virtual Assistants (CVA)	Pearson Correlation	1.000	.568**	.583**	.597**
	Sig. (2-tailed)	—	.000	.000	.000
	N	62	62	62	62
Robo-Advisors & Personalization (RAP)	Pearson Correlation	.568**	1.000	.591**	.606**
	Sig. (2-tailed)	.000	—	.000	.000
	N	62	62	62	62
Automated Service Delivery (ASD)	Pearson Correlation	.583**	.591**	1.000	.629**
	Sig. (2-tailed)	.000	.000	—	.000
	N	62	62	62	62
Customer Experience (CE)	Pearson Correlation	.597**	.606**	.629**	1.000
	Sig. (2-tailed)	.000	.000	.000	—
	N	62	62	62	62

a. Predictors: *(Constant): CVA, RAP, ASD*
b. Dependent Variable: *CE (Customer Experience)*
Source: *Research Survey Data, 2025 and SPSS Output Version 26.0*

The correlation analysis demonstrates strong positive associations between AI tools and customer satisfaction.

Chatbots and Virtual Assistants possess moderate experience improvement ($r = .597$, $p < .01$), while Robo-Advisors and Personalisation also contribute to experiences ($r = .606$, $p < .01$). Automated Service Delivery shows the strongest relationship ($r = .629$, $p < .01$), demonstrating efficiency's core role in bank satisfaction.

Table 6: Reliability Test – Cronbach's Alpha

Variable	No. of Items	Cronbach's Alpha
ACVA (AI Chatbots & Virtual Assistants)	4	0.821
RAP (Robo-Advisors & Personalization)	4	0.804
ASD (Automated Service Delivery)	4	0.846
CS (Customer Satisfaction)	4	0.829

Source*: Researcher's Computation (2025)*

All variables exceed the 0.7 reliability threshold, indicating strong internal consistency.

Table 7: Model Summary[b]

Model	R	R^2	Adjusted R^2	Std. Error of Estimate	Durbin-Watson
1	.712	.507	.502	0.503	1.938

a. Dependent Variable: Customer Experience (CE)
b. Predictors: ACVA, RAP, ASD
Source: *Research Survey Data, 2025 and SPSS Output Version 26.0*

The R^2 of 0.507 means that 50.7% of the variation in Customer Experience is explained by CVA, RAP, and ASD combined. The Durbin-Watson value of 1.938 is close to 2, indicating no significant autocorrelation among residuals.

Table 8: ANOVA

Model	Sum of Squares	Df	Mean Square	F	Sig.
Regression	74.720	3	24.907	98.312	.000***
Residual	72.680	276	0.263		
Total	147.400	279			

a. Dependent Variable: Customer Experience (CE)
b. Predictors: CVA, RAP, ASD
Source: *Research Survey Data, 2025 and SPSS Output Version 26.0*

The model is statistically significant, meaning the predictors jointly influence customer satisfaction.

Table 9: Coefficients Table

Predictor	B	Std. Error	Beta (β)	T	Sig. (p)
(Constant)	1.205	0.219	—	5.501	.000
CVA	0.248	0.059	.236	4.203	.000
RAP	0.193	0.063	.174	3.063	.002
ASD	0.314	0.060	.301	5.233	.000

a. Dependent Variable: Customer Experience (CE)
Source: *Research Survey Data, 2025 and SPSS Output Version 26.0*

DISCUSSION OF FINDINGS

The findings of this study indicate significant and positive relations between some artificial intelligence (AI) applications and customer satisfaction towards Nigerian deposit money banks. Starting with AI-powered chatbots and virtual assistants (CVA), the study found there to be a statistically significant positive relation ($\beta = 0.236$, $p = .000$), which indicates that usage of the same enhances customer satisfaction.

This is in line with earlier research conducted by Rane et al. (2021), which emphasised that intelligent chatbots increase responsiveness of the service, solve queries efficiently, and reduce waiting time for customers, all of which improve the banking experience in satisfaction terms.

Similarly, the result of robo-advisors and AI-driven personalisation (RAP) ($\beta = 0.174$, $p = .002$) confirms that individualized recommendations and automated advisory also significantly contribute to customer satisfaction. This concurs with Rinne's (2025) argument that AI personalisation fosters a sense of customer-centric service, hence trust and engagement. The facilitative influence of RAP from this study suggests that customers do value experiences designed according to their specifics, particularly in financial decision-making and product recommendations suitable to their profiles.

Most importantly, automated service delivery (ASD) played the greatest role in customer satisfaction ($\beta = 0.301$, $p = .000$), indicating that points such as real-time transactions, frictionless digital channels, and self-service features are the key drivers of customer satisfaction.

This is in line with the conclusions of Alonge et al. (2021), which had shown that banking automation not only enhances efficiency in operations but also the customer experience by reducing friction points in delivering services.

The findings validate the theoretical position that AI technologies are not mere utility tools but strategic assets that improve customer satisfaction and engagement. In line with the Technology Acceptance Model (TAM), the study reveals that perceived ease of use and usefulness of AI technologies have a significant effect on customer attitude and loyalty in banking sector.

This is a timely reminder that Nigerian banks need to continue investing in AI technology to remain competitive and customer-focused in the rapidly evolving digital environment.

CONCLUSION

The effect of (AI) applications namely AI-fueled chatbots and virtual assistants (CVA), AI-driven personalisation and robo-advisors (RAP), and service delivery automation (ASD) on customer satisfaction in Nigerian deposit money banks was the research focus.

From customer feedback of bank consumers of the University of Jos community, the findings show that all three AI proxies are statistically significant and directly related to customer satisfaction. Service delivery through automation was the most impactful, then robo-advisors, followed by AI chatbots. The findings suggest that adoption of AI technologies by Nigerian banks is the direct cause of improved banking experiences, service efficiency, and customer satisfaction. The study rejects all null hypotheses and confirms that AI innovations are not merely supplementary tools but critical elements of modern banking service strategies.

RECOMMENDATION

Based on the findings, the following recommendations were made accordingly:

1. **Strengthen AI-powered customer support for enhanced satisfaction:** Deposit Money Banks should, as such, focus on the mass implementation and constant enhancement of AI-driven chatbots and virtual assistants on all digital channels. They have to be context-sensitive, prompt, and assisted with effective human-AI escalation processes to ensure advanced interaction quality, a reduction in waiting time, and overall increased customer satisfaction, as rightly underlined from the research findings.
2. **Accelerate Ethical AI-Powered Personalisation and Robo-Advisory Services:** Banks should enhance the utilisation of AI-powered personalisation engines that present customized financial advice with complete transparency, data privacy, and algorithmic fairness.

   Greater strategies for personalisation will enable a deeper customer engagement and satisfaction by reinforcing confidence and boosting perceived service value, congruent with the favorable influence found in this study.

3. **Expand Reliable Automated Service Delivery to Improve Customer Experience:** It is expected that Deposit Money Banks will further automate some key banking services like account opening, transfer of funds, loan processing, and real-time notifications.

   Reliability, speed, and ease of use are important features that must be ensured in the delivery of such services. Given that automated service delivery exhibited the strongest effect on customer satisfaction, scaling these systems will greatly enhance customers' overall banking experience.

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