ARTIFICIAL INTELLIGENCE AND SUCCESS OF DEPOSIT MONEY BANKS IN SOUTH EAST, NIGERIA

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Abstract

This study examined the relationship between Artificial Intelligence (AI) adoption and the organizational success of deposit money banks in South East Nigeria. The growing complexity and competitiveness of the banking sector have necessitated the integration of advanced technologies to improve profitability and customer satisfaction.. Specifically, the study investigated the relationship between AI-based fraud detection systems on profitability and AI-powered chatbots on customer satisfaction. Anchored on the Resource-Based View (RBV) theory, the research conceptualizes AI capabilities as strategic resources that, when effectively deployed, provide sustainable competitive advantage. A descriptive survey design was employed, targeting 3246 employees with a sample size of 356 employeses across five Tier-1 banks in the region. Data were collected through structured questionnaires and analyzed using descriptive statistics and Pearson Product Moment Correlation via SPSS. Findings revealed very strong positive correlations between AI fraud detection and profitability ($r = 0.947$, $p < 0.01$), and AI-powered chatbots and customer satisfaction ($r = 0.971$, $p < 0.01$), indicating that AI adoption significantly had positive relationship between financial performance and service quality. The study highlights the importance of strategic alignment, workforce training, and technological investment to optimize AI deployment. These results underscore AI as a critical tool for organisational success, thereby suggesting that sustained investment in AI infrastructure and ethical governance can strengthen competitiveness and long-term growth of banks in the digital economy.

***Key words:** Artificial Intelligence, Success AI-based Fraud, Profitability, AI-powered Chatbots and Customer Satisfaction*

Introduction

The global world has evolved into a tech village due to the invention of improved technological devices and the application in diverse fields of human endeavor (Tanha, Siddique, Sumon, Nurulhoque, Sazin, & Hossain, 2023). The financial services industry is one of the sectors undergoing this significant transformation, driven by advancements in technology (ICT), particularly artificial intelligence (AI). AI tools such as machine learning, natural language processing, robotic process automation, and

predictive analytics are increasingly being adopted by commercial banks to enhance efficiency, customer service, risk management, and decision-making (PwC, 2020). Globally, AI has been credited with transforming banking operations, enabling personalized services, and fostering

Artificial Intelligence (AI), has become essential in the corporate world, governance, socio- economic sectors, and even households (Chaudhary, 2022). In modern day banking, operating effectively and efficiently without the use of AI is almost impossible. Sehirli and Alesmaeil (2022) opined that the primary purpose of AI is to assist humans in specific functions and activities, as it has been designed to think and learn in a manner similar to that of humans. AI plays a crucial role in the banking and financial industries, facilitating the delivery of affordable and reliable banking services (Mahar & Ghumro, 2020; Udodiugwu, Obiakor, Onyia & Ilonze, 2022). Artificial Intelligence (AI) which can either be machines or software use depends on human needs. The banking sector, like other industries, uses AI in both forms to support daily activities (Ramana, Katta, Rao, Rao & Raja, 2022). Enweremadu, Chikezie, & Udodiugwu, (2023) stated that AI helps banks manage inventories, conduct risk assessments, and balance cash and cheque transactions for better performance without relying on paper. Ness, Volkivskyi, Muhammad, and Balzhyk (2024), opined that AI mimics human intelligence to create advanced machines that perform tasks efficiently. Commercial banks, like most financial institutions, are continually striving to reduce liabilities and enhance asset portfolios. To achieve systematic compliance management and operations, a swift and effective strategy is necessary (Udodiugwu, Enweremadu, Obiakor, Okeke, & Njoku, 2023).

There is therefore a pressing need to empirically examine how AI influences the organizational success of commercial banks in Nigeria. Such an investigation will provide insights into the effectiveness of AI deployment and guide strategic investment decisions in technology. It will also help policymakers and stakeholders understand the implications of AI on employment, customer engagement, and the future of banking in Nigeria.

Statement of the Problem

The increasing complexity and competitive dynamics of the Nigerian banking sector have necessitated the adoption of advanced technological solutions to enhance operational efficiency and strategic outcomes. Among these innovations, Artificial Intelligence (AI) has emerged as a pivotal tool, offering capabilities such as process automation, predictive analytics, fraud detection, and improved customer engagement (Deloitte, 2019). Despite the widespread interest in AI integration globally, its specific impact on the organizational performance of commercial banks in Nigeria remains insufficiently investigated.

While some banks have deployed AI-driven solutions, including chatbots, biometric ATMs, AI-based credit scoring, and biometric identification verification, empirical evidence regarding their contributions to profitability, customer satisfaction, operational efficiency, and employee productivity is limited (Olayemi, 2021). Challenges such as inadequate digital infrastructure, high implementation costs, regulatory uncertainties, and limited technical expertise further constrain effective AI adoption (Adeleke & Osemene, 2022). Moreover, the strategic alignment of AI initiatives within organizational goals is often unclear, resulting in suboptimal utilization and implementation failures (PwC, 2020). Employee apprehension about job displacement and resistance to change can also hinder successful integration.

Consequently, there exists a critical gap in understanding the extent to which AI adoption drives organizational success in Nigerian banks. This study seeks to address this gap by examining the relationship between AI implementation and key performance indicators, as well as identifying the challenges affecting its effective deployment.

Objective of the Study

The broad objective of the study is to explore the relationship between Artificial Intelligence and organizational success in the selected deposit money banks in South East, Nigeria. Specifically, the study seeks to:

1. Ascertain the relationship between AI fraud detection and profitability of the deposit money banks in South East, Nigeria.
2. Determine the relationship between AI powered Chabot's and customer satisfaction in the deposit money banks in South East, Nigeria.

Research Questions

To achieve the objective of the study, the following research questions are raised:

i. To what extent does AI fraud detection relate to the profitability of the deposit money banks in Nigeria?

ii. To what extent does AI powered chatbots relate to customer satisfaction in the deposit money banks in South East, Nigeria?

Hypotheses

To accomplish the research objectives the following hypotheses are formulated for testing:

Ho_1: There is a significant negative relationship between AI fraud detection and profitability in the deposit money banks in South East, Nigeria.

Ho_2: There is a significant negative relationship between AI powered chatbots and customer satisfaction in the deposit money banks in South East, Nigeria.

Literature Review

Artificial Intelligence (AI)

Artificial Intelligence (AI) refers to the simulation of human intelligence in machines designed to perform tasks that typically require human cognition, such as learning, reasoning, and self-correction (Russell & Norvig, 2020). Hans (2017) defined artificial intelligence as any device that perceives its environment and takes action that maximizes its chance of successfully achieving its goals. It is equipment that developed to act like a human being. Healy and Palepu (2001) opined that artificial intelligence AI includes the development of computer based systems that can learn from past behaviors and apply that knowledge to solving future problems. This goes further to show that AI is a device that is capable of studying its environment, and applying such knowledge to improve the environment. This involves modeling the human behavior and thought process. The machine is designed to respond intelligently like a human. AI derives from the concept that a machine can be made to stimulate it (Lynn, 2011). The major purpose of AI is the development of computers that can think, see, hear, walk, talk and feel like humans. A major thrust of artificial intelligence is the development of computer functions normally associated with human intelligence such as reasoning, learning and problem solving. (O'Brein, 2003).

AI was first conceptualized in 1955 as a branch of computer science and focused on the science of making intelligent machines that could mimic the cognitive abilities of the human mind, such as learning and problem solving (Ukpong, 2022). In recent times, the business world have witnessed machines perform tasks which prior to this time could only be performed by humans with specialized skills and trainings. The advent of AI has indeed change how business is done and the banking sector is not left out. Mudagal (2018) enumerated five main areas where artificial intelligence is used in banking to include investing asset management, credit scoring underwriting, regulatory compliance fraud detection, market research reporting and customer support- assistants. There are various ways through which AI handles banking problems such as customer service digital support (use of smart phones), scam recognition, biometric identification and customer personalization.

Anjum, 2020 asserts that Artificial Intelligence is the future of banking as it brings the power of advanced data analytics to combat fraudulent transactions and improve compliance. AI algorithm accomplishes anti-money laundering activities in few seconds, which otherwise would have taken hours or days. Al also enables banks to manage huge volumes of data at record speed. Ai features such as AI bots, digital payment advisers and biometric fraud detection mechanisms lead to higher quality of services to a wider customer base. Anjum, 2020 believes that all these translate to increased revenue, reduced costs and boost profits.

AI Fraud Detection

AI enables banks to analyze large volumes of data, identify patterns and detect anomalies that could indicate fraudulent activities. AI fraud detection tools can detect and respond to fraud more effectively (Patil & Suryawanshi, 2021).

The most commonly used AI fraud detection techniques include machine learning, natural language processing, computer vision and robotics. These technologies can improve the accuracy and efficiency of fraud detection, reduce false positives and adapt to new fraud patterns which are crucial capabilities in the constantly changing landscape of financial crime (Lau, 2022). Machine learning algorithms can use customer spending habits, transaction histories and other behavioral data to identify potential fraud. Computer vision involves extraction of useful information from visual data. Computer vision can be used to analyze CCTV footage, facial recognition and behavioral analytics to identify suspicious actions that could indicate fraudulent behavior. Computer vision also helps banks build a more proactive approach to fraud detection, allowing for timely response to potential threats (Yang, 2020).

Robotics provides an efficient and scalable solution for banks seeking to reduce fraud-related losses (Siddiqui, 2020). Unlike traditional fraud detection systems which rely on static rules, robotic systems can adapt to new fraud schemes, making them a valuable tool in combating fraud especially in high risk areas like card transactions.

AI-Powered Chatbots

The concept of chatbots dates back to the 1960s, with the development of ELIZA, a rule based program that could stimulate conversation. However, the advent of AI technologies in recent years has transformed chatbots into sophisticated conversational agents capable of understanding and generating human-like responses (Nze, 2024). A chatbot is a computerized program that acts like a colloquist between the human and the bot. a virtual assistant that has become exceptionally popular in recent years mainly due to dramatic improvements in the areas like artificial intelligence, machine learning, neural networks and natural language processing (Gupta, 2020). These chatbots effectively communicate with any human being using interactive queries. According to

Nze, 2024, the evolution of AI technologies particularly Natural language Processing (NLP) and Machine Language(ML) has significantly enhanced the capabilities of chatbots, enabling them to handle increasingly complex queries, adapt to diverse user contexts and continuously learn from interactions to improve performance over time.

Profitability

Profitability is defined as a company's capacity to obtain profits from its economic activity by using its resources and it represents an economic instrument which underlies all company's decisions regarding activity management and relationships with business partners (Cojocaru, 2000). Profitability is one of the most important indicators of success. Profitability means obtaining an income from production sale that should exceed expenses. Profitability is the ability of the company to generate income; it is often determined by the after tax net income and the return on equity (Awogbemi, 2022).

Banks profitability could be impacted by a variety of factors. There are many internal and external elements that might affect a bank's profitability. The main internal factors include liquidity, capitalization, bank size, and operational effectiveness. External factors include GDP and inflation (kirian & Muhammad, 2019)

Customer Satisfaction

Customer satisfaction is a customer's feeling of pleasure resulting from comparing a products perceived performance or outcomes in relation to person's expectations (Ndubuisi & Nwankwo, 2019). Farooq, 2019 opines that the most important output of the marketing is the customer satisfaction. This shows that success is highly dependent on customer satisfaction as it translates directly into higher sales and profits for the organization. Kotler and Keller (2016) stressed that customer satisfaction is important for business success and performance.

Customer satisfaction in the banking sector is influenced by service quality dimensions such as reliability, responsiveness, and empathy, and plays a crucial role in customer retention (Ladhari, Ladhari & Morales, 2011). Raut & Choudhary (2024) defined Customer satisfaction by comparing perceptions of service received with expectations of service desired. When expectations are exceeded, service is perceived to be of exceptional quality and also to be a pleasant surprise. Customer satisfaction quality in the banking sector is significantly influenced by factors such as reliability, technology aspects, assurance, responsiveness, employee competence, and security and privacy (Khashman, 2023).

Theoretical Framework

The study is anchored on Resource-Based View (RBV) Theory as propounded by Barney (1991). Resource-Based View (RBV) Theory**,** proposed by Barney (1991), argues that an organization's internal resources and capabilities are the primary drivers of sustainable competitive advantage and success. In this study: Artificial Intelligence capabilities (such as predictive analytics, machine learning algorithms, intelligent automation) are seen as strategic resources. When these AI capabilities are valuable, rare, inimitable, and non-substitutable (VRIN characteristics), they contribute significantly to the success of deposit money banks in a competitive environment like South-East Nigeria. Thus, the ability of banks to successfully integrate and utilize AI technologies can differentiate them from competitors and improve operational efficiency, customer satisfaction, and financial performance.

Empirical Review

Okoliko, Ayetigbo, Ifegwu and Chidiebere (2023) assessed the impact of artificial intelligence on the performance of selected deposit money banks. The study was carried out in FCT Abuja, Nigeria. A cross sectional descriptive research design was adopted. The study population comprised the employees of five (5) selected deposit money bankswithin the FCT metropolis in Abuja, Nigeria which totaled 135 employees. The study adopted the use of census. Statistical Package for Social Sciences (SPSS version, 22) was used to report the results of the multiple regression analysis. The study found that the adoption of artificial intelligence positively and significantly enhances efficiency, effectiveness and productivity, improves customer satisfaction and enhances the overall performance of the selected deposit money banksin FCT, Abuja, Nigeria. Hence the study concluded that deposit money banksmoney bankshave the potential to bring significant benefits to their firms and customers by leveraging AI to improve customer experience, better understand customer needs, enhance competitiveness and manage risk. The study is related to the present study in that both studies used Artificial Intelligence (AI) variables and commercial banks, but differ in area for study, variables, method of data analysis, subject area, population and scope.

Hui, Khan, and Akhtar (2024) investigated AI-based virtual assistant and transformational leadership in social cognitive theory perspective: A study of team innovation in construction industry in China. This study social based on cognitive theory (SCT), aimed to better understand how transformational leadership affects team-level knowledge sharing and absorptive ability in the construction industry. It also examined the moderating influence of the AI-based virtual assistant on the indirect relationship between transformational leadership and team innovation through knowledge sharing and absorptive ability at the team level. This study used a simple random sample approach to gather data from several small and medium-sized construction firms in Anhui Province, China. A total of 407 respondents, including 89

site engineers and 321 team members, provided their responses on a five-point Likert scale questionnaire. Spearman Rank Order Correlation Coefficient was used. The findings showed that AI-based virtual assistants significantly moderated the direct and indirect association between transformational leadership and knowledge sharing, and subsequently with team innovation. The study is connected to the current research since both examine Artificial Intelligence (AI) variables and commercial banks; however, they differ in study location, selected variables, analytical methods, subject focus, population, and overall scope.

Okoro (2024) examined digital human resource practices and employee development in Nigerian banking sector. The study adopted digital recruitment and digital onboarding as dimensions of digital human resource practice while measures of employee development were performance management and competence development. To provide a comprehensive and detailed explanation of on digital human resource practice and employee development in the banking sector in Nigeria, information in this study were sourced based on authoritative and credible print encyclopedias, nonfiction books, academic journals, and dictionaries. Qualitative method was used. From the findings from the review of extant empirical studies, the study revealed that digital human resource practice is imperative and essential to employee development in Nigerian banking sector. In conclusion, digital human resource practice and employee development have become integral components of the Nigerian banking sector. By adopting digital HR practices, banks can enhance recruitment processes, improve employee training and development, streamline performance management, foster employee engagement, and retain top talent. The study recommended that Banks should prioritize investing in robust technology infrastructure to support digital HR practices. As digital HR practices evolve rapidly, it is essential for HR professionals in the banking sector to stay updated with the latest trends and technologies that will aid recruitment and onboarding system.

Kingchang, Chatwattana, and Wannapiroon (2024) examined Artificial Intelligence Chatbot Platform: AI Chatbot Platform for Educational Recommendations in Higher Education in Thailand. The participants in this research were divided into two groups: 1) six experts chosen by means of purposive sampling, all of whom are from different higher education institutions and who specialize in information system development, and 2) 65 students interested in studying at the Railway Technical School, all of whom were chosen by means of voluntary selection. The participants in both groups are well protected in terms of confidentiality and anonymity; in other words, the identities of the participants were neither indicated nor mentioned in the research instruments. Thematic qualitative method was used. The research results showed that: 1) The overall efficiency of the AI chatbot platform in terms of three aspects (function requirement, functions, and usability) were assessed as being at a very high level. 2) According to the results of decision assessment based on the aptitudes of AI chatbot platform users, 86.15% of

the said users made their decision based on the suggestions of the platform. 3) The satisfaction with regard to the AI chatbot platform is at very high level. According to the above results based on the analysis of the users' aptitudes and abilities, it was found that the AI chatbot platform can be used as a tool for educational recommendations in higher education. The platform is also able to analyze users' questions accurately and precisely in order to provide answers that meet the users' needs. The study is connected to the current research since both examine Artificial Intelligence (AI) variables and commercial banks; however, they differ in study location, selected variables, analytical methods, subject focus, population, and overall scope.

Shema & Deepalakshmi (2024) examined the role of artificial intelligence in banking sectors. AI which plays an important role in banking sectors. The main motive of giving AI is to get the customer support and satisfaction. By giving AI technology in banking we can easily access the services and communicate with the customers. The samples were collected from 100 respondents who use banks. A structured questionnaire is framed to collect the primary data of customers have toward AI Technologies. Data collected were analysed using descriptive statistics and regression analysis. The findings revealed that AI is the mostly used in the banking industries to understand the customer preferences and to ensure that customers are satisfied with the services. By AI technology both the customers and bankers are benefited. The study is related to the present study in that both studies used Artificial Intelligence (AI) variables and commercial banks, but differ in area for study, variables, method of data analysis, subject area, population and scope.

Methodology

The study adopted a descriptive survey research design to systematically gather and analyze data from respondents. This approach was considered appropriate because it allows for the collection of quantitative information from a large population, enabling the researcher to describe existing conditions and examine relationships among variables without manipulating the study environment. The research was conducted in the South East region of Nigeria, comprising five states: Abia, Anambra, Ebonyi, Enugu, and Imo. This region was selected due to its active banking sector and relevance to the study's focus.

The study population consisted of employees from five Tier-1 deposit money banks: First Bank of Nigeria, United Bank for Africa, Guaranty Trust Bank, Access Bank, and Zenith Bank. These banks were selected due to their strong market presence and technological advancement. Collectively, they had a total of 3,246 employees across the South East region. Using the Taro Yamane (1967) formula, a sample size of 356 respondents was determined from the total population of 3,246 employees, ensuring adequate representation. Both primary and secondary data sources were utilized. Primary data were collected through structured questionnaires administered to bank

employees, while secondary data were obtained from journals, internet materials, and unpublished works.

A pilot test involving 20 employees of the five deposit money banks in South East, Nigeria was conducted. The Cronbach Alpha value of 0.876 confirmed high reliability, exceeding the recommended 0.6 threshold. Data were analyzed using descriptive statistics and presented in tables. Hypotheses were tested using Pearson Product Moment Correlation via SPSS (version 27) at a 5% significance level.

Results and Discussions

The questionnaire was administered to three hundred fifty-six (356) respondents during the field survey by the researcher. However, 300 (84%) were returned and 56(16%) were not returned.

Table 1 Analysis of Questionnaire

Description	Numbers	Percentage (%)
No. of questionnaire administered	356	100
No. of questionnaires retrieved	300	84
No. of questionnaires not retrieved	56	16

Source : Field Survey, 2025

Research Questions Analysis

Decision Rule

The decision in the analysis section is determined by the average of the responses of respondents. Very Great Extent (5 points), Great Extent (4 points), Undecided (3 points), Some Extent (2 points) and No Extent (1 point). The average of the responses:

$$\frac{(5 + 4 + 3 + 2 + 1)}{5} = 3.0$$

Therefore, a mean score below 3.0 would be considered rejected and a mean score of 3.0 and above would be considered accepted

Research Question 1: To what extent are the AI fraud detection related to the profitability of the deposit money banks in Nigeria?

Table 2: AI fraud detection and the profitability of the deposit money banks

S/N	**Fraud Detection**	**N**	**Mean**	**Standard Deviation**	**Remark**
1	AI systems help my bank to detect fraudulent transactions promptly.	300	3.62	1.496	Accepted

2	The use of AI has improved the accuracy of fraud detection in our operations	300	3.28	1.628	Accepted
3	AI enhances the efficiency and speed of fraud investigation processes	300	3.00	1.680	Accepted
4	My bank uses machine learning to protect customers funds.	300	2.80	1.512	Rejected
Profitability					
5	The adoption of AI has significantly improved the profitability of my bank.	300	3.58	1.556	Accepted
6	Automation through AI increases financial efficiency.	300	3.26	1.627	Accepted
7	AI implementation contributes to long-term financial growth	300	3.00	1.556	Accepted
8	AI tools support faster and more profitable decision-making	300	2.74	1.6133	Rejected

Source: Field survey, 2026

Table 2 showed respondents ratings on the extent to which AI fraud detection relates to profitability of deposit money banks in South-East Nigeria. Out of 8 items, 6 items were accepted while 2 items were rejected based on the benchmark mean of 3.00.

For AI fraud detection: respondents accepted that AI systems help banks detect fraudulent transactions promptly (mean = 3.62). They also accepted that AI has improved the accuracy of fraud detection (mean = 3.28), and that AI enhances the efficiency and speed of fraud investigation processes (mean = 3.00). However, respondents rejected the item that their bank uses machine learning to protect customers' funds (mean = 2.80). This suggests that while AI tools are used for general fraud detection, the specific deployment of machine learning for customer fund protection is still limited.

For profitability: respondents accepted that AI adoption has significantly improved profitability (mean = 3.58). They also accepted that automation through AI increases financial efficiency (mean = 3.26), and that AI contributes to long-term financial growth (mean = 3.00). The item on AI supporting faster and more profitable decision-making was rejected (mean = 2.74). This implies that although AI has improved efficiency, its integration into strategic decision-making is not yet fully optimized.

Overall, the findings indicate that AI fraud detection has a moderate to great extent of influence on profitability. By minimizing losses from fraud and improving operational efficiency, AI contributes to the financial performance of deposit money banks in South-East Nigeria.

Research Question 2: To what extent are the AI powered chatbots related to the customer satisfaction in the deposit money banks in South East, Nigeria?

Table 3: AI powered chatbots and customer satisfaction in the deposit money banks

S/N	AI-Powered Chatbots	N	mean	Standard Deviation	Remark
9	My bank uses AI chatbots to handle customer inquiries efficiently.	300	3.27	1.587	Accepted
10	Customers are more satisfied with AI-driven virtual assistance compared to manual support	300	3.18	1.686	Accepted
11	AI chatbots improve communication and service quality in my bank.	300	3.10	1.730	Accepted
12	My bank uses chatbots to provide 24/7 customer support	300	2.68	2.459	Rejected
Customer Satisfaction					
13	AI-powered services have enhanced customer experience in my bank.	300	3.58	1.563	Accepted
14	AI tools help to predict and meet customer needs effectively	300	3.26	1.689	Accepted
15	Customers are more loyal because of AI-driven personalized services.	300	3.00	1.742	` Accepted
16	Customers are satisfied with chatbot and digital service interactions	300	2.54	2.458	Rejected

Source: Field survey, 2026

Table 3 presents respondents ratings on the extent to which AI-powered chatbots relate to customer satisfaction in deposit money banks in South-East Nigeria. Based on the benchmark mean of 3.00, 6 out of 8 items were accepted while 2 items were rejected.

For AI-powered chatbots, respondents accepted that banks use AI chatbots to handle customer inquiries efficiently (mean = 3.27). They also accepted that customers are more satisfied with AI-driven virtual assistance than manual support (mean = 3.18), and that AI chatbots improve communication and service quality (mean = 3.10). However, respondents rejected the item that banks use chatbots to provide 24/7 customer support (mean = 2.68). This suggests that while chatbots are used, full round-the-clock functionality is not yet achieved.

For customer satisfaction, respondents accepted that AI-powered services have enhanced customer experience (mean = 3.58), and that AI tools help predict and meet customer needs (mean = 3.26). However, respondents accepted that customers are more

loyal because of AI-driven personalized services (mean = 3.00), and that customers are satisfied with chatbot and digital service interactions (mean = 2.54). The rejection of these two items indicates that although AI improves efficiency, it has not fully translated to loyalty or overall satisfaction with chatbot interactions. This may be due to limitations in handling complex customer issues.

Overall, the findings indicate that AI-powered chatbots have a moderate extent of influence on customer satisfaction. While chatbots improve efficiency and service delivery, banks need to improve chatbot intelligence and human escalation options to enhance loyalty and overall satisfaction.

Hypotheses Testing

Decision Rule: Reject the null hypothesis if the p-value is less than or equal to 0.01 ($p \leq 0.01$), indicating a statistically significant relationship between the variables, while the strength of this relationship is determined by the magnitude of the correlation coefficient (r).

Hypothesis I

H_o: There is no significant positive relationship between AI fraud detection and profitability in the deposit money banks in South East, Nigeria.

H_A: There is a significant positive relationship between AI fraud detection and profitability in the deposit money banks in South East, Nigeria.

Table 4: **Correlation between AI fraud detection and profitability**

		FRAUD	PROFITABIITY
FRAUD	Pearson Correlation	1	.947
	Sig. (2-tailed)		.000
	N	300	300
PROFITABILITY	Pearson Correlation	.947	1
	Sig. (2-tailed)	.000	
	N	300	300
Correlation is significant at the 0.01 level (2-tailed). Independent Variable: FRAUD(x), Dependent Variable: PROFITABIITY(y) **Source**: SPSS version 27 Output			

Table 4 presents the Pearson correlation analysis conducted to examine the relationship between AI fraud detection and profitability in deposit money banks in South East, Nigeria. The analysis shows a very strong positive correlation with a coefficient of r = 0.947, indicating that as the adoption and effective use of AI fraud detection systems increase, the profitability of banks also rises. The significance value (p = 0.000) is less

than the 0.01 level, which demonstrates that the correlation is statistically significant and unlikely to have occurred by chance.

Based on these results, the null hypothesis (H_0), which states that there is no significant relationship between AI fraud detection techniques and profitability, is rejected. The data provide strong evidence to support the alternative hypothesis (H_1) that *there is a significant relationship between AI fraud detection techniques and profitability. This confirms that AI fraud detection is not merely a technological tool but a strategic driver that enhances financial performance in the banking sector.

This imply that AI systems help banks detect and prevent fraudulent transactions promptly, reduce operational losses, improve decision-making accuracy, and enhance overall efficiency. These improvements contribute directly to higher profitability, demonstrating that investments in AI fraud detection can yield substantial financial benefits. In essence, the study highlights the critical role of AI in strengthening risk management while simultaneously boosting the financial outcomes of deposit money banks..

Hypothesis II

H_0: There is no significant positive relationship between AI powered chatbots and customer satisfaction in the deposit money banks in South East, Nigeria.

H_A: There is a significant positive relationship between AI powered chatbots and customer satisfaction in the deposit money banks in South East, Nigeria.

Table 5: Correlation between **AI powered chatbots and customer satisfaction**

		CHABOT	CUSTOMER_SATISFACTION
CHABOT	Pearson Correlation	1	.971**
	Sig. (2-tailed)		.000
	N	300	300
CUSTOMER_SATIS	Pearson Correlation	.971	1
	Sig. (2-tailed)	.000	
	N	300	300
Correlation is significant at the 0.01 level (2-tailed).			

Independent Variable: CHABOT (x), Dependent Variable: CUSTOMER_SATISFACTION (y) **Source**: SPSS version 27 Output

The correlation analysis in Table 5 examined the relationship between AI-powered chatbots and customer satisfaction in deposit money banks in South East, Nigeria. The Pearson correlation coefficient (r = 0.971) indicates a very strong positive relationship,

suggesting that the use of chatbots is closely associated with higher levels of customer satisfaction. The p-value ($p = 0.000$) is below the 0.01 significance threshold, confirming that the correlation is statistically significant.

In terms of hypothesis testing, the null hypothesis (H_0), which states that there is no significant relationship between AI-powered chatbots and customer satisfaction, is rejected. The alternative hypothesis (H_1), stating that *there is a significant relationship between AI-powered chatbots and customer satisfaction, is therefore accepted. This confirms that chatbots are a key technological tool that positively influences customer experience in the banking sector. This imply that AI-powered chatbots enhance customer satisfaction by providing 24/7 support, quick responses, and personalized service, which reduces waiting times and improves problem resolution. Banks that effectively deploy chatbot technologies are likely to experience higher customer loyalty, better service ratings, and increased operational efficiency. Overall, the analysis highlights the significant role of AI chatbots in improving service delivery and fostering stronger customer relationships in deposit money banks.

Discussion of Findings

Hypothesis one analysis indicates a very strong positive correlation ($r = 0.947$, $p < 0.01$) between AI fraud detection techniques and profitability in deposit money banks in South East Nigeria. This suggests that banks effectively implementing AI for fraud management experience higher profitability through real-time detection, reduced financial losses, and enhanced revenue. The finding aligns with Tang and Tien (2020), who observed that AI tools streamline processes, improve decision-making, and enhance fraud detection in Vietnamese banks. Similarly, Okoliko et al. (2023) found that AI adoption improves efficiency, productivity, customer satisfaction, and overall performance in Nigerian banks. Narang, Vashisht, and Bajaj (2024) also highlighted AI's role in reducing operational costs and boosting profitability.

Hypothesis two analysis revealed a very strong positive correlation ($r = 0.971$, $p < 0.01$) between AI-powered chatbots and customer satisfaction. Chatbots enhance service quality, provide real-time support, and enable personalized interactions. This is consistent with Kingchang et al. (2024) and Shema & Deepalakshmi (2024), confirming that AI-driven customer service fosters engagement, satisfaction, and competitive advantage in banking.

Conclusion and Recommendations

The findings of this study demonstrate that artificial intelligence (AI) significantly relates with the operational and strategic dimensions of deposit money banks in South East Nigeria. The strong positive correlations observed across all hypotheses clearly establish AI as a key factor to profitability and customer satisfaction. Each AI

dimension examined fraud detection techniques, and AI-powered chatbots, contributes uniquely yet collectively to the overall success and competitiveness of banking institutions in the region.

The results show that the deployment of AI-based fraud detection systems has a positive relationship with financial performance by preventing fraudulent transactions and safeguarding assets. These technologies not only reduce financial risks but also promote operational stability, thereby contributing to higher profitability. Similarly, AI-powered chatbots have emerged as essential tools for improving customer experiences, offering real-time support, and personalizing interactions. Their ability to provide consistent, 24-hour service fosters stronger customer satisfaction for long-term business growth in an increasingly digital banking environment.

In conclusion, the study provides compelling evidence that AI is not merely a technological enhancement but a strategic asset that drives holistic success. By integrating AI across various operational areas, banks can achieve significant improvements in profitability and customer services. These findings suggest that sustained investment in AI infrastructure, workforce training, and ethical governance will be crucial for banks seeking long-term growth, resilience, and leadership in the digital economy of Nigeria and beyond.

Based on the findings of this study, it is recommended that:

1. Deposit money banks in South East Nigeria need to strategically implement AI to enhance profitability and customer satisfaction.
2. Simultaneously, by integrating AI for both operational security and customer interaction, banks can simultaneously boost efficiency, profitability, and competitive advantage in an increasingly digital banking environment.

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