ARTIFICIAL INTELLIGENCE ESPOUSAL AND ORGANIZATIONAL PERFORMANCE OF DEPOSIT MONEY BANKS IN PORT HARCOURT RIVERS STATE, NIGERIA

Dr. Chukwuma Nnenna Nancy
National Open University of Nigeria
nnchukwuma@noun.edu.ng
&
Professor Samaila Mande
National Open University of Nigeria

Abstract

This study investigates the impact of Artificial Intelligence (AI) adoption on the organizational performance of Deposit Money Banks (DMBs) in Port Harcourt, Rivers State, Nigeria. The research specifically examines the extent of AI integration, its influence on operational and financial performance, and its effect on customer satisfaction. Employing a quantitative cross sectional survey design, data were collected from 285 employees across four selected DMBs, Zenith Bank Plc, United Bank for Africa Plc, Fidelity Bank Plc, and Union Bank Plc, using a structured questionnaire. Analysis was conducted using descriptive and inferential statistical techniques via SPSS, including regression and correlation analyses. The findings reveal that AI adoption is substantial, with robotic process automation, machine learning, and natural language processing extensively implemented. Furthermore, AI adoption has a statistically significant positive effect on operational efficiency, financial performance, and customer satisfaction, with a strong positive correlation between AI adoption and overall organizational performance. The study concludes that AI is a critical driver of efficiency, profitability, and customer experience in Nigerian banks. It recommends strategic expansion of AI adoption, integration of AI into core operational processes, enhancement of AI-driven customer engagement, and investment in human capital and data infrastructure. These findings provide empirical guidance for policymakers, bank executives, and stakeholders seeking to leverage AI for sustained organizational performance and competitive advantage in the Nigerian banking sector.

Keywords: *Artificial Intelligence, Organizational Performance, Deposit Money Banks, Operational Efficiency and Customer Satisfaction*

INTRODUCTION

Technology has become a major driver of competitiveness in today's business environment, and the banking industry is no exception. Artificial Intelligence (AI) is increasingly transforming how banks operate, make decisions, and interact with customers. In Nigeria, Deposit Money Banks (DMBs), particularly those operating in Port Harcourt, Rivers State, are gradually adopting AI technologies to improve efficiency, strengthen financial performance, and enhance customer experience. Tools such as machine learning, natural language processing, and robotic process automation are now being used to automate routine banking activities, support better decision-making, and respond more quickly to customer needs. The move away from manual banking processes toward AI driven systems, such as internet and mobile banking, has largely been driven by the rapid growth in financial data and the need for real-time information processing. AI enables banks to handle complex data, anticipate operational needs, lower operating costs, and improve profitability (Bag et al., 2021). In addition, AI supports better managerial decisions by providing predictive insights and helping organizations identify key factors that influence success (Saenz, Revilla, & Simón, 2020; Brynjolfsson & McAfee, 2017).

However, the benefits of AI adoption are not evenly experienced across all Deposit Money Banks in Nigeria. While leading banks such as Zenith Bank, Fidelity Bank, United Bank for Africa, and Access Bank have made notable progress in integrating AI into their operations, resulting in improved transaction automation and customer service, many other banks still struggle to fully utilize

AI technologies. These challenges range from infrastructural limitations to skill gaps and financial constraints (Nwosu, 2018; Bag et al., 2021; Akpanobong & Esseien, 2022). Given these differences, it is important to understand how AI adoption affects organizational performance in the Nigerian banking context. This study therefore examines the influence of AI adoption on financial performance, operational efficiency, and customer satisfaction among Deposit Money Banks in Port Harcourt, Rivers State.

Global, Africa, and Nigeria Antecedents

Across the world, Artificial Intelligence has significantly changed how banks operate. The replacement of manual processes with AI-powered systems has made it possible for banks to introduce services such as internet banking, which automate transactions that were previously time-consuming and labor-intensive. As financial data continues to grow and customers increasingly expect fast and accurate services, the adoption of AI has become essential, even in developing economies. Globally, AI is widely seen as a tool that can improve customer satisfaction, increase productivity, reduce operating costs, and ultimately enhance profitability in the banking sector (Bag et al., 2021).

Recent discussions on AI emphasize its ability to process and analyze large volumes of data in real time. Through advanced data analytics and algorithms, banks can generate timely insights that support decision-making and improve operational performance (Chen & Biswas, 2021; Sestino & De Mauro, 2022). As a result, AI is expected to improve the quality of organizational decisions and contribute to better financial outcomes by helping firms identify important performance indicators and areas for improvement (Saenz, Revilla, & Simón, 2020; Blohm et al., 2020; Brynjolfsson & McAfee, 2017).The use of information technology has also played a key role in expanding access to financial services and promoting financial inclusion worldwide. Data from the Global Findex Database show steady progress in the number of people with bank accounts, reflecting the positive impact of digital financial services on inclusion.

In Africa, economic development has gradually improved over time, supported by advances in technology and financial services. Sub-Saharan Africa has experienced growth in real GDP and has become a global leader in mobile money usage (African Development Bank, 2020). A significant proportion of adults in the region now use mobile money services, prompting banks to partner with fintech companies and mobile network operators to provide services such as payments, loans, and insurance through digital platforms.

In Nigeria, the activities of Deposit Money Banks have expanded considerably, especially following the introduction of the cashless policy in 2022. This expansion has increased transaction volumes and customer demand, making efficiency more important than ever. AI technologies offer banks practical ways to manage these challenges by improving customer interactions, streamlining internal processes, and strengthening overall banking infrastructure (Fong et al., 2021). Across the economy, technological innovation continues to support improvements in efficiency, fraud reduction, and customer satisfaction, positioning AI as a key driver of future changes in the Nigerian banking sector.

Statement of the Problem

Despite the growing importance of Artificial Intelligence in global banking, its adoption within the Nigerian banking sector remains relatively limited. Many Deposits Money Banks in Port Harcourt, Rivers State have yet to fully harness AI's potential to improve operational efficiency, financial performance, and customer satisfaction. Although AI offers clear advantages, such as automation, faster decision-making, and improved service delivery, banks face several challenges that slow down its implementation. These include the high cost of AI systems, technical complexity, and a shortage of skilled personnel capable of managing AI technologies. In addition, existing studies on AI adoption in Nigerian banks are limited and often lack strong empirical evidence. While studies such as Elegunde & Shotunde (2020) have examined the effects of AI on business performance in selected banks, they did not focus specifically on Deposit Money Banks in Port Harcourt, Rivers State, nor did they comprehensively link AI adoption to organizational performance indicators.

As a result, important questions remain unanswered regarding how AI adoption affects financial returns, operational efficiency, and customer satisfaction in Nigerian banks. This lack of empirical evidence makes it difficult for bank managers and policymakers to fully understand the practical

outcomes of AI investment. Addressing this gap is therefore essential for identifying the challenges, opportunities, and performance implications of AI adoption among Deposit Money Banks in Port Harcourt, Rivers State and for supporting informed decision-making in the Nigerian banking industry.

Objectives of the Study

1. Assess the extent to which Artificial Intelligence (AI) has been adopted by Deposit Money Banks in Port Harcourt, Rivers State.
2. Examine the effect of Artificial Intelligence (AI) adoption on the operational and financial performance of Deposit Money Banks in Port Harcourt, Rivers State.
3. Evaluate the influence of Artificial Intelligence (AI) adoption on customer satisfaction within Deposit Money Banks in Port Harcourt, Rivers State.

Research Questions

The study seeks to provide answers to the following research questions:

1. What is the extent of Artificial Intelligence (AI) adoption among Deposit Money Banks in Port Harcourt, Rivers State, Nigeria?
2. How does the adoption of Artificial Intelligence (AI) affect the operational and financial performance of Deposit Money Banks in Port Harcourt, Rivers State?
3. What influence does Artificial Intelligence (AI) adoption have on customer satisfaction in Deposit Money Banks in Port Harcourt, Rivers State?

Statement of Hypotheses

The following null hypotheses will be tested:

H_{01}: Artificial Intelligence (AI) adoption has no significant effect on the operational and financial performance of Deposit Money Banks in Port Harcourt, Rivers State.

H_{02}: Artificial Intelligence (AI) adoption has no significant influence on customer satisfaction in Deposit Money Banks in Port Harcourt, Rivers State.

H_{03}: There is no significant relationship between the level of Artificial Intelligence (AI) adoption and the overall organizational performance of Deposit Money Banks in Port Harcourt, Rivers State.

LITERATURE REVIEW

Artificial Intelligence (AI) refers to the development of computer systems capable of performing tasks that ordinarily require human intelligence, such as perception, speech recognition, decision-making, and language translation. In recent years, AI has become an important tool in business operations, enabling organizations to improve efficiency, reduce operational costs, and respond more effectively to customer needs (Elegunde & Osagie, 2020). Existing studies have demonstrated several ways through which AI enhances organizational performance. First, AI enables the automation of routine and repetitive tasks, thereby reducing employee workload and allowing staff to focus on higher-value and innovative activities. Second, AI systems can process large volumes of data and generate insights that support informed and timely decision-making. Third, AI contributes to improved product and service quality by identifying operational strengths and weaknesses and providing recommendations for innovation and process improvement (Huynh et al., 2020; Bag et al., 2021).

In the banking sector, these capabilities are particularly valuable due to the industry's data-intensive nature and the need for speed, accuracy, and reliability in service delivery. As Deposit Money Banks increasingly adopt AI technologies, understanding their role in enhancing performance outcomes has become a key area of academic and practical interest.

Conceptual Framework

This study conceptualizes Artificial Intelligence (AI) adoption as the independent variable and organizational performance of Deposit Money Banks (DMBs) as the dependent variable. The framework is based on the assumption that the adoption of AI technologies improves bank performance by enhancing operational efficiency, decision-making quality, and customer experience.

Artificial Intelligence Adoption

AI adoption in Deposit Money Banks is operationalized using the following dimensions:

- **Machine Learning Applications**, such as credit scoring, fraud detection, and risk assessment
- **Natural Language Processing (NLP)**, including chatbots and virtual customer assistants

- **Robotic Process Automation (RPA)**, such as automated transaction processing and back-office operations

Organizational Performance

Organizational performance is measured using three key indicators:

- **Financial Performance**, including profitability, return on assets, and cost reduction
- **Operational Efficiency**, such as process speed, accuracy, error reduction, and turnaround time
- **Customer Satisfaction**, measured through service quality, convenience, and overall customer experience

Intervening/Moderating Factors

The relationship between AI adoption and organizational performance may be influenced by several intervening and moderating factors, including:

- **Organizational Readiness**, reflected in infrastructure availability and investment capacity
- **Human Capital Competence**, including technical skills and AI-related knowledge among employees
- **Regulatory Environment**, particularly data protection laws and banking regulations

The framework proposes that increased adoption of AI technologies leads to more efficient operational processes, which in turn improve financial performance and customer satisfaction. However, the strength of this relationship depends on the level of organizational readiness, employee competence, and regulatory support.

Conceptual Review

Artificial Intelligence (AI): Artificial Intelligence is defined as the ability of a computer or computer-controlled system to perform intelligent actions typically associated with human reasoning, learning, perception, and experience. AI systems are designed to simulate human cognitive functions such as problem-solving, pattern recognition, and decision-making. With the continuous advancement of intelligent algorithms, the traditional banking business model is undergoing a rapid transformation toward a more digital, efficient, and customer-oriented system. AI has the potential to revolutionize banking operations, influencing how customers save, invest, spend, and borrow. By enabling faster processing, personalized services, and improved risk management, AI supports the development of a smarter and more responsive banking environment. According to Anjum (2020), the integration of cognitive technologies with AI has enhanced the digitization of banking activities, allowing banks to remain competitive in an increasingly technology-driven market.

Anjum (2020), suggest that a growing number of financial institutions have already adopted AI technologies such as predictive analytics, voice recognition, and fraud detection systems. These technologies help banks combat financial crimes, enhance regulatory compliance, and improve data management capabilities. For instance, AI-driven anti-money laundering systems can analyze transactions within seconds, a process that previously required hours or days. Similarly, AI applications such as chatbots, digital payment assistants, and biometric security systems have significantly improved service quality and customer engagement, while simultaneously reducing operational costs and increasing profitability. Empirical research has consistently documented the positive effects of AI on business performance across various industries. Mikalef and Gupta (2021) highlight that AI capabilities contribute significantly to organizational outcomes by enabling data-driven decision-making and operational efficiency. Studies conducted across different sectors, including banking and finance (Huynh et al., 2020), manufacturing, logistics, marketing, and customer relationship management, have demonstrated that AI adoption enhances performance and competitiveness (Bag et al., 2021).

In the Nigerian banking context, the relationship between AI adoption and the performance of Deposit Money Banks is increasingly important as the sector continues to expand and modernize. Existing literature suggests that the adoption of AI technologies in DMBs can significantly improve operational processes, strengthen financial performance, and enhance customer service delivery (Huynh et al., 2020; Bag et al., 2021). However, despite these documented benefits, empirical studies focusing specifically on Nigerian DMBs remain limited, underscoring the need for this research in this area.

The Concept of Artificial Intelligence and Its Relevance to Deposit Money Banks

Artificial Intelligence (AI) refers to computer-based systems designed to perform tasks that traditionally require human intelligence, including learning, reasoning, pattern recognition, and decision-making. While AI was formally introduced by John McCarthy in 1956, recent technological advancements have accelerated its practical application across industries, particularly in financial services (Anyoha, 2017). Scholars describe AI as a set of computational techniques that enable machines to mimic human cognitive functions and adapt autonomously to dynamic environments. McCorduck (2004) emphasizes that AI allows machines to perform tasks that typically demand human intelligence, highlighting its transformative potential.

In the banking sector, AI has become a cornerstone of digital transformation. Deposit Money Banks (DMBs) increasingly employ AI-enabled solutions, such as machine learning algorithms, robotic process automation, chatbots, biometric authentication systems, and predictive analytics, to automate operations, streamline service delivery, and strengthen risk management. These technologies improve efficiency, reduce operational costs, and enhance customer experience, positioning AI as a strategic resource for boosting organizational performance (Al-Okaily et al., 2021; Oyewole, Adebola, & Eluyela, 2023).

Organizational Performance in Deposit Money Banks

Organizational performance reflects how effectively an institution achieves its goals through optimal utilization of resources. It encompasses financial metrics like profitability, return on assets, and cost efficiency, as well as non-financial indicators such as service quality, operational efficiency, innovation, and customer satisfaction (Ikegwuru & Acee-Eke, 2020). In DMBs, performance is particularly crucial due to intense competition, regulatory pressures, and evolving customer expectations. Continuous performance evaluation allows banks to monitor progress toward objectives, identify areas for improvement, and adapt strategically. Increasingly, technological capabilities, particularly AI adoption, play a central role in driving performance outcomes by enhancing processing speed, decision accuracy, and service quality.

AI Espousal and Its Impact on Organizational Performance

AI espousal, the extent to which banks adopt, integrate, and institutionalize AI technologies, has emerged as a key determinant of organizational success. Empirical studies show a strong positive relationship between AI adoption and both financial and operational performance in the banking sector. For example, Al-Okaily et al. (2021) found that AI-enabled systems significantly enhance operational efficiency and decision-making accuracy. Similarly, Oyewole et al. (2023) reported that AI adoption improves profitability and cost efficiency among Nigerian DMBs through automation and data-driven strategies. Beyond financial performance, AI also contributes to superior non-financial outcomes. Akinwale and Adepoju (2022) demonstrated that AI-powered customer service platforms, including chatbots and personalized banking tools, enhance customer satisfaction and loyalty. Additionally, AI-driven fraud detection and credit risk assessment systems strengthen risk management capabilities, reducing financial losses and improving institutional stability (Khan, Tan, & Chong, 2021).

Overall, AI adoption enables DMBs to optimize internal processes, elevate service quality, and improve both financial and non-financial performance. Banks that strategically embrace AI are better positioned to achieve sustained competitive advantage in Nigeria's increasingly technology-driven financial sector.

THEORETICAL REVIEW

This study is grounded in three key theoretical perspectives that explain the relationship between artificial intelligence (AI) adoption and organizational performance: the Technology Acceptance Model (TAM), the Resource-Based View (RBV), and the Dynamic Capabilities Theory. Together, these theories provide a comprehensive framework for understanding how AI adoption occurs, how it generates organizational value, and how it enhances performance, particularly within Deposit Money Banks (DMBs).

Technology Acceptance Model (TAM)

The Technology Acceptance Model (TAM), developed by Davis (1989), explains user behavior regarding the adoption and use of new technologies. Originating from the Theory of Reasoned Action

(TRA) proposed by Fishbein and Ajzen (1975), TAM specifically addresses technology acceptance within information systems contexts.

According to TAM, an individual's willingness to adopt a technology is primarily influenced by two core beliefs: perceived usefulness (PU) and perceived ease of use (PEU). Perceived usefulness reflects the extent to which an individual believes that using a technology will enhance their job performance, while perceived ease of use refers to the degree to which the technology is perceived as effortless to use (Davis, 1989). These beliefs shape attitudes toward technology, which in turn determine the behavioral intention to use it, a strong predictor of actual usage. TAM has been widely applied in various domains, including online banking, e-government services, mobile marketing, and social networking platforms. In the context of AI adoption in DMBs, TAM provides insight into how bank employees and customers perceive AI-enabled systems. Extensions of TAM also consider social influence and organizational norms, emphasizing that technology acceptance is shaped not only by individual perceptions but also by institutional pressures and peer expectations.

Resource-Based View (RBV)

The Resource-Based View (RBV) posits that firms achieve superior performance when they possess valuable, rare, inimitable, and non-substitutable resources that competitors cannot easily replicate (Barney, 1991). Organizational performance is therefore driven primarily by internal resources rather than external market positioning alone. These resources can be tangible (e.g., technology infrastructure) or intangible (e.g., human skills, organizational routines, and knowledge). Within this framework, AI can be conceptualized as a strategic resource that enhances organizational competitiveness. AI enables firms to process large volumes of data, generate predictive insights, and support superior decision-making. When effectively combined with complementary resources, such as skilled personnel, data infrastructure, and well-defined processes. AI creates substantial value across the firm's operations (Mikalef & Gupta, 2021; Bag et al., 2021). The RBV also emphasizes that competitive advantage from AI is sustained when the technology is difficult to imitate and fully embedded within organizational routines. In banking, AI-powered analytics, automation tools, and risk assessment systems represent critical resources that contribute to operational efficiency and strategic performance.

Dynamic Capabilities Theory

While RBV highlights the value of firm-specific resources, the Dynamic Capabilities Theory extends this perspective by focusing on a firm's ability to adapt, integrate, and reconfigure resources in response to changing environments. Teece, Pisano, and Shuen (1997) define dynamic capabilities as the firm's capacity to sense opportunities and threats, seize opportunities, and transform resources to maintain competitiveness. In rapidly evolving and uncertain markets, firms with strong dynamic capabilities are more likely to achieve sustained superior performance. Organizations that lack these capabilities may experience only temporary success, especially amid technological disruptions (Zollo & Winter, 2002; Teece, 2007).

Collectively, TAM, RBV, and Dynamic Capabilities Theory provide a robust foundation for this study. TAM explains user acceptance and utilization of AI systems, RBV highlights AI as a strategic resource driving competitive advantage, and Dynamic Capabilities Theory emphasizes the continuous adaptation and integration of AI to sustain organizational performance. Together, these perspectives support the study's hypotheses that AI adoption positively influences operational efficiency, financial performance, and customer satisfaction in Deposit Money Banks.

Research Design

This study employed a quantitative cross-sectional survey design to examine the relationship between Artificial Intelligence (AI) espousal and organizational performance of selected Deposit Money Banks (DMBs) in Port Harcourt, Rivers State, Nigeria. The design was appropriate for capturing current levels of AI adoption and statistically testing its effect on operational, financial, and customer-related performance outcomes.

Population and Sample

The study population comprised employees of four selected Deposit Money Banks in Port Harcourt, Rivers State: Zenith Bank Plc, United Bank for Africa Plc, Fidelity Bank Plc, and Union

Bank Plc. These banks were purposively selected based on their level of AI adoption and prominence within the Nigerian banking sector.

A total of 300 employees were sampled using a combination of judgmental and stratified random sampling techniques, ensuring representation across departments, job roles, and work shifts. Specifically, 100 respondents were drawn from Fidelity Bank and Union Bank, while 185 respondents were selected from Zenith Bank and United Bank for Africa due to their larger branch presence in Port Harcourt, Rivers State. Of the questionnaires distributed, 285 valid responses were used for analysis.

Data Collection and Instrumentation

Primary data were collected using a structured questionnaire designed to measure AI adoption and organizational performance. The instrument consisted of sections covering demographic information, AI adoption (machine learning, natural language processing, and robotic process automation), and performance indicators including financial performance, operational efficiency, and customer satisfaction. Responses were captured using a five-point Likert scale ranging from strongly disagree to strongly agree. Secondary data were sourced from academic journals, textbooks, and relevant empirical studies.

Validity and Reliability

Content validity was ensured through expert review of the questionnaire items to confirm clarity and relevance. The reliability of the instrument was assessed using Cronbach's Alpha, with all constructs recording coefficients exceeding the acceptable threshold of 0.70, indicating satisfactory internal consistency.

Data Analysis

Data were analyzed using the Statistical Package for Social Sciences (SPSS). Descriptive statistics were used to summarize respondents' characteristics and levels of AI adoption. Inferential statistics, including correlation analysis, regression analysis, and analysis of variance (ANOVA), were employed to test the study hypotheses and examine the effect of AI adoption on organizational performance. All statistical tests were conducted at a 5% level of significance.

Model Specification

The functional relationship between AI espousal and organizational performance was specified as: $OP = \beta_0 + \beta_1 ML + \beta_2 NLP + \beta_3 RPA + \varepsilon$

where OP represents organizational performance, ML denotes machine learning applications, NLP represents natural language processing, RPA denotes robotic process automation, β_0 is the intercept, β_1–β_3 are regression coefficients, and ε is the error term.

Ethical Considerations

Participation in the study was voluntary, and respondents were assured of confidentiality and anonymity. Data collected were used solely for academic and research purposes.

DATA PRESENTATION, ANALYSIS AND DISCUSSION OF FINDINGS

The analysis of data collected from employees of the selected Deposit Money Banks (DMBs) in Port Harcourt, Rivers State, Nigeria, with the aim of examining the effect of Artificial Intelligence (AI) espousal on organizational performance. The analyses address the research objectives, answers the research questions, and tests the formulated hypotheses using descriptive and inferential statistical techniques. Data analysis was conducted using the Statistical Package for Social Sciences (SPSS), and results are presented in a logical sequence.

Out of the 300 questionnaires distributed, 285 were correctly completed and found usable, representing a response rate of 95 percent. This response rate was considered adequate for reliable statistical inference.

Demographic Characteristics of Respondents

Descriptive statistics were used to analyze the demographic characteristics of respondents, including gender, age, educational qualification, job designation, and years of work experience. The results indicate that respondents were drawn from diverse departments and job levels across the selected banks, suggesting that the views expressed reflect a broad organizational perspective. Most respondents possessed tertiary education and had several years of banking experience, implying adequate knowledge of banking operations and AI-related practices within their institutions.

Descriptive Analysis of Study Variables

Extent of Artificial Intelligence Adoption in Deposit Money Banks

To address the research questions, descriptive statistics were used to assess the extent of AI adoption among DMBs in Port Harcourt, Rivers State. The findings reveal that the selected banks have moderately to highly adopted AI technologies. Machine learning applications were commonly used for credit scoring, fraud detection, and risk assessment. Natural Language Processing tools, such as chatbots and virtual assistants, were widely deployed for customer service, while Robotic Process Automation was extensively used in transaction processing and back-office operations. Overall, the results suggest that AI adoption is increasingly embedded in banking operations within Port Harcourt, Rivers State.

Artificial Intelligence and Organizational Performance

Respondents' perceptions of organizational performance were examined across three dimensions: financial performance, operational efficiency, and customer satisfaction. The descriptive results indicate that AI adoption has contributed positively to cost reduction, faster service delivery, improved decision-making accuracy, and enhanced customer experience. These findings provide preliminary evidence that AI espousal plays a significant role in improving bank performance.

Test of Hypotheses

H_{01}: Artificial Intelligence adoption has no significant effect on the operational and financial performance of Deposit Money Banks in Port Harcourt, Rivers State.

Regression analysis was conducted to examine the effect of AI adoption on operational and financial performance. The results indicate that AI adoption has a positive and statistically significant effect on both operational efficiency and financial performance. The regression coefficient for AI adoption was positive, and the associated p-value was less than 0.05. This implies that increased use of AI technologies leads to improved operational processes, reduced costs, and enhanced financial outcomes.

Decision: The null hypothesis (H_{01}) is rejected.

Conclusion: Artificial Intelligence adoption has a significant effect on the operational and financial performance of Deposit Money Banks in Port Harcourt, Rivers State.

H_{02}: Artificial Intelligence adoption has no significant influence on customer satisfaction in Deposit Money Banks in Port Harcourt, Rivers State.

To test this hypothesis, regression analysis was used to examine the influence of AI adoption on customer satisfaction. The findings reveal a significant positive relationship between AI adoption and customer satisfaction. AI-enabled services such as chatbots, mobile banking platforms, and automated transaction systems were found to enhance service convenience, responsiveness, and overall customer experience.

Decision: The null hypothesis (H_{02}) is rejected.

Conclusion: Artificial Intelligence adoption significantly influences customer satisfaction in Deposit Money Banks in Port Harcourt, Rivers State.

H_{03}: There is no significant relationship between the level of Artificial Intelligence adoption and organizational performance of Deposit Money Banks in Port Harcourt, Rivers State.

Correlation analysis was employed to test the relationship between AI adoption and overall organizational performance. The results show a strong positive correlation between AI adoption and organizational performance, with a correlation coefficient indicating a high degree of association. The relationship was statistically significant at the 5 percent level.

Decision: The null hypothesis (H_{03}) is rejected.

Conclusion: There is a significant positive relationship between Artificial Intelligence adoption and organizational performance of Deposit Money Banks in Port Harcourt, Rivers State.

Discussion of Findings

The findings of this study provide strong empirical evidence that Artificial Intelligence espousal significantly enhances the organizational performance of Deposit Money Banks in Port Harcourt, Rivers State. The positive effect of AI on operational and financial performance aligns with the assertions of Bag et al. (2021), Blohm et al. (2020), and Oyewole et al. (2023), who found that AI-driven automation and analytics improve efficiency, reduce operational costs, and enhance profitability. The significant influence of AI adoption on customer satisfaction corroborates the findings of

Akinwale and Adepoju (2022), who reported that AI-powered customer service platforms improve service quality and customer experience. The widespread use of chatbots and digital banking platforms has reduced waiting time, improved accessibility, and enhanced responsiveness, which are critical factors in customer satisfaction within the banking sector.

Furthermore, the strong positive relationship between AI adoption and organizational performance supports the Resource-Based View (RBV), which posits that strategic resources such as AI can generate sustained competitive advantage when effectively deployed. It also aligns with the Dynamic Capabilities Theory, as banks that continuously adapt and reconfigure AI technologies are better positioned to respond to changing customer needs and regulatory environments.

Summary

This study examined the effect of Artificial Intelligence (AI) espousal on the organizational performance of Deposit Money Banks (DMBs) in Port Harcourt, Rivers State, Nigeria. The motivation for the study stemmed from the increasing reliance on digital technologies in the banking sector and the limited empirical evidence on how AI adoption influences performance outcomes in Nigerian banks, particularly within Port Harcourt, Rivers State.

The study adopted a quantitative cross-sectional survey design and focused on four selected deposit money banks-Zenith Bank Plc, United Bank for Africa Plc, Fidelity Bank Plc, and Union Bank Plc, chosen based on their level of AI adoption and operational prominence. Data were collected from 285 bank employees using a structured questionnaire, and analysis was conducted using descriptive and inferential statistical techniques with the aid of the Statistical Package for Social Sciences (SPSS).

Artificial Intelligence adoption was operationalized through machine learning, natural language processing, and robotic process automation, while organizational performance was measured using financial performance, operational efficiency, and customer satisfaction indicators. Inferential analyses, including correlation, regression, and ANOVA, were employed to test the formulated hypotheses at a 5% level of significance.

The findings revealed that AI adoption among the selected DMBs is relatively high, with automation technologies particularly dominant in operational processes. The results further showed that AI adoption has a significant positive effect on operational and financial performance, enhances customer satisfaction, and exhibits a strong positive relationship with overall organizational performance. These findings underscore the strategic importance of AI as a driver of efficiency, competitiveness, and value creation in the Nigerian banking sector.

CONCLUSION

This study concludes that Artificial Intelligence espousal is a critical determinant of organizational performance in Deposit Money Banks in Port Harcourt, Rivers State, Nigeria. The empirical evidence demonstrates that banks that effectively integrate AI technologies into their operations experience improved efficiency, enhanced financial outcomes, and higher levels of customer satisfaction. AI-driven systems such as automated transaction platforms, predictive analytics, and customer interaction tools enable banks to streamline processes, reduce operational costs, improve decision-making accuracy, and deliver superior customer experiences.

The strong positive relationship observed between AI adoption and organizational performance validates the Technology Acceptance Model (TAM), which emphasizes perceived usefulness and ease of use as drivers of technology adoption, as well as the Resource-Based View (RBV) and Dynamic Capabilities Theory, which position AI as a strategic resource capable of generating sustained competitive advantage when effectively deployed and continuously reconfigured.

Overall, the study establishes that AI is no longer optional but essential for the sustainability and competitiveness of deposit money banks operating in an increasingly digital and data-driven environment. Banks that fail to invest in and strategically deploy AI technologies risk operational inefficiencies, reduced customer satisfaction, and weakened competitive positioning. Consequently, deliberate investment in AI infrastructure, employee capacity building, and supportive regulatory frameworks is imperative for the long-term performance and growth of the Nigerian banking sector.

Recommendations

- The study found that Deposit Money Banks in Port Harcourt, Rivers State have adopted Artificial Intelligence at a moderate to high level, with greater emphasis on robotic process automation than advanced AI applications. It is therefore recommended that banks deepen AI adoption across all functional areas by expanding the use of machine learning and predictive analytics for credit assessment, fraud detection, and risk management. Broadening AI usage beyond basic automation will enable banks to fully exploit the strategic benefits of artificial intelligence.

- Given the finding that AI adoption has a significant positive effect on operational efficiency and financial performance, deposit money banks should embed AI technologies into their core operational and decision-making processes. Management should prioritize AI-driven automation, performance analytics, and real-time monitoring systems to reduce operational costs, minimize errors, and improve profitability. Sustained investment in AI infrastructure will further strengthen banks' competitive positioning.

- The study revealed that AI adoption significantly enhances customer satisfaction, particularly through natural language processing tools such as chatbots and digital service platforms. It is recommended that deposit money banks expand and continuously improve AI-enabled customer interaction systems to provide faster, personalized, and more reliable services. Enhancing AI-driven customer engagement will improve service quality, convenience, and customer loyalty.

By aligning AI adoption strategies with operational goals, performance improvement initiatives, and customer service delivery, deposit money banks in Port Harcourt, Rivers State can maximize the benefits of artificial intelligence. Effective implementation of these recommendations will support sustained organizational performance and competitiveness in the Nigerian banking sector.

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