# Artificial Intelligence Adoption and Organizational Performance of Money Deposit Banks in Rivers State, Nigeria

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*Abstract: The study investigated the relationship between Artificial Intelligence adoption and organizational performance of Money Deposit Banks in Rivers State. The objective of the study was to empirically investigate how Artificial Intelligence relates with organizational performance of Money Deposit Banks in Rivers State in terms of customer satisfaction, economic performance and effective decision making. The study utilized the cross-sectional exploratory survey research design. The population of the study consisted of twenty-two (22) deposit money banks in Rivers State. The sample size of the study consisted of one hundred and ten (110) top managers from the head office of the individual deposit money banks (22 banks). The above sample size was conveniently selected by selecting five (5) top managers from the headquarters of each of the banks. The selected top managers included General Managers, ICT Manager, Operations Manager, Marketing Manager, and Customer Relations Manager. One hundred and ten (110) copies of the questionnaire were distributed to the target sample elements. However, the researcher was able to retrieve 97 copies of the distributed questionnaires. The test of hypotheses was done using Spearman's Rank Order Correlation Coefficient via the Statistical Package for Social Sciences (SPSS) version 20.0. The Spearman's (rho) correlation was used to analyze the relationship between independent and dependent variables at P < 0.05 (two-tailed test). The study revealed the following: i. Artificial Intelligence has a very strong positive correlation with customer satisfaction of Money Deposit Banks in Rivers State; ii. Artificial Intelligence has a strong positive correlation with economic performance of Money Deposit Banks in Rivers State, and iii. Artificial Intelligence has a very strong positive correlation with effective decision making of Money Deposit Banks in Rivers State. By way of conclusion, the adoption of Artificial Intelligence in the business of banking is a viable way to go if a bank such as money deposit bank wants to improve in customer satisfaction, economic performance and effective decision making, among other things. Among others, the study recommended that in order to increase the functionality of artificial intelligence in the banking industry, particularly in the areas of economic performance and effective decision making, research should be conducted to assess how well it can be continuously adapted to the ever-changing and dynamic financial business environment.*

**Keywords:** Artificial Intelligence Adoption, Organizational Performance, Customer Satisfaction, Economic Performance, and Effective Decision Making.

## Introduction

Businesses such as money deposit banks are adopting intelligent tools to assist in their day-to-day activities, thereby promoting their business performance which is essential for forecasting, determining, and assessing the rate or extent of development and results in business enterprises. The efficacy, efficiency, overall productivity, and profitability of an organization or business venture can be assessed and measured using the performance of the business, whether it be financial or non-financial (Elegunde&Shotunde, 2020). Business-minded stakeholders have observed the inflow of sophisticated technologies, mechanisms, and inventions aimed at improving business performance, supplanting business operations with respect to human deficiencies, and introducing new ways of doing things, which is embedded in current issues within Artificial Intelligence, in order to stimulate and augment the performance of a firm.The use of emerging technologies is thought to have a significant impact on how people live their lives and how businesses operate around the globe. It becomes crucial to research machine intelligence's potential effects on human life, society, and business, as well as its potential strengths and weaknesses (Soni et al., 2018).

Consequently, Artificial Intelligence is a byproduct of these developments. According to this assumption, businesses are very much a part of the technologies and innovations that appear to be the primary force behind an improved standard of living in the modern world today. They are not excluded nor are they in a bubble. The goal of the science and technology field of artificial intelligence

(AI) is to create machines that can think, see, hear, move, speak, and, intriguingly, feel like humans. The development of computer abilities typically associated with human intelligence, such as reasoning, learning, and problem-solving, is a primary focus of artificial intelligence (O'Brein, 2013). Regarding the potential existence of intelligent thinking machines, intriguing concerns abound. For instance, British AI pioneer, Alan Turing, suggested a test to determine whether machines could reason in 1950. The Turing test states that a computer can show intelligence if a human interviewer who is conversing with an unseen human and an unseen computer is unable to distinguish between the two when given both situations (O'Brein, 2013).

Operationally, the use of artificial intelligence is the use of human cognitive processes by machines, particularly computer systems, to perform a variety of administrative and operational tasks in the workplace to the advantage of businesses and their clients. Intelligent tools and cutting-edge technologies have revolutionized business change. These machines are programmed to be able to carry out operations that, until recently, could only be carried out by humans with specific knowledge, unique skills, and in-depth training. Right now, the modern era and corporate world represent the most exciting time in human history. Inventions, ideas, and technical advancements are happening now very quickly. The world is gradually becoming acclimated to the sight of specialized security cameras, robots working in the workplace, self-driving cars, machines conducting business, and more; bringing about some of the innovations the world has seen as a result of the development of artificial intelligence (Wisskirchen et al., 2017).

Artificial intelligence (AI) has great promise, and people are considering it to be the fourth insurgency of our time. Like any major advance in technology, it comes with a number of opportunities as well as challenges. Very few apps that have the potential to change the nature of administration have been developed or are works in process. According to a Microsoft India study from May 2019, by 2021, AI will have the greatest empowering impact on India, multiplying the rate of advancement-driven value improvements by 2.2 times and increasing worker usefulness (2.3 occasions). This study therefore aims to investigate the impact of artificial intelligence on the performance of money deposit banks in Rivers State.

## Statement of the Problem
The Nigerian financial system is in fact facing some sizable challenges, despite the innovative significance and expansion of artificial intelligence technology. To advance artificial intelligence, the Nigerian banking industry must work to surmount these obstacles. Many of our Nigerian banks are not prepared to engage in the large sums of money needed for the full-scale adoption of artificial intelligence. As a result, they have rarely made significant investments, which has prevented them from taking advantage of the convenience and other advantages that artificial intelligence tools have introduced to the banking industry. As stated by Reagan (2021), the funds required to set up and implement Artificial Intelligence is very high, thus not every business owner or organization in Nigeria can invest in it. One other issue is that the technical aspect of AI includes a lot of big data and complicated algorithms, which can sometimes make it difficult for users to understand AI concepts. Many researchers in Nigeria are totally ignorant of these algorithms and technology, making it challenging for them to comprehend how AI works. These problems indicate that the Nigerian banks, especially in Rivers State, have not invested so much in AI tools and personnel as supposed of a firm that desire to operate in full capacity of AI.

Additionally, as shown in the writings of Elegunde & Shotunde (2020) on the impact of artificial intelligence on company performance in the banking industry (A study of Access Bank Plc and United Bank for Africa-Uba), there appears to be a lack of empirical data on the relationship between Artificial Intelligence and organisational performance of Money Deposit Banks in Rivers State; Gregory (2022) on integration of Artificial Intelligence Applications for Financial Process Innovation by Commercial Banks in Nigeria; Rabbani et al. (2022) on Role of artificial intelligence in moderating the innovative financial process of the banking sector in Pakistan (A research based on structural equation modeling). Clearly, none of these studies was carried out in Money Deposit Banks nor in Rivers State. It therefore implies that the study of Artificial Intelligence and organizational performance of Money Deposit Banks in Rivers State has not received adequate research attention. Therefore, this knowledge gap needs to be filled.

ORGANIZATIONAL
PERFORMANCE

Fig. 1.1: Conceptual framework showing relationship between Artificial Intelligence and Bias Reduction.

Source: Desk Research, 2023.

**Aim and Objectives of the Study**

The study's objective was to investigate the connection between artificial intelligence adoption and organizational performance of Money Deposit Banks in Rivers State. Specifically, the study sought to:

1. determine the relationship between artificial intelligence adoption and customer satisfaction of Money Deposit Banks in Rivers State.
2. ascertain the relationship between artificial intelligence adoption and economic performance of Money Deposit Banks in Rivers State.
3. investigate the relationship between artificial intelligence adoption and effective decision making of Money Deposit Banks in Rivers State.

**Research Hypotheses**

The researcher developed the following research hypothesis based on the aforementioned objectives:

$Ho_1$:   Artificial intelligence adoption has no significant correlation with customer satisfaction of Money Deposit Banks in Rivers State.

$Ho_2$:   Artificial intelligence adoption has no significant correlation with economic performance of Money Deposit Banks in Rivers State.

$Ho_3$:   Artificial intelligence adoption has no significant correlation with effective decision making of Money Deposit Banks in Rivers State.

**Theoretical Framework**

The study is anchored on Socio-technical theory. The theory was popularized by Eric Trist, Ken Bamforth and Fred Emery in 1951. The theory is made up of two main constructs joined together – socio and technical. Socio has to do with people and society while 'technical' has to do with machines and technology. Socio-technical refers to the interrelatedness of social and technical aspects of an organization.

The theory holds that business organizations are made up of human beings working together in social groups using equipment, tools, methodologies and knowledge to achieve desirable changes in the system and to bring about the achievement of corporate goals as well as outperforming competitors (Walker et al., 2016). This theory holds that changes in organizations and the capacity of organizations to compete favourably in the market are influenced by demands from the external environment which impacts information systems changes in an organization (e.g. money deposit bank). The socio-technical theory is founded on two cardinal assumptions:

i)     "The interaction of social and technical factors create the conditions for successful (or unsuccessful) system performance" (Walker et al., 2016: 19). These interactions are comprised partly of linear 'cause and effect' relationships, the relationships that are normally 'designed', and partly from 'non-linear', complex, even unpredictable relationships, which are those that are often unexpected.

ii)     The second major principle of socio-technical theory is that "optimization of either socio, or far more commonly the technical, tends to increase not only the quantity of unpredictable, 'un-designed', non-linear relationships, but those relationships that are actually injurious to the system's performance" (Walker et al., 2016; 19). This second aspect of the theory implies that both the human and technological resources of an organization must be optimized concurrently for achievement of anticipated results.

The justification of the socio-technical theory as the theoretical foundation for this study is based on the fact that the theory talks about how the interaction of social and technical factors (in this case, managers and artificial intelligence tools) create the conditions for successful or unsuccessful system of rendering services in the bank. It therefore becomes pertinent to adopt a theory such as this since the work is aimed at getting empirical evidence on how artificial intelligence interact with organizational performance of money deposit banks in Rivers State in terms of customer satisfaction, economic performance and effective decision making. The current banking system cannot do without the utilization of technological tools such as intelligent systems in collaboration with humans to achieve success in all facets. The theory therefore summarily implies that money deposit banks are made up of human beings working together in social groups using equipment, tools, methodologies and knowledge to achieve desirable changes in the system and to bring about the achievement of corporate goals as well as outperforming competitors locally and internationally.

## Literature Review

### Concept of Artificial Intelligence Adoption

Artificial intelligence is the imitation of human mental processes by technology, particularly computer systems (Burns, 2020). Examples of particular applications of AI include expert systems, machine learning, processing natural languages, voice recognition, and machine vision. A field of computer science is known as artificial intelligence (AI). It entails creating software for computers to carry out duties that would otherwise require human intelligence. AI algorithms can deal with linguistic comprehension, learning, perception, problem-solving, and/or rational thinking.

Vendors have been rushing to market how their goods and services use AI as the hype surrounding AI has grown. Frequently, what they mean by AI is just one element of AI, like machine learning. For the creation and training of machine learning algorithms, AI needs a foundation of specialized hardware and software. There is no one computer language that is exclusively associated with AI, but a few are, including Python, R, and Java. A large volume of labeled training data is typically ingested by AI systems, which then examine the data for correlations and patterns before using these patterns to forecast future conditions.By studying millions of examples, an image recognition tool can learn to recognize and describe objects in images, just as a chatbot that is fed instances of text chats can learn to create lifelike exchanges with people. Three cognitive abilities—learning, reasoning, and self-correction—are the main topics of AI code.

i.     Learning Processes: This area of AI programming is concerned with gathering data and formulating rules on how to transform it into useful knowledge. The guidelines, also known as algorithms, give computer equipment detailed instructions on how to carry out a certain activity.

ii.     Reasoning Processes: This area of AI programming is concerned with selecting the best algorithm to achieve a particular result.

iii.     Self-correction Processes: This feature of AI programming aims to continuously improve algorithms and guarantee they deliver the most accurate results.

Artificial intelligence is significant because, in some circumstances, it can outperform humans at jobs and because it can provide businesses with previously unknown insights into their operations. AI tools frequently finish tasks swiftly and with relatively few mistakes, especially when it comes to repetitive, detail-oriented tasks like analyzing a large number of legal documents to ensure relevant fields are filled in correctly.

This contributed to an increase in productivity and given some larger businesses access to completely new market possibilities. It would have been difficult to envision using computer software to connect passengers with taxis before the current wave of AI, but today Uber has achieved global success by doing just that. It makes use of complex machine learning algorithms to forecast when individuals in particular locations are likely to require rides, which assists in proactively placing drivers on the road before they are required. Another illustration is Google, which has grown to be one of the major participants in a variety of online services by using machine learning to analyze user behavior and then enhance its offerings.SundarPichai, the company's CEO, declared that Google

would function as a "AI first" company in 2017. The biggest and most prosperous businesses of today have used AI to enhance their processes and outperform rivals.

The capacity of a digital computer or computer-controlled robot to carry out actions frequently associated with intelligent beings is known as artificial intelligence (AI) (Copeland, 2023). The phrase is commonly used in reference to the effort to create artificial intelligence (AI) systems that possess human-like cognitive abilities like the capacity for reasoning, meaning-finding, generalization, and experience-based learning. It has been proven that computers can be programmed to perform extremely complicated tasks—like, for example, finding proofs for mathematical theorems or playing chess—with great proficiency ever since the development of the digital computer in the 1940s. Nevertheless, despite ongoing improvements in computer processing speed and memory space, there are currently no programs that can match human flexibility across a broader range of tasks or those requiring a substantial amount of background knowledge. On the flipside, some applications have reached the performance levels of human experts and professionals in carrying out some specific tasks, so artificial intelligence in this constrained sense is present in a variety of applications, including voice or handwriting recognition, computer search engines, and medical diagnosis.

Operationally, Artificial Intelligence adoption is the utilization of human intelligence processes by machines, especially computer systems in carrying out lots of administrative and operational functions in the work environment to the benefits of organizations and their customers. In the banking sector, artificial intelligence is utilized to advance client relationship management (Pavan, 2022). This industry is putting it into practice from the bottom up with the main goal of achieving greater customer-centricity. Customer relationship management, which involves communication with customers, is a key component of the banking sector. With the advent of ATMs, customer inclinations for visiting the locations changed for banking. These devices enable cash withdrawal and deposit without any help from a human being by immediately communicating with input points on the device. The development and increase in demand for artificial intelligence were the results of a change.

Banks and other financial organizations are increasingly utilizing artificial intelligence (AI) technology for a variety of purposes, such as enhancing customer service through the use of virtual assistants or credit scoring to accurately assess a borrower's risk. But one of the most important uses of AI in the banking industry is the fight against fraud and money laundering.

**Concept of Employee Performance**

Every country's banking system contributes significantly to that nation's economic growth in terms of bank performance. In other words, it performs the crucial function of acting as the center of the money market, which entails mobilizing assets and allocating them to investment projects as well as carrying out the functions of the nation's payment system. Additionally, it spreads monetary policies across the entire industry. Therefore, a well-functioning financial system encourages higher investment levels, which ultimately speed up economic growth. Therefore, it is not an exaggeration to say that nations with highly evolved free banking systems experience more rapid and sustained economic growth (Jain & Khanna, 2011). Therefore, bank performance refers to a bank's capacity to effectively manage the operations of the nation's banking system, to mobilize savings, and to allocate those savings subsequently to capital investments.

Traditional performance indicators for banks include liquidity, profitability, cost effectiveness, asset quality, and sufficient capitalization. These quantitative financial ratios include Return on Assets (ROA), Return on Equity (ROE), and Net Interest Margin (NIM). According to Pandey (2015), excessive financial measurements by banks could increase short-term profits for the organizations (banks), but they could also result in the loss of competitive benefits, which would put long-term profits at risk. Consequently, he suggested utilizing both quantitative and qualitative methods to assess bank performance. Modern banks now incorporate qualitative, non-financial performance indicators, such as size, customer satisfaction, employee perceptions of customer satisfaction, customer retention, customer accessibility to banks, increased sales volume, increased market share, increased customer patronage, and the provision of social amenities, to measure their performance. Due to its long-term impact on financial operations, customer happiness is the key to banks' profitability. However, high employee customer satisfaction levels foster a high level of spirit that is transferred to servicing external customers. Modern banks' ability to provide social amenities has an effect on how well they function. According to Jonathan et al. (2016), there is a correlation between CSR and banks' economic performance that is favorable in both the short- and long-term. This finding was in line with that of other researchers in the reviewed literature.

Over the past three decades, the financial system's structure has undergone significant change (eighties). This stemmed from the global restructuring of the financial markets for banks and the opening of new markets, which ultimately led to greater competition among banks. However, when examining the financial ratios that are quantitatively related to bank success, such as Return on Assets (ROA), Return on Equity (ROE), and Net Interest Margin (NIM), as well as the qualitative aspects of human resource management as well as environmental variables.

In the past, bank success was primarily reflected by quantitative or quantifiable financial indicators like return on assets, return on equity, and net interest margin, claim Garoui and Jarboui (2013). They claimed that the performance of banks is mainly explained by internet or external quantitative variables. Stiroh and Rumble (2006) argued that since a bank is a multi-product company that operates in an uncertain and volatile environment, it is likely affected by internal variables of a qualitative nature (managerial preferences) as well as internal variables of a quantitative nature (financial ratios) that provide information on the extent of achievement of objectives and results.

Notwithstanding, since a bank is designed as a system with functions or multiple determinants that would interact among themselves and with the environment, it will be necessary to integrate financial, organizational, and environmental variables in order to take into account the interactions that occur between each aspect (Beck et al., 2013). Therefore, the factors mentioned below are the internal factors that affect a bank's performance. They consist of quantitative financial ratios, qualitative aspects of human resources, the supply of fundamental social services, and external conditions. Quantitative financial ratios, which take into account factors like size, sufficient capitalization, profitability, liquidity, cost effectiveness, and asset quality, include Return on Assets (ROA), Return on Equity (ROE), and Net Interest Margin (NIM).

Customers' satisfaction, employees' feelings of customers' satisfaction, customer retention, efficiency/good governance, increased sales volume, market share, customers' use of banks' services, customer care, increased ease of access to banks by customers, quick service delivery, increased rate of bank staff assisting customers to conduct business, and the provision of basic social amenities are all examples of qualitative human resource aspects. On the other hand, the environmental factors include elements like inflation, the GDP, and the state of the financial market. In addition, the study further measures organizational performance using customer satisfaction, economic performance and effective decision making.

**Customer Satisfaction:** When a consumer compares a product's perceived performance or results to their expectations, they are said to be satisfied with the product (Ndubisi&Nwankwo, 2019). The customer is not satisfied if the result does not meet their standards. The customer is satisfied if the outcome meets their expectations. On the other hand, the customer is extremely satisfied or delighted if the performance exceeds perceived standards. In other words, a customer's satisfaction with a service relies on how well it meets their anticipations.

Customer satisfaction is generally important to a company, say Kotler and Keller (2016), because a highly satisfied customer is typically expected to remain loyal for a longer period of time, buys more when the company introduces new products and modifies existing ones, talks favorably about the company and its products (good mouthing), pays less attention to competing brands and is less sensitive to price changes, and offers product (goods and services) ideas to the company. In other words, pleased clients are an asset to the business. This is due to the fact that happy customers spread the word about the business and their product(s) and subsequently recommend them to other consumers and prospective customers. This leads to repeat business, client loyalty, and customer retention.

According to KPMG (2014), convenience, customer care (customer service), transaction methods/systems (technology-based or contemporary banking services), pricing, and product quality are among the factors used to gauge customer satisfaction (financial services quality). On the other hand, Kombo (2015) suggests that a good network of ATMs, efficient services at branches, use of E-banking, quick service delivery, and good product quality can all be used to gauge consumer satisfaction. However, this research used customer care, prompt service delivery, meeting customers' expectations, and easy customer access to bank branches out of all the variables used to evaluate customer satisfaction.

The importance of measuring customer customer in gauging the success of marketing initiatives and organizational performance has been noted. Given the perceived relationship between customer happiness and firm performance, it is not surprising that businesses have been spending significant resources in improving customer satisfaction through customer service tools. Strategies to improve customer happiness were started in order to increase deposit mobilization, customer equity, and profitability. Customer satisfaction-related services programs are now regarded as real weapons that many businesses use in the conflict for market dominance with consumers. Even though managers want to achieve both successfully, there is disagreement regarding the nature of the relationship between customer satisfaction and performance, which is frequently seen as being incompatible. Although it is widely accepted that achieving high levels of performance and customer satisfaction should be a top concern, Anderson et al. (2011) assert that there is sometimes tension between the two. The researchers also noted that, given the anticipated continued growth in service, it would seem to be of significant and increasing importance to have a better grasp of how customer satisfaction and performance relate to one another.

Companies should view pursuing client satisfaction goals as an investment rather than an expense. Despite the claim that a company must make significant investments in order to achieve high customer satisfaction, which will likely reduce its profits (Zhan & Pan,

2009), the majority of research findings revealed that customer satisfaction is significantly correlated with both present and potential organizational performance (financial and operational).

**Economic Performance:** Economic performance is a gauge of how effectively a company can use resources from its main line of business and produce profits. Its term is also used to compare similar businesses within the same industry or to compare entire industries or sectors in aggregate. It is a general indicator of a firm's overall financial health over a specific time frame. Financial ratios must be sound in an organizational context. Look at economic performance, not a business, to determine one healthy size. The size of the business, its capacity to generate profits, its ability to manage its obligations, its capital turnover, etc (Didin et al., 2018).Economic performance, according to Fara et al. (2016), primarily represents business sector outcomes and results that demonstrate the sector's overall financial health over a specific time period. It shows how effectively an organization uses its resources to optimize the wealth and profitability of its shareholders. As it aids management in developing solid operating and financial policies, it is the scientific evaluation of profitability and financial strength of any company concern.

According to Fara et al. (2016), economic performance is a way to gauge a company's financial wellbeing over time. In other words, it is a financial action used to manage a company's current and non-current assets, financing, equity, revenues, and expenditures in order to increase sales, profitability, and the value of the company for its shareholders. Its primary objective is to give shareholders and stakeholders accurate, up-to-date information to support their decision-making. It can be applied to compare aggregated industries or to assess comparable businesses from the same sector. Making wise choices requires controlling risk and boosting a company's profitability while adhering to corporate governance regulations (Fara et al., 2016).Accurate knowledge and thorough sector analysis are required to make timely decisions. A nation's financial structure must include the non-financial business sector. For the wellbeing of the national economy to achieve this, a solid and stable work foundation is required. Financial or ratio analysis is among the best methods for assessing the economic success of a sector. It attempts to summarize a sizable database for a clear picture of the economic performance of a company by demonstrating the mathematical relationship between one quantity or performance indicator and another.

**Effective Decision Making:** The idea of choosing among various options in a manner that is appropriate to the demands of the circumstance is what the word "decision-making" conjures up. Structured decision guidelines are necessary to enable the decision maker to select the best choice for achieving the goal or resolving the issue (James & Edwin, 2017). Organizations need to be able to change with the times if they want to be successful. A number of factors, including major advancements in research and technology, demographic and socio-political changes, and the trend toward globalization, contribute to this environment of pervasive and rapid change.Additionally, these changes have placed the world economy at a crossroads between the industrial and postindustrial eras (Yasodara, 2016).

The act of choosing a path of action from a range of options is considered to be the result of mental processes (cognitive processes: memory, thinking, and evaluation). Mapping potential outcomes, determining the relative weight of various variables, and selecting the best course of action are all steps in the decision-making process. In each of the stages of the decision-making process, there are numerous feedback loops. Timing issues, political issues, conflicts among managers, inability to find suitable alternatives or execute the answer, manager turnover, or the sudden appearance of a new alternative can all result in feedback loops. What matters most is that making decisions is a continuous process.The companies must consider both the strategic and behavioral effects of this dynamic process. According to recent empirical research, decision-making that includes making the best strategic decisions actually results in successful decisions for the company.

## Methodology

The study employed the cross-sectional exploratory survey research design. The population of the study consisted of twenty-two (22) deposit money banks in Rivers State.The sample size of the study consisted of one hundred and ten (110) top managers from the head office of the individual deposit money banks (22 banks). The above sample size was conveniently selected by selecting five (5) top managers from the headquarters of each of the banks. The selected top managers included General Managers, ICT Manager, Operations Manager, Marketing Manager, and Customer Relations Manager.

The study made use of structured questionnaire as the main instrument for the collection of primary data. The instrument was titled "Artificial Intelligence and Organizational Performance Questionnaire (AIOPQ). The questionnaire design was prepared in four (4) point rating scale format of likert with the following response options: Very High Extent (VHE) = 4, High Extent (HE) = 3, Moderate Extent (ME) = 2, and Low Extent (LE) = 1. The questionnaire was structured by the researcher with a letter of introduction describing the purpose of the questionnaire. The instrument was face and content validated by the researcher's supervisor and two research experts in the Management Department of Ignatius Ajuru University of Education, Port Harcourt, Rivers State. Cronbach's alpha via SPSS (Statistical Package for the Social Sciences) was used to ascertain the reliability of the instrument. The least Cronbach's

alpha level obtained was 0.81 which indicated a highly reliable coefficient. Based on Nunnaly (1978) criterion of 0.70, reliability coefficient above 0.70 was considered as indicating good or reliable instruments.

One hundred and ten (110) copies of the questionnaire were distributed to the target sample elements. However, the researcher was able to retrieve 97 copies of the distributed questionnaires. In handling the data analysis, the test of hypotheses was done using Spearman's Rank Order Correlation Coefficient via the Statistical Package for Social Sciences (SPSS) version 20.0. The Spearman's (rho) correlation was used to analyze the relationship between independent and dependent variables at $P < 0.05$ (two-tailed test). The decision rule is that the tests of hypotheses will be considered two tailed and is carried out at a 95% confidence interval.

### Analysis / Discussion
**Table 1: Correlation between Artificial Intelligence and Organizational Performance**

| | | | Artificial Intelligence | Customer Satisfaction | Economic Performance | Effective Decision Making |
|---|---|---|---|---|---|---|
| Spearman's rho | Artificial Intelligence | Correlation Coefficient | 1.000 | 0.833** | 0.788** | 0.898** |
| | | Sig. (2-tailed) | . | .000 | .000 | .000 |
| | | N | 97 | 97 | 97 | 97 |
| | Customer Satisfaction | Correlation Coefficient | 0.833** | 1.000 | 0.755** | 0.767** |
| | | Sig. (2-tailed) | .000 | . | .000 | .000 |
| | | N | 97 | 97 | 97 | 97 |
| | Economic Performance | Correlation Coefficient | 0.788** | 0.755** | 1.000 | 0.632** |
| | | Sig. (2-tailed) | .000 | .000 | . | .000 |
| | | N | 97 | 97 | 97 | 97 |
| | Effective Decision Making | Correlation Coefficient | 0.898** | 0.767** | 0.632** | 1.000 |
| | | Sig. (2-tailed) | .000 | .000 | .000 | . |
| | | N | 97 | 97 | 97 | 97 |

**\*\*. Correlation is Significant at the 0.01 level (2-tailed).**
Source: SPSS Output

Column two of the above table shows r value of 0.833 at a significance level of 0.00 which is less than the chosen alpha level of 0.05 for the hypothesis relating Artificial Intelligence and customer satisfaction. Since the significance value is less than the alpha level of 0.05, the null hypothesis ($Ho_1$) which states that Artificial Intelligence has no significant correlation with customer satisfaction of Money Deposit Banks in Rivers State is rejected. This implies that Artificial Intelligence has a very strong positive correlation with customer satisfaction of Money Deposit Banks in Rivers State.

Column three of the above table shows r value of 0.788 at a significance level of 0.00 which is less than the chosen alpha level of 0.05 for the hypothesis relating Artificial Intelligence and economic performance. Since the significance value is less than the alpha level of 0.05, the null hypothesis ($Ho_2$) which states that Artificial Intelligence has no significant correlation with economic performance of Money Deposit Banks in Rivers State is rejected. This implies that Artificial Intelligence has a strong positive correlation with economic performance of Money Deposit Banks in Rivers State.

Column four of the above table shows r value of 0.898 at a significance level of 0.00 which is less than the chosen alpha level of 0.05 for the hypothesis relating Artificial Intelligence and effective decision making. Since the significance value is less than the alpha level of 0.05, the null hypothesis ($Ho_3$) which states that Artificial Intelligence has no significant correlation with effective decision making of Money Deposit Banks in Rivers State is rejected. This implies that Artificial Intelligence has a very strong positive correlation with effective decision making of Money Deposit Banks in Rivers State. These results showed that money deposit banks' adoption of Artificial Intelligence in chatbots, customer experience, automation and seamless operation, data collection and analysis, portfolio management, risk management, sentiment analysis, Next-gen security, mobile app fraud detection, etc. boosts the performance of the banks, especially in customer satisfaction, economic performance and effective decision making.

### Findings

From the empirical analysis above, the following were found:

1. Artificial Intelligence has a very strong positive correlation with customer satisfaction of Money Deposit Banks in Rivers State.
2. Artificial Intelligence has a strong positive correlation with economic performance of Money Deposit Banks in Rivers State.
3. Artificial Intelligence has a very strong positive correlation with effective decision making of Money Deposit Banks in Rivers State.

The test of hypothesis one to three showed that Artificial Intelligence has a very strong positive correlation with organizational performance in terms of customer satisfaction, economic performance and effective decision making of Money Deposit Banks in Rivers State. This finding implies that money deposit banks' adoption of Artificial Intelligence in chatbots, customer experience, automation and seamless operation, data collection and analysis, portfolio management, risk management, sentiment analysis, Next-gen security, mobile app fraud detection, etc. boosts the performance of the banks, especially in customer satisfaction, economic performance and effective decision making. This finding is in line with that of Ris*et al.* (2020) that nowadays, the enhancement in performance of a banking system is done by applying the AI in various fields such as cybersecurity, risk management, fraud management, sales, Internal Audit, Financial Assistance, Asset Management, Loan Management, and Customer Management. Unquestionably, the implementation of artificial intelligence has opened the door for using a more sophisticated, crafty, and subtle approach to conducting business activities in general. As a result of this adoption, businesses are using artificial intelligence to their benefit and, consequently, as a tool to outperform competitors while also enhancing their goods and services. Because of the reduced workload, artificial intelligence is also thought to have contributed to higher customer happiness and guaranteed employee effectiveness.

End-to-end banking and financial process automation is accelerated by artificial intelligence in banking (Jones, 2022). AI apps improve service quality and assist businesses in identifying and thwarting fraudulent transactions by combining the strength of data analytics, clever ML algorithms, and secure in-app integrations. According to the businesses, artificial intelligence (AI) will revolutionize the banking industry by making a variety of banking tasks quicker, simpler, and more secure. Tools for voice recognition, predictive analytics, and machine learning are all enhancing the worth of online banking services. The finest applications of AI in the banking and finance sector include chatbots, facial recognition banking apps, and systems and applications for fraud detection.

One of the greatest benefits of using artificial intelligence in the banking industry, for instance, is chatbots. Customers benefit from AI financial chatbots in many ways. One of the important applications of AI in the finance sector is the use of chatbots in the financial sector (berg &Khati, 2018). AI chatbots in finance are modernizing how companies offer their clients services. AI chatbots in the banking sector can help customers around-the-clock and provide thorough answers to their questions (Soni et al., 2018). Users receive a customized experience from these chatbots. Therefore, AI chatbots for banking and finance processes enable banks to draw in customers, improve service quality, and increase brand recognition in the marketplace.

AI banking applications are incredibly useful. The goal of AI-powered mobile banking apps for Android and iOS is to enhance client satisfaction and service level. Utilizing AI and machine learning in banking enables businesses to monitor user behavior and provide highly customized services to clients (Scherer, 2016). Based on user search trends, intelligent mobile apps can monitor user behavior and extract insightful information. These data would aid service suppliers in making tailored suggestions to customers. As a result, 70% of banks are planning to incorporate AI into mobile banking apps and moving forward to seize the lucrative opportunities presented by AI in the banking sector.

Artificial intelligence will speed up mechanization and streamline your process when used in banking (Elegunde&Shotunde, 2020). One of the greatest applications of AI in the financial and banking sectors is automation. The opportunity for AI in the banking sector is enormous. Banks can simplify and automate every job currently carried out by humans using AI software, making the entire process virtual and efficient. Therefore, AI apps can lessen bankers' workloads and improve the caliber of their work. Users can make service requests at any time and receive prompt answers from AI virtual banking assistants through personalized AI banking apps and AI Chatbot services.

The effective decision-making advantage of AI stems from the fact that it assists banks in gathering and analyzing reliable data, among other things. Processes for data gathering and analysis can be carried out effectively by artificial intelligence in the banking industry. Massive data sets are processed by AI algorithms, which also uncover important data insights (Thirumoorthi et al., 2022). Banks will be able to anticipate business and market trends easily with the aid of this analysis. Additionally, the analysis of client data through mobile banking apps powered by AI will be crucial in providing customized services and improving the overall user

experience. Additionally, banks can use the knowledge gained from customer data to make wise business choices and provide them with more individualized service guidelines.

## Conclusions

Drawn from the analysis of data and discussion of findings, the study concludes that the adoption of Artificial Intelligence in the business of banking is a viable way to go if a bank such as money deposit bank wants to improve in customer satisfaction, economic performance and effective decision making, among other things. Today, a large amount of money is being spent by many banks on initiatives aimed at lowering running costs and boosting productivity. Artificial intelligence stands out as the best option in this situation because it is quicker, more dependable, and less prone to error than a person. Due to all the low-cost technologies, physical robots, holograms, chatbots, and virtual helpers will develop over time and saturate the market. Conceptually speaking, man as an individual will be rendered useless and unable to comprehend the vast amount of daily information that is required.Humans will require a personal assistant to handle tasks for them, from setting up meetings to serving as a mentor or educator for a specific field of interest. For the advantage of humans, manual, arduous work will be replaced. These all point to the truth that money deposit banks (especially in Rivers State) need to employ more of AI tools to carry out diverse operations that will add immensely to their performance, especially in terms of customer satisfaction, economic performance and effective decision making.

## Recommendations

Based on the findings, the following recommendations were made:

1. Management of money deposit banks in Rivers State should update the algorithms of their chatbots and other AI customer self-service applications to perform extensively in line with the present day customer requirement, thereby enhancing customer satisfaction, among other things.
2. In order to increase the functionality of artificial intelligence in the banking industry, particularly in the areas of economic performance and effective decision making, research should be conducted to assess how well it can be continuously adapted to the ever-changing and dynamic financial business environment.
3. Artificial intelligence should be properly and fully adopted to assist in processing enormous data sets and extract priceless insights from data, as this will help to improve effective decision making, thereby improving the performance of the bank.

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