

ARTIFICIAL INTELLIGENCE (AI) AND MARKETING PERFORMANCE ON DEPOSIT MONEY BANKS (DMBs) IN BAYELSA STATE

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ABSTRACT

The Study looked at Artificial Intelligence and marketing performance of Deposit Money Banks in Bayelsa State. In view of this study, descriptive research design was used to determine the nature, opinion and perception of the respondents in the study. The target population for the study comprised all professionals' staffs of three (3) Deposit money banks purposively selected in Bayelsa State. Specifically, two branches of Zenith Bank Plc, two branches of First Bank Plc and one branch of Keystone Bank. The sample size was 186 divided into three groups of marketing staffs, operations staffs and customer care unit staffs. The stratified random sampling technique was used to select 76 marketing managers, 60 operations managers and 50 customer care units staff respondents from the strata respectively. A census of the total population (186) was used as the sample size. The questionnaire was structured in a four (4) point Likert scale. Validity of the Instrument was determined using face validity and the Cronbach Alpha method was used to establish the reliability, internal consistency of the instrument after it was trial tested on six respondents of Access bank who were not part of the main study. Data collected through the questionnaire were analyzed using Spearman Rank Order Correlation with the aid of Statistical Package for the Social Sciences (SPSS) version 21.0. The finding of study revealed that artificial intelligence has a strong and positive correlation with customers' satisfaction, efficiency, profitability and competitiveness. Therefore the study concluded that Artificial intelligence has a significant effect on the performance of Deposit Money Banks in Bayelsa State. Based on the findings, the study recommends that Deposit Money Banks should leverage artificial intelligence to boost their operational performance.

Key words: Artificial Intelligence, Deposit Money Banks, marketing performance.

INTRODUCTION

Measuring the performance of organizations growth rate is fast becoming crucial (Elegunde and Shotunde, 2020). They believe that the performance of businesses is very crucial in predicting, ascertaining and evaluating the level or extent of growth and outcomes in business organizations. Organization's performance serves as a benchmark for business stakeholders to assess and quantify the level of efficacy, efficiency, total productivity, and profitability of that business venture (Elegunde and Shotunde, 2020).

Equally, according to Ndungu and Sije (2023) increased competition has led to the introduction of new products and services in the market. Consequently, they commented that to survive and grow in the market, organizations are now compelled to embrace new technology and innovative products. In this regards, deposit money banks (DMBs) otherwise known as commercial banks have also adopted technologies to boost performance. Additionally, they observed that one of the most significant changes in the banking sector has been the growth of financial technologies. To this end, a new and developing technological industry has emerged in the banking system. To buttress this point, Kemboi (2018) cited Ndungu and Sije (2023) confirmed that strategic innovations such as use of financial technology has provided a new and emerging industry that uses technology to provide financial services.

The use of sophisticated innovative technologies in DMBs is believed to have resulted from the human defects with regards to their banking operations (Elegunde and Shotunde, 2020). As a result, they found that the aim of using sophisticated technologies is to improve business

performance, supplementing business operations and introducing new ways of doing things. The emerging technologies are said to have a great potential to transform the ways of living of human lives and the business operating models of companies all over the world.

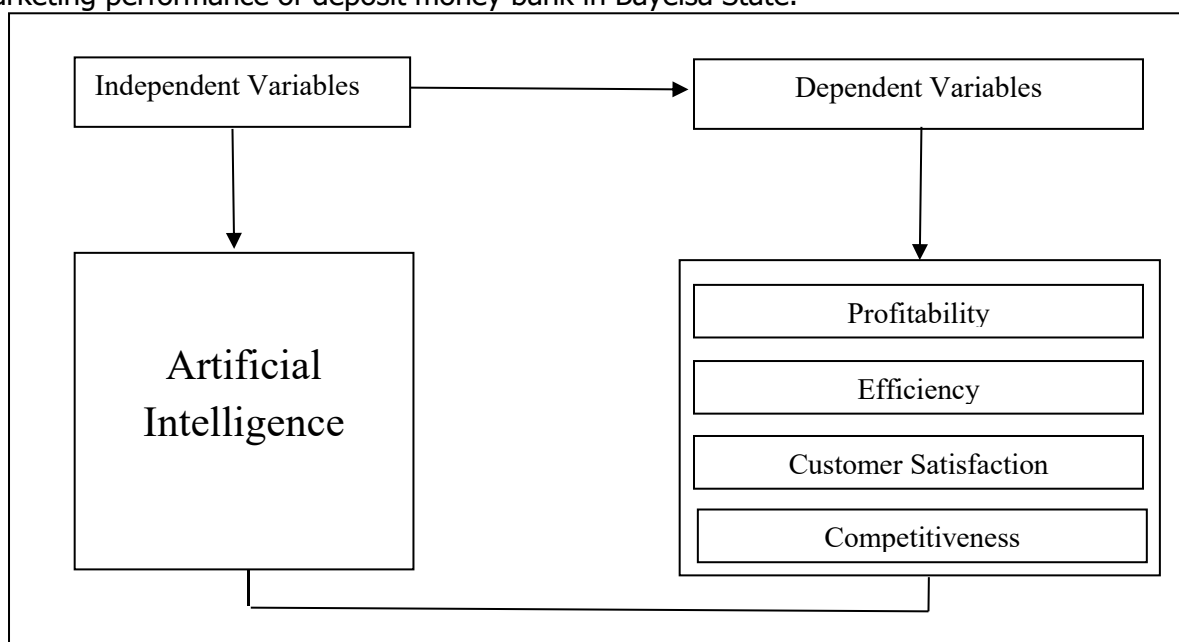
Artificial Intelligence (AI) have revolutionised banking operations in recent years. Myriad of business opportunities have been brought due to the application of artificial intelligence (AI) especially among deposit money banks (Shareef et al., 2021). According to Łapińska et al (2021) and Khalid (2020), artificial intelligence is the machines (programs) that operate in the simulation of human intelligence in technologies, such as machine learning, data mining, natural language processing, image recognition. However, in recent years, it is observable that the potential of AI have attracted interest among public, government and academia potential of Intelligence so that our future is reshaped. In acknowledgement, Elegunde and Shotunde (2020) citing O'Brein (2003) captured that AI is a field of science and technology and its purpose is to develop computers that can think, see, hear, walk, talk and interestingly, feel like humans. Going further, they wrote that major aspect AI that have gained prominence is the development of computer functions normally associated with human intelligence such as reasoning, learning, and problem solving. Consequently, AI now act as the major employees in financial institutions as majority of the functions carried out by humans as employees in financial institutions are now carried out by AI.

Literature also reveals that the impact of AI is even more profound in Deposit Money Banks (DMBs) than any other sector of life (Bates et al., 2020). As a result, a plethora of literature exists as regards the impact or effectiveness of AI on the performance of financial institutions (DMBs). Studies however show that there is a significant and positive impact on the performance of DMBs due to the adoption of AI (Elegunde and Shotunde, 2020; Ndungu and Sije, 2023). Other sources invariably indicated that AI positively impact on DMBs profitability (Chhaidar, Abdelhedi and Abdelkafi, 2021). Studies also affirmed that the employment of AI positively and significantly improves DMBs competitive position (Wu, Liu and Yang, 2023). Given the above, it will not be out of place to state emphatically that the relevance of adopting AI in a customer-centric deposit money bank invaluable improves the overall performance of DMBs including their efficiency, effectiveness, and productivity and also improves customer satisfaction.

However, some scholars believe that AI is overhyped and that it may not have meaningful impact on the performances of the sectors that adopt it (Salemcity et al., 2023). This then indicates that several drawbacks can be obtained from the adoption of AI in DMBs as against the much positivity of AI on DMBs. In addition to this view, researches have pointed out that the emergence of AI has generated a wealth of opportunities and challenges (Malali and Gopalakrishnan, 2020). As a result, other sources have stressed that while AI can improve financial reporting, it can also lead to biases, lack of transparency, data privacy concerns, and compliance challenges (Fadi et al., 2023). In addition the above, Nguyen (2022) position is that organizations may face job displacement, training gaps, high implementation costs, interoperability challenges, and ethical concerns. The implication therefore is that some form of over dependency of AI is will be prevalent. Also, the question of its effectiveness on DMBs efficiency, profitability, competitiveness and customer satisfaction is still a subject of major debate. If the adoption of AI positively impact on the performance DMBs in one area may not be the case for another location given the differences in the level of awareness, financial services, availability of technological resources etc. Therefore it becomes pertinent that a research be conducted to close the literature gap in terms of geographical locations and DMBs. Hence the motivating factors that have necessitated this study. This study therefore seeks to conduct an investigation on the effect of AI on the performance of Deposit Money Banks (DMBs), specifically, the study aims to elicit the effects of AI on profitability, efficiency, customer satisfaction and competitiveness on DMBs. Additionally, the study adopts AI as the independent variable while using the dimensions of performance such as profitability, efficiency, customer satisfaction and competitiveness as dependent study variables.

Statement of Problem

Bayelsa State with a growing population of about 2.5 million is at the heart of Niger Delta Region in the South-South geopolitical zone of Nigeria. The growing rate of population is widely endowed with farmers, fisher folks, traders, civil and public servants etc coupled with huge deposits of oil and gas resources, Bayelsa State is home to numerous businesses. With the potentials of the state becoming increasingly attractive to different business industries, the number of Deposit Money Banks have also increased which inturn have increased competition among the DMBs in the state. At the heart of this heated competition for customer patronage, they strive to make profit while delivering customer value. To compete favorably and improve their profitability they must be ready to use appropriate mechanisms to be more efficient and deliver customer satisfaction. For these reasons, DMBs have resorted to the use of technologies in their day to day operations. These technologies have invaluable effect on the way they go about their transactions with customers. Artificial Intelligence is at the heart of the technologies being adopted which have significantly shaped the way banks currently operate and how they execute tasks. Empirically, many researchers have investigated the impact of Artificial Intelligence on the performance of DMBs across the world (Idah and Egessa, 2023, Ndungu and Sije, 2023, Chhaidar, Abdelhedi and Abdelkafi, 2021, Fadi et al., 2023, Nguyen, 2022 and Salemcity et al., 2023). Their findings revealed a combination of merits such as customer satisfaction, efficiency, improved profitability and Competitiveness (Idah and Egessa, 2023) and demerits and feels AI's adoption is overhyped on DMBs. These may be due to differences in their focus areas, location where the studies were conducted. These previous studies were all conducted in other countries as well as other states in Nigeria. Obviously, what is achieving in one country or city may not be the case for another given the differences in the areas. The differences could be caused by banks orientation towards Artificial intelligence and technical know-how of employees and customers as regards the use of Artificial Intelligence in the banks. Therefore, it is possible that the effect of artificial intelligence on DMBs performance with respect to customers satisfaction, efficiency, profitability and competitiveness as proven by other studies in different locations may be possible in the DMBs operating in Bayelsa State. Also, literature in this area is relatively paltry as little or no studies had been carried out on Artificial Intelligence and marketing performance of deposit money bank in Bayelsa state. This then create gap based the geographical location which is yet be filled. With this knowledge, the author finds it imperative to conduct an investigation on Artificial Intelligence and marketing performance of deposit money bank in Bayelsa State.



Source: Researcher's Proposed

AI and marketing performance on Deposit Money Banks Proposed Conceptual Framework for the Study.

Conceptual Framework

Research Question

The following research questions were raised to guide the study

- i. Does AI have any significant effect on the profitability of Deposit Money Banks in Bayelsa State?
- ii. Does AI have any significant effect on efficiency of Deposit Money Banks in Bayelsa State?
- iii. What is the effect of AI on customer satisfaction of Deposit Money Banks in Bayelsa State?
- iv. What is the effect of AI on competitiveness of Deposit Money Banks in Bayelsa State?

Research Hypothesis

Ho₁: There is no significant effect of AI on the profitability of Deposit Money Banks in Bayelsa State

Ho₂: There is no significant effect of AI on efficiency of Deposit Money Banks in Bayelsa State

Ho₃: There is no relationship significant effect of AI on customer satisfaction of Deposit Money Banks in Bayelsa State.

Ho₄: There is no significant effect of AI on competitiveness of Deposit Money Banks in Bayelsa State.

LITERATURE REVIEW

Conceptual Review

Artificial Intelligence

The origin of Artificial Intelligence (AI) as observed from literature was that AI was introduced in 1940 when cybernetics was introduced to map the human mind and model it as a block box with feedback mechanisms (Groumpos, 2023). However, other sources have shown that the concept of Artificial Intelligence was conceived and coined by John McCarthy in 1956 (Cedersund, 2023, Fares et al., 2022). The Cedersund recognised John McCarthy as the father of Artificial Intelligence due to his astounding contributions. Cedersund (2023) citing McCarthy (2007) defined it as "the science and engineering of making intelligent machines". Importantly, in the financial industry, according to Ndungu and Sije (2023), the concept of Artificial Intelligence was made popular in recent years. However, Kruse et al. (2019) as captured in Ndungu and Sije (2023) argued that the use of AI was first confirmed in the form of chatbox and virtual assistants in social media, websites, and mobile apps of the bank in the banking sector.

In terms of definition, literature has plethora of definitions of AI given by scholars with different ideas in their separate fields (Salemcity et al, 2023 and Cedersund, 2023). Kok et al. (2009) cited in Fares et al. (2022) viewed AI as systems that act and think like humans in a rational way. The view of Ziyad (2019) is that AI is a branch of computer science that involves developing computer programs to complete tasks which would otherwise require human intelligence. It was also captured in Ziyad (2019) that AI algorithms can tackle learning, perception, problem-solving, language-understanding and/or logical reasoning. Therefore, Ziyad concluded that AI can be used for different purposes from personal assistants to self-driving car. In their view, Duan et al. (2019) cited in Salemcity et al. (2023) described AI as the ability of machines to efficiently collect information as fast as possible and processing it in such a way that it will meet with the needs of its users without the intervention of humans. In a simplistic way Cedersund (2023) defined AI as the science of making machines operate with a humanlike intelligence and behaviour to complete tasks that require human intelligence if these tasks were to be performed by men. Alim, Asadullah and Shakawat (2020) described AI as software programs that are built to perform

human tasks with little or no intervention. Artificial intelligence enhances a firm's way of presenting new ideas, work processes, strategies, products, and services. Consequently, this will mean that the computer systems can perform tasks that typically require human intelligence, such as virtual perception, speech recognition, decision-making, and language translation. To lay emphasis on the importance of AI, studies have shown that AI is becoming increasingly popular because it help improve performance, reduce costs, and enhance customer satisfaction in organisations (Elegunde, and Osagie, 2020). Other sources buttressed that several benefits such as automation of routine and repetitive tasks, provision of insights and recommendations based on vast amount of data accumulated overtime and identifying areas for improvement and suggesting new features with regards to products and services accrue to an organization that wholly adopt AI (Huynh et al., 2020; Pillai et al., 2020; Chien et al., 2020; Keegan et al., 2022). In corroboration, Shafei and Sijanivandi (2022) captured in Ndungu and Sije (2023) have argued that AI ought to enhance existing processes, products, and services in order to tackle a challenge or attract new customers. Additionally, Bag et al. (2021) cited in Salemcity et al. (2023) also averred that the adoption of AI is expected to improve customer service, enhance productivity, reduce cost of operation and consequently lead to efficient profit for the organization. Admittedly, they confirmed that AI enhances process innovations which are geared towards adding value to the organization in terms of profit generation as well as to its customers through meeting their demands and the desired level of satisfaction (Ndungu and Sije, 2023).

Artificial Intelligence (AI) and Deposit Money Banks (DMBs)

The significant advancements and practical applications of AI started to gain momentum in the 21st century with the advent of more powerful computing systems and the availability of large amounts of data (Ratia et al. 2018; Haenlein and Kaplan, 2019) studies have out rightly indicated that what determines the specific implementation of AI varies significantly based on the industry, goals, and resources available (Fadi et al., 2023). That notwithstanding, literatures have revealed that as a result of the expert implementation of AI, DMBs are experiencing improved efficiency, accuracy, and personalized customer experiences (Anastasi et al. 2021). Intentionally, Fadi et al. (2023) argued that AI offers numerous possibilities for banks to improve operations and drive innovation. They argued further by highlighting areas AI can be effectively utilized such as data analysis, adaptive learning platforms, personalized marketing, automating repetitive tasks, chatbots, enabling natural language processing and voice recognition, and implementing risk-based predictive maintenance and fraud detection, among others. Others scholars have also argued that AI is a gem in terms of sustainable resource management (Nikitas et al. 2020). It has also been said that AI has the capacity of influencing the level of proficiency and productivity of employees within the bank (Plastino and Purdy, 2018). Scholars previously have also identified that bank now experience seamless sales with the use of AI and this has aided the development of effective customer relationships management systems (Tarafdar et al., 2019). In terms of decision making, studies have indicated that AI plays a vital role in autonomous decision making processes, monitors assets and processes in real time, and enables value creation (Alcácer and Cruz-Machado 2019). Previous studies indicate that banks have also recognized cost reduction and revenue generation through enhancing the quality of the operations process, for example, in terms of lending, security services, compliance improvements, fraud detection, and new types of services (Kaya 2019 and Ryll et al., 2020). In a nutshell, the application of AI in banking is across the board, with uses in the front office (voice assistants and biometrics), middle office (anti-fraud risk monitoring and complex legal and compliance workforce), and back office (credit underwriting with smart contracts infrastructure) (Fares et al., 2022).

Artificial Intelligence and Profitability

Studies have shown that AI might contribute to bank profitability in two ways (Kaya, 2019). Firstly, by taking over repetitive tasks from bank employees, autonomous AI software could reduce the

demand for less-skilled labour and improve the efficiency of remaining bank staff. Secondly, Kaya (2019) asserted that AI implementation could also contribute to revenue generation. Also, literatures have recorded that artificial intelligence enhances process innovations which are geared towards adding value to the organization in terms of profit generation (Ndungu and Sije, 2023). Previous researches indicated also that investment in AI and focus on collaboration between employees and machine learning technology could potentially increase banks' revenue by 34% (Shook and Knickrehm, 2018). Significantly, Fadi et al. (2023) have also suggested that application of AI are favorable for the banking sector and beneficial for both shareholders and stakeholders, as well as for increased efficiency in the financial sector, which leads to economic benefits. Fadi et al, (2023) argued that efficiency, cost reduction enhanced level productivity coupled with the delivery of quality financial services and products to customers gained through the adoption of AI ultimately and significantly leads to firms profitability.

Artificial Intelligence (AI) and Efficiency

Efficiency is defined as the ability to do something or produce something without wasting materials, time, or energy (Wilson et al., 2018). They also captured that efficiency is the power to produce desired results. Customers nowadays demand fast responses to their demands especially when it relates to bank transactions. They seem to be hasty and erratic in their dealings therefore time is a significant element in transactional relationships. Also producing the desired results is another aspect where they demand efficiency. Customers have undoubtedly become tech savvy, hence they demand easier and faster ways of completing their transactions from any location they are in. In a nutshell customers require timely delivery of their respective demands as well as error free. Whereas many customers demand quick means of making deposits or receiving payments, others by observations demand swift response to compliant. Yet, others require faster means of opening accounts and changing their ATM transactions pins. These observations are indicative of the operational efficiency DMBs must master else customer may choose the next best option that gives them what they want at the time they want it without delays. Banks must therefore put in place measures to be efficient in their dealing with customers. To accomplish this, some banks have resorted to man management policies by demanding higher speed of delivery from their staff. Other DMBs have used both man and technologies to achieve efficiently. Prominently, AI as a technology has become significant part of bank operations given the likelihood of achieving the desired level of efficiency demanded by their customers. Accordingly, according to Fadi et al. (2023) AI brings benefits to financial institutions in the form of stability, greater profitability, efficiencies in the provision of financial services, and systemic risk surveillance and regulation. From the firm's perspective, AI taking over repetitive bank tasks and autonomous AI solutions reduce the demand for less skilled labor and improve the efficiency of remaining staff (Kaya, 2019 and Svoboda, 2023).

Artificial Intelligence and Customer satisfaction

The adoption and use of digital financial services in banks are directly correlated to the level of customer happiness and experience enjoyed by such customers. (Svoboda, 2023). In support, Kaya (2019) believes that is true not just for the back office, where modern technologies have been used for a long time (e.g. to process payments), but also for the front-end. An example is automated teller machines (ATMs), one of the earliest IT applications in banking. Kaya further stressed that these devices positively replaced the repetitive tasks of bank employees in cash withdrawal and account balance checks. They made it easier for clients to access standard banking services while also making banks more efficient (Kaya, 2019). Sources also have indicated that the tastes of customers have changed dramatically over the years as a result customers want prompt replies with material that is uniquely tailored to them (Kuala Lumpur, Malaysia, 2022) cited in (Svoboda, 2023). This author feels that Artificial intelligence (AI) technology combined with machine learning employs a particular algorithm that enables banks to

canalize and forecast client behavior and credit ratings in order to generate tailored programs for their customers. Artificial intelligence may assist banks in digitizing their procedures so that they can fulfill the requirements of their customers (Svoboda, 2023). Previous research have maintained that there should be proper and full adoption of artificial intelligence to help enhance customer satisfaction, as this will stimulate continuous patronage and foster repeat purchase and also serve as a customer retention strategy, depending on its application (Elegunde and Shotunde, 2020).

Artificial Intelligence (AI) and Competitiveness

The concept of competitiveness as per Murphy, (2016) cited in Idah and Egessa (2023) is multifaceted and pertains to a company's capacity to endure in a competitive milieu through the provision of superior products and services at prices that are competitive, both domestically and globally, in relation to the competencies and achievements of other firms within their industry. Going further, citing Pedraza (2014), Idah and Egessa (2023) posited that to maintain a competitive edge and solidify their market standing, prosperous enterprises are progressively allocating resources towards innovation. Other researchers have indicated that the competitive performance of a corporation is heavily influenced by internal firm characteristics such as strategy, structure, talents, innovation capability, and other tangible and intangible resources (Kamasak, 2017). In order to maintain competitiveness, it is imperative for a firm to engage in constant innovation, leveraging its internal resources and capitalizing on external opportunities to deliver enhanced value to clients and achieve unparalleled financial gains (Anning-Dorson, 2018) as cited in Idah and Egessa (2023). To corroborate the above position, studies have maintained that leveraging AI technology, banks can gain a competitive edge by offering better services, improving customer experiences, and reducing costs (Reliant Vision Group Inc, 2023). To shed on the impact of AI on banks' competitiveness, the recommendation of Idah and Egessa (2023) in their study reported that commercial banks apply practices associated with market innovation to improve competitiveness and concluded that banks significantly make use of artificial intelligence technology and intermediaries to target and onboard new clients. Fadi et al. (2023) have argued that the deployment of AI drives competitive advantages through improving the firms' efficiency through cost reduction and productivity enhancement, therefore driving higher profitability and through enhancing the quality of financial services and products offered to consumers (e.g., new product offerings and high service customization).

Theoretical Review

Bank-Focused Theory

Bank-Focused Theory was propounded by Kapoor in the year 2010 (Efuntade and Efuntade, 2023). This theory assumes that traditional banks adopt non-traditional low-cost delivery channels to provide banking services to its existing customers (Ekpa et al, 2023). They captured that the theory emphasizes the level of convenience, accuracy, speed and quality through the use of technology with which conventional banks uses to meet the ever growing and dynamic customers' request on timely basis. To this effect, Efuntade and Efuntade (2023) captured that Bank-Focused theory is based on the premise that banks use non-traditional but conventional low-cost delivery channels such as automated teller machines (ATMs), mobile phone banking, Point of Sale (POS) among others to offer services to its customers. They argued that the use of these channels, banks will be able to offer a wide range of services to its customers regardless of location and branch attachments. Therefore, the only thing required is to input the needed information into the system and the transaction is concluded (Ekpa et al., 2023).

Empirical Review

Empirically, some studies were carried out to know the performance of organizations resulting from the effect of the adoption of AI. The study of Idah and Egessa (2023) explored the impact

of market innovation on the competitiveness of Commercial Banks in Kenya. Using a positivist research philosophy, descriptive and correlational research designs were employed. The target population consisted of 175 directors and general managers from various departments. Data was collected through closed and open-ended questionnaires. The results showed a statistically significant relationship between market innovation and competitiveness. The study therefore recommended that commercial banks embrace market innovation to achieve competitiveness. Enhancements include continuous market surveys, account cash flows, regular reviews on marketing strategies, differentiated product offerings, promotional campaigns, artificial intelligence technology, and intermediaries. Additionally, Ndungu and Sije (2023) study investigated the impact of artificial intelligence strategies on the performance of 42 Kenyan commercial banks, using indicators like profit before tax, customer numbers, and net promoter scores. The data was analyzed using SPSS version 25, and a multiple regression analysis was conducted to determine the relationship between AI strategies and performance.

Agarwall et al.'s (2021) study found that AI significantly impacts the operational performance of Indian companies in manufacturing, telecommunication, and IT industries, affecting operating costs and profits.

Also, Hashem and Alqatamin (2021) study on artificial intelligence's impact on Jordan's manufacturing companies' accounting information system efficiency and non-financial performance found that AI improves system efficiency and enhances managerial information inflow.

Also, Ukpong (2022) study explores the integration of Artificial Intelligence (AI) applications in Nigerian commercial banks for financial process innovation. The research focuses on AI for credit risk management, personalized banking experience, and the challenges of implementing AI in Nigerian banks. A sample of 143 participants, including accounting lecturers and bank managers, was selected from a population of 174. The results showed that AI can be applied for credit risk management and personalized banking experience. The study recommends that AI should be systematically implemented by banks as an overall business strategy and that the international financial community should cooperate to share scientific and technological achievements.

In their study on effects of Artificial Intelligence on business performance in the banking industry, Elegunde and Shotunde (2020) used a Survey research design. The study used a simple random sampling technique to sample 200 respondents. In the same vein, 200 questionnaires were administered to customers and employees of Access bank plc and United bank of Africa while content validity was adoption to validate the instrument. Data collected was analyzed using regression analysis. They submitted in their findings that Customer satisfaction, service quality, competitive advantage and employees' efficiency; as nonfinancial business measures were all discovered and proven to be aided by artificial intelligence. They therefore, recommended that banks and other technology receptive firms in Nigeria should push for full adoption of AI, as it brings greater value, efficiency and effectiveness to business.

Furthermore, the study of Ekpa et al., (2023) examined the impact of artificial intelligence on the performance of Nigerian listed deposit money banks. It used a sample of 10 banks from 2012 to 2021, and used a longitudinal research design. The results showed that automated chatbots positively impacted the Return on Assets of these banks, while deep learning machines had a negative effect. Similarly, i-comply fraud detection solutions had a negative effect. The study recommends that Nigerian banks should strategically use chatbots to improve communication and transaction convenience.

The study of Ndungu and Sije (2023) investigated the impact of artificial intelligence strategies on the performance of Commercial banks in Kenya with a target population of 42 commercial banks. using indicators like profit before tax, customer numbers, and net promoter scores. The study used a descriptive design with questionnaire as the instrument for data collection. Cronbach Alpha was used to determine the internal consistency while the study instrument validated using content and construct validity. The data was analyzed using SPSS version 25, and a multiple regression analysis was conducted to determine the relationship between AI strategies and performance. The

study recommends that managers of commercial banks and other firms should consider artificial intelligence as an important aspect of strategic innovations to improve performance.

The study carried out by Fadi et al., (2023) focused on the impact of Artificial Intelligence disclosure on financial performance. They examined the use of artificial intelligence (AI) in Jordanian banks and its impact on financial performance. Content analysis of annual reports from 15 banks shows a consistent increase in AI-related terms disclosure since 2014. However, some banks are still in the early stages of adopting AI technologies. AI positively affects accounting performance in terms of ROA and ROE, while negatively impacts total expenses. The study contributes to AI literature by formulating an AI disclosure index, providing insights into the relationship between AI disclosure and financial performance, and supporting policymakers and supervisory organizations in addressing AI disclosure issues.

In the same vein, Salemcity et al.'s (2023) study examined the impact of AI adoption on employee and operating costs in Nigerian deposits money banks (DMBs). The research, based on secondary data from 2012-2022, found that AI adoption negatively impacts employee costs but positively impacts operating expenses. The study suggests government regulation to prevent layoffs.

This section shed light on the concepts used in the study. It also captures relevant theories relevant to the study as well as highlighting some scholars whose studies are empirically literatures related to this study.

METHODOLOGY

The study adopted a descriptive survey research design. The study use structured questionnaires to gather data from few sampled respondents considered be representatives of the entire group. This therefore justifies the use of descriptive survey research design.

The population of the purpose of this study comprised all professional staffs in three Deposit Money Banks of Zenith Bank Plc, First Bank Plc and Keystone Bank. Specifically, the target population consisted of marketing managers, operations managers and customer care unit officers of the aforementioned banks, totaling 186 respondents.

The study sampled 186 respondents from 3 banks in Bayelsa State which make up the population. A sample size of 186 respondents were selected for the purpose of this study using stratified random sampling technique to select 76 marketing managers, 60 operations managers and 50 customer care unit staff. All respondents selected were part the various strata. A census of the total population (186) was used as the sample size. A questionnaire containing twenty (20) items was used to collect data from respondents. The questionnaire was structured in a 4 point Likert scale of Strongly Agree (SA), Agree (A), Disagree (D) and Strongly Disagree (SD) with a numerical value of 4, 3, 2 and 1 respectively.

Data collected were analyzed using Spearman Rank Order Correlation through the aid of Statistical Package for the Social Sciences (SPSS) version 21.0. This was used to establish the correlational effect of independent variable (Artificial Intelligence) and the dependent variables of customer satisfaction, efficiency profitability and Competitiveness in Deposit Money Banks in Bayelsa State.

DATA PRESENTATION AND DISCUSSION OF FINDINGS

Table 1: Administration and Retrieved of questionnaire.

Questionnaire administered	Retrieved question	Percentage
186	170	91.3

Source: researcher, (2024)

The table above shows the number of administered questionnaire 186 while retrieved questionnaire is 170 professional staffs of the banks.

Ho1: There is no significant effect of AI on the profitability of Deposit Money Banks in Bayelsa State

Table 2: Correlations between Artificial Intelligence and profitability

		ARTIFICIAL INTELLIGENCE	PROFITABILITY
ARTIFICIAL INTELLIGENCE	Pearson Correlation	1	.850**
	Sig. (2-tailed)		.000
	N	170	170
PROFITABILITY	Pearson Correlation	.850**	1
	Sig. (2-tailed)	.000	
	N	170	170

** . Correlation is significant at the 0.01 level (2-tailed).

Source: researcher, (2024)

Table 2 illustrates the correlation between Artificial Intelligence (AI) and profitability. The Pearson correlation coefficient between AI and profitability is calculated to be 0.850**, indicating a strong positive correlation between these two variables. This implies that as the implementation of AI increases, there is a corresponding increase in profitability. The correlation is statistically significant at the 0.01 level, suggesting that this relationship is highly unlikely to have occurred by chance. Therefore, at 0.01 significant level, the null hypothesis "there is no significant effect of AI on the profitability of Deposit Money Banks in Bayelsa State" is therefore rejected. Based on the findings, it can therefore be inferred that AI has a significant impact on the profitability of deposit money banks in Bayelsa state.

Ho2 There is no significant effect of AI on efficiency of Deposit Money Banks in Bayelsa State

Table 3: Correlations between Artificial Intelligence and Efficiency

		ARTIFICIAL INTELLIGENCE	EFFICIENCY
ARTIFICIAL INTELLIGENCE	Pearson Correlation	1	.843**
	Sig. (2-tailed)		.000
	N	170	170
EFFICIENCY	Pearson Correlation	.843**	1
	Sig. (2-tailed)	.000	
	N	170	170

** . Correlation is significant at the 0.01 level (2-tailed).

Source: researcher, (2024)

Table 3 displays the correlation between Artificial Intelligence (AI) and efficiency. The Pearson correlation coefficient between AI and efficiency is calculated to be 0.843**, indicating a strong positive correlation between these two variables. This suggests that as the integration and utilization of AI increase, there is a corresponding improvement in efficiency. The correlation is statistically significant at 0.01 level, signifying that this observed relationship is highly unlikely to be due to chance. Therefore the null hypothesis is rejected. It can therefore be concluded that AI as a technological tool plays a crucial role in enhancing efficiency within various contexts, such as

business operations, correction of errors, timely delivery of customer demands, attending to customers complaints etc.

Ho3: There is no relationship significant effect of AI on customer satisfaction of Deposit Money Banks in Bayelsa State

Table 4: Correlations between Artificial Intelligence and Customer Satisfaction

		ARTIFICIAL INTELLIGENCE	CUSTOMER SATISFACTION
ARTIFICIAL INTELLIGENCE	Pearson Correlation	1	.920**
	Sig. (2-tailed)		.000
	N	170	170
CUSTOMER SATISFACTION	Pearson Correlation	.920**	1
	Sig. (2-tailed)	.000	
	N	170	170

** . Correlation is significant at the 0.01 level (2-tailed).

Source: researcher, (2024)

Table 4 displays the correlation between Artificial Intelligence (AI) and customer satisfaction. The Pearson correlation coefficient between AI and customer satisfaction is found to be 0.920**, indicating a very strong positive correlation between these two variables. Similarly, the correlation coefficient between AI and customer satisfaction is also 0.920**, reinforcing the strong positive relationship between AI and customer satisfaction. Both correlations are statistically significant at the 0.05 level, suggesting that the observed relationships are unlikely to have occurred by chance.

Ho4: There is no significant effect of AI on competitiveness of Deposit Money Banks in Bayelsa State

Table 5: Correlations between Artificial Intelligence and Competitiveness

		ARTIFICIAL INTELLIGENCE	COMPETITIVENESS
ARTIFICIAL INTELLIGENCE	Pearson Correlation	1	.860**
	Sig. (2-tailed)		.000
	N	170	170
COMPETITIVENESS	Pearson Correlation	.860**	1
	Sig. (2-tailed)	.000	
	N	170	170

** . Correlation is significant at the 0.01 level (2-tailed).

Source: researcher, (2024)

Table 5 presents the correlation between Artificial Intelligence (AI) and competitiveness. The Pearson correlation coefficient between AI and competitiveness is determined to be 0.860**, indicating a strong positive correlation between these two variables. This suggests that as the utilization of AI increases, there is a corresponding enhancement in competitiveness. The correlation is statistically significant at the 0.01 level, implying that the observed relationship is highly unlikely to be due to chance. Therefore the null hypothesis is rejected. This implies that AI has a significant and direct effect on competitiveness of Deposit Money Banks in Bayelsa State.

Discussion of Findings

The finding that there is a remarkably strong positive relationship between Artificial Intelligence (AI) and Profitability, as indicated by a Pearson correlation coefficient of .920, is significant. This suggests that the advancement and utilization of AI technologies are closely associated with the profitability of Deposit Money Banks in Bayelsa State. As AI technologies continue to evolve, they provide increasingly sophisticated tools for analyzing data, identify potential opportunities and and

reducing operating expenses which ultimately lead to profitability of Deposit Money Banks. This is support Kaya (2019) discovery that AI significantly boosts bank profitability by increasing labor productivity and reducing costs, making rapid implementation crucial for maintaining competitiveness and combating weak profitability in European banks. Therefore, AI's potential contribution to bank profitability should not be underestimated Kaya (2019). Also, Fadi et al. (2023) highlighted the significant impact of AI adoption on efficiency, cost reduction, and quality financial services, ultimately leading to increased profitability for firms.

The findings further revealed that there is a strong positive correlation ($r = .850$) between Artificial Intelligence (AI) and Efficiency. This therefore suggests that there is a significant relationship between the advancement of AI technologies and the efficiency of Deposit Money Banks in Bayelsa State. This correlation, statistically significant at the 0.05 level, underscores the role of AI in minimizing work delay and increasing speed of delivery of customer demands, human error reduction etc. According to study conducted by Svoboda (2023) on "the impact of artificial intelligence on the banking industry" revealed that AI-driven automation has significantly improved operational efficiency, reduced human errors, and reduced operating expenses by 30% across institutions, while chatbots and virtual assistants have substantially improved customer interactions in Deposit Money Banks. Also, the result of Cedersund (2023) emphasize how AI techniques such as natural language processing and machine learning algorithms improve the effectiveness and efficiency of Deposit Money Banks. The finding of the studies above supports the findings of this research report. The findings of the study established that there is a very strong positive correlation ($r = .860$) between Artificial Intelligence (AI) and Competitiveness which underscores the significant role of AI on the overall performance of deposit money bank. This correlation, statistically significant at the 0.05 level, highlights the robustness and reliability of the relationship, indicating that as AI advances, it significantly influences the level of competitiveness of Deposit Money Banks in Bayelsa State. Therefore, it can be inferred that Artificial Intelligence (AI) has a strong and positive relationship with bank competitiveness. The finding of the study is supported by Elegunde and Shotunde's (2020) study on Artificial Intelligence's effects on business performance in the banking industry and found that AI helps achieve a competitive advantage for Access Bank and United Bank for Africa-Uba. Their research cited the study of Sohi et al., (2018) who argued that the benefits of AI supported automation, cognitive technologies, and AI algorithms significantly increases productivity, time efficiency, human error reduction, and sales maximization and these invariably lead to deposit money banks competitive advantage. The finding of a strong positive correlation ($r = .843$) between Artificial Intelligence (AI) and Customer Satisfaction underscores the significant impact of AI technologies on consumer behavior and purchasing choices. The statistical significance of this correlation at the 0.05 level highlights the robustness and reliability of the relationship, indicating that as AI evolves, it increasingly influences the decisions individuals and organizations make regarding customer satisfaction. This is in line with Alim et al, (2020) argument that AI-powered recommendation systems and personalized marketing strategies enhance consumer engagement and influence customer satisfaction. They further highlighted how AI algorithms analyze vast amounts of data to understand consumer preferences and behaviors, ultimately guiding consumers towards products or services that align with their needs and preferences.

CONCLUSION

Based on the study's objectives and findings, it can be concluded that artificial intelligence (AI) plays a vital role in influencing various aspects of Deposit Money Bank (DMB) operations Bayelsa State. Firstly, the positive significant relationship between AI and profitability suggests that the integration of AI technologies enhances DMB's financial performance. Secondly, the correlation between AI and customer satisfaction indicates that AI-driven solutions likely contribute to improving customer experiences within the bank. Thirdly, the positive significant relationship between AI and competitiveness implies that AI adoption can strengthen DMB's position in the

market by enabling it to offer innovative and efficient services. Lastly, the association between AI and efficiency underscores the role of AI in streamlining processes and enhancing operational effectiveness within the bank. Therefore, the study concluded that there is positive significant relationship between artificial intelligence and marketing performance of deposit money banks in Bayelsa State.

RECOMMENDATIONS

The following suggestions have been raised in light of the findings, conclusions and implications of the study;

1. Deposit Money Banks (DMBs) should invest further in AI technologies. This should deploy AI-driven solutions such as predictive analytics for financial forecasting, personalized marketing strategies based on customer data analysis, and automated trading algorithms for investment management.
2. Deposit Money Banks should leverage artificial intelligence in various customer-facing processes.
3. Deposit Money Banks should view artificial intelligence as a strategic tool for improving competitiveness in the market.
4. To enhance operational efficiency, DMBs should prioritize the integration of artificial intelligence across their internal processes.

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