ARTIFICIAL INTELLIGENCE INTERGRATION AND PERFORMANCE OF MONEY DEPOSIT BANKS IN LAGOS METROPOLIS: A STUDY OF UNITED BANK FOR AFRICA

By

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Abstract
This study examined Artificial Intelligence integration and performance of money deposit banks in Nigeria: A study of United Bank for Africa, using several variables and surrogates of artificial intelligence and how they affect the performance of banks. Four objectives, research questions and hypotheses were formulated for the purpose of the study. Primary data through the use of a questionnaire was collected on non-financial variables by a stratified sampling technique. 130 out of 150 copies of the questionnaire administered were duly filled, returned and analysed. The research instrument used was tested for validity and reliability. The hypotheses were analysed using Regression and Pearson Correlation. The findings showed mobile banking and robotic process automation have a positive significant effect on Bank performance while the adoption of Integrated Chatbot and the deployment of Digital Customer Support System were negatively correlated and unlikely to have a significant effect on the bank's performance. It is recommended that organizations integrate the use of artificial intelligence into banking processes to assist individuals in overcoming obstacles, rigours, and stress in the workplace, thereby increasing employee satisfaction and productivity.
Keywords*: Artificial Intelligence, Integration, Business Process, Firms' Performance, Virtual Banking.*

1.0 Background to the Study

Business performance is essential for forecasting, determining, and measuring the level or extent of growth and outcomes in commercial enterprises (Farhi, 2017; Tuomi 2018). The performance of a business, whether financial or non-financial, acts as a standard against which business stakeholders can evaluate and compare the efficacy, efficiency, total productivity, and profitability of the organization or business operation (Chukwudi, Echefu, Boniface & Victoria, 2018). According to Ajam (2018), in order to stimulate and enhance a firm's performance, business-minded stakeholders observed and adopted the use of sophisticated technologies, devices, and inventions aimed at enhancing business performance, complementing business operations in areas where humans are deficient, and introducing new ways of doing things, all of which are embedded in contemporary Artificial Intelligence (AI) issues. AI is a field of science

and technology devoted to developing computers capable of thinking, seeing, hearing, walking, speaking, and, most importantly, feeling like humans (Muda, Rafiki & Raharap, 2014; John, 2017).

Aljaber (2020) asserts that evolving technologies are capable of primarily altering human lifestyles and company operating methods globally. It is imperative to understand therefore, machine intelligence's abilities and limits, as well as the possible effects on human existence, society, and industry (Soni, Sharma, Singh, & Kapoor 2018). Artificial intelligence (AI) is rapidly becoming the technology of choice for enterprises globally (Kamble & Deepali, 2018) as it is getting more complex and appealing on a daily basis, making an increasing number of businesses adopt it for a wide range of purposes. The banking industry like some other businesses, has emerged an early adopter of AI (Pradhan & Jena, 2017), testing and integrating new technology in a variety of ways (Mazaryazdi & Soleimani, 2010). AI's basic applications include improved chatbots for customer service, personalized services, and the installation of AI robots for self-service at banks. Apart from these fundamental uses, banks can deploy AI technology in boosting back-office productivity and even reduce fraud and security threats (Shukla and Vijay, 2013). According to Alhashmi, Salloum, &Abdallah (2019), innovations and inventions appear to be the primary driver of a rising standard of living in the modern world, with corporations playing a significant role. This is because a lot of these innovations have produced machines, designed to execute tasks and functions that previously required specialized knowledge, exceptional abilities, and significant in-depth training only from people (Agrawal, Gans, & Goldfarb, 2019).

1.1 Statement of the problem

Traditionally, banking operations were fraught with a lot of problems which included increasing regulatory and compliance expectations, rampart data breaches, increasing privacy concerns and disruptive innovations. Customer expectations are increasing with most now desiring round-the-clock personalized attention. In spite of the innovative changes in the financial space brought about by Information Communication Technology (ICT), and the fact of its embrace by a growing number of diverse industries, many organizations still do not understand how to apply this "new" technology. This is due to a variety of issues such lack of automated processes and proper information, low creative abilities, poor decision-making at all levels, presence of human or manual error, weak control systems, poor product and service quality, inexorable personnel, averse to change. To cope with these pressing challenges, the banking industry has to deviate from depending on the inadequate outdated traditional systems. There is therefore an apparent need for the banking industry to embrace digital transformation and disruptive technology, to meet changing customer needs, to succeed in today’s market.

A sizeable number of financial institutions have incorporated technology into their day-to-day operations. Over time, the usage of technology has transformed how businesses are conducted, to the point where organizations now acknowledge how

valuable and vital, artificial intelligence has become in the performance of their operations and job execution. Organizations must link their business plans to AI strategies in order to achieve effective and efficient organizational performance. This includes cybersecurity integration, chatbot integration, adoption of digital customer service supports, and robotic process automation.

Several academics have conducted empirical research on the impact of artificial intelligence on bank performance. Previous studies have focused on mixed results, with financial success indicators serving as dependent variables. However, the focus of this study will be on non-financial performance indicators. Additionally, because artificial intelligence is a relatively young field of study in this region of the world, there is likely to be a dearth of literature on the subject. This study will focus on robots, fraud reduction, security risks, job factors, intelligent algorithms, and data security.

1.2 Aim and Objectives of the study

This study aim at assessing the influence of Artificial Intelligence integration on the performance of banks and adopting the following objectives -

i. To ascertain the correlation between mobile banking and cybersecurity
ii. To determine the extent to which integrated Chatbot reduces manual error in banking processes
iii. To determine the extent to which digital customer support system affects employees' job satisfaction.
iv. To establish the relationship between robotic process automation and communication flow.

1.3 Significance of the Study

The purpose of this research is to determine the effect of artificial intelligence on the business processes that drive a bank's performance, with United Bank for Africa Plc. as a case study. The result of this study will be beneficial to banks (employees, investors and management alike), other financial consultants like auditors, policy makers and financial regulatory bodies in making critical investment decisions regarding how and where to invest in AI-based technology. This in turn will aid their efficacy and overall performance positively. It will also be of importance to researchers in the academia and industry, providing added reference to existing body of knowledge on the relevance of Artificial Intelligence to organizations.

1.4 Scope of the Study

This study focused on deposit money banks using a branch of the United Bank for Africa in Lagos Metropolis. Data on non-financial indicators were collected using questionnaires distributed to management personnel in five departments namely information technology, risk, customer service, operations, and human resources. These employees were considered for this study because they use the latest technology in carrying out their activities and are well informed about the activities of chatbots, voice assistants, biometric authorization, mobile banking and smart wallets. Their choice is also justified because they are aware of the effects of AI deployments on

DMBs performance, possess the training and experience to interpret the questions correctly and provide unbiased answers

2.0 Review of Literature

2.1 The Nigerian Banking Sector

Deposit money banks' (DMBs') operations are constantly examined to improve performance because of the critical role they play in the development of any economy, leading to investors being rewarded for good performance, encouraging new investments and economic expansion. Donner and Tellez (2008) support regular monitoring of DMBs because of their critical role in capital formation and the numerous issues they have faced in Nigeria in the last two decades. These included undercapitalization, illiquidity, poor corporate governance, insolvency, and a high number of non-performing loans, all of which challenged their very existence. Reforms and changes in the Nigerian banking sector became imperative to achieve a stable and thriving economy, when Nigeria was the 26th largest economy in the world and the largest in Africa, with a GDP of US$510 billion. Additionally, Nigeria then could boast of having Sub-Saharan Africa's second largest financial services sector, after South Africa. Between 1996 and 2015, reforms and changes in the Nigerian Banking sector have included interest rate liberalization; liberalized credit distribution (1987); recapitalization (2004); mergers and acquisitions (2004-2006); prudential criteria amendment in conformity with Basel Accord framework (2010) and Treasury Single Account establishment (2015). All these changes were directed at financial stability and intermediation.

2.2 Artificial Intelligence (AI)

Artificial intelligence in the financial services industry focuses on cognitive applications in business processes, as well as investing and compliance. This appears to be a watershed moment in advanced robots' progression toward machine learning and predictive analysis. The majority of banks in the market are concentrating their efforts on creating AI in order to obtain a competitive edge by increasing speed, accuracy, cost-effectiveness, and customer contentment.

2.3 Banking via mobile device

Mobile banking is a term that refers to the act of executing financial transactions via a mobile device, such as a phone (Anyasi & Otubu, 2009) as any transaction that is initiated and/or completed by mobile access to computer networks via an electronic device and the provision of bank-related financial services using mobile telecommunications devices (Tiwari, Buse and Herstatt, 2006) are permitted. This took care of erstwhile long queues by customers in banking halls to pay school fees, utility bills, and other financial transactions with the use of ATM cards or the internet. Additionally, mobile banking services helped businesses develop by providing an effective, low-cost, and dependable money service support system that eliminates the need for cash transactions and the associated hazards (Anyasi & Otubu, 2009).

Cashless transactions reduce illegal and fraudulent activities, and mobile money technology has raised acceptance rates (Mbogo 2010).

2.4 Customer Support System in the Digital Age

In Deloitte's 2015 Global Report on the digital transformation of customer services, it was reported that the digital era has challenged traditional customer service methods with customers now utilizing websites, blogs, vlogs and social media, to guide their purchasing decisions and interact with service providers. Several authors, including Novak, Hoffman and Yung (2000), and Brondmo (2000), have stressed the recognition of customer interaction and service orientation of digital platforms. Digital channels, it is argued, may be utilized to create unique and positive experiences that foster long-term consumer trust and connections by integrating all aspects of products, service, brand, and communication—not just transactions.

2.5 Bank Performance

Many researchers pay more attention to the performance of DMBs because of the premise that the banking industry is critical to a country's economic development. Macit (2012) posits that DMB performance can be measured in terms of competition, productivity, profitability, efficiency, and concentration. Financial performance is measured by a bank's profitability or loss over a specified time period and is stated in terms of profits or losses incurred during that period. DMBs that perform well are thought to be better able to withstand or resist negative environmental shocks, and thus can contribute significantly to a country's financial system's stability (Athanasoglou, Brissimis & Delis, 2008).

2.6 Cybersecurity

Despite considerable increases in financial institutions' spending in information technology security systems, cybercrime is inescapable. Ahmad & Schreyer (2016) submit that cybersecurity risk cannot be mitigated solely through costly IT infrastructure development, as this increases operational costs but does not guarantee cyber breach prevention. While technology does not initiate cybersecurity breaches, humans have an intrinsic tendency to cheat through the use of technology when an unfair advantage may be acquired (Eling & Wirfs, 2019). As a result, greater marginal costs (direct and indirect) of cyber technology investments are possible, and financial institutions face a contradiction when making investment decisions because while cybersecurity dangers are inherent in today's digital world, technology investment is vital.

2.7 The Impact of Artificial Intelligence on Investment Banking

AI is a subfield of computer science that focuses on the creation of intelligent machines to assist in problem solving, planning, reasoning, and learning. It enables the banking industry to provide more relevant products and services to consumers via the most appropriate channel. Chatbots, which are computerized service assistants enable clients to receive answers to their inquiries via an online message system using devices such as personal computers, laptops, and smartphones, are currently being used by the industry, replacing the personal visits to their branches. AI processes can be designed

to produce highly refined investment plans that ensure high data speed in order to beat the competition while also enhancing consumer value.

2.8 Money Laundering Prevention

Globally, money laundering has been a significant issue to the financial services and banking businesses. Artificial intelligence has emerged as a significant silver lining in fixing this dilemma. By examining internal, publicly available, and transactional data, the bank can identify potential money laundering activities within the customer's wider network. Machine learning, deep learning, data mining, and analytics are all examples of counter-measure strategies.

2.9 Customer Experiences That Are Unique

As digital capabilities mature, new technologies emerge, and customer expectations shift. Banks are shifting their focus from narrowly targeted functions toward enterprise-wide digitization (Bapat & Mazumdar 2015). New consumer experiences result in meaningful changes in customer behaviour. Digital bank business models integrate seamless user experiences, rich analytics, scalable cloud-based platforms, and agile transformation approaches to achieve customer centricity, efficiency, and sustainability. Also, the transformation of other industries by AI enhanced customer trust and comfort with AI finance products. Additionally, it heightened their craving for instant satisfaction and personalized goods and services. Some of the world's most recognizable corporations are reacting to these consumer expectations by offering low-cost, simple methods of money transfer, borrowing, and investing. Client contacts may increasingly be handled by AI interfaces using Chatbots, or virtual assistance systems that communicate with consumers in normal language.

2.10 Identity Theft, Fraud, and Cyber Crime Mitigation

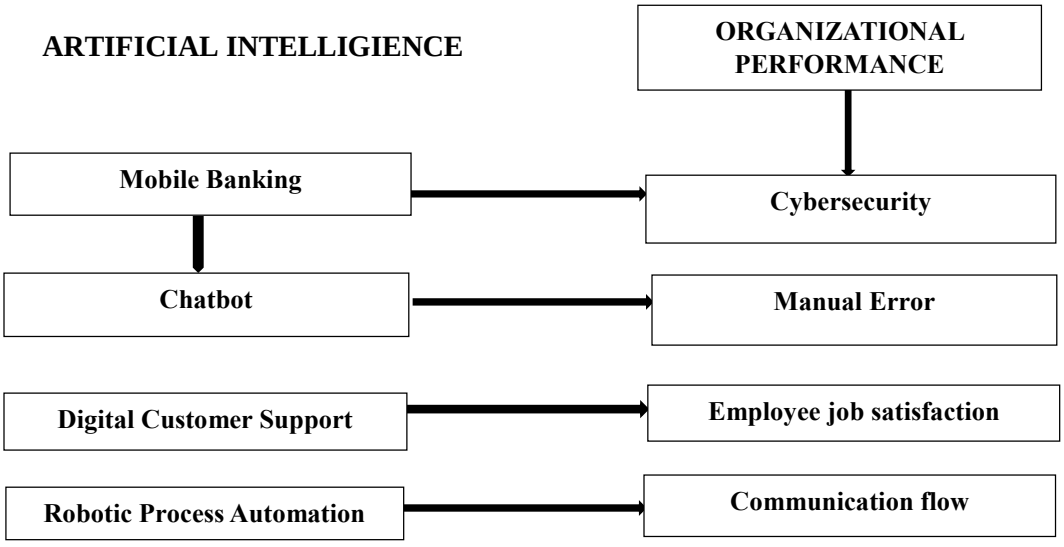
AI is used to monitor and prevent many sorts of fraud, money laundering, and malpractice, as well as risk identification (Pahuja and Kaur 2007). Biometric authentication together with AI, identity and access management, enables bank managers and security officials to receive automatic notifications about suspect client activity, preventing identity theft and fraud (Cyrille and Jeanne 2016). Biometrics also assist financial institutions in combating insider fraud by enabling secure employee verification, accountability, and a tangible audit record of each transaction. Cyrille and Jeanne (2016) reported that 32% of respondents verified utilizing AI technologies such as predictive analytics, recommendation engines, speech recognition, and response.

2.11 Chatbot

A chatbot (a concept for human-computer interface) pioneered by Alan Turing in the 1950s is a computer program that uses programming languages geared at natural human language manipulation (Lima 2014). A Chatbot's fundamental premise is to create an environment that accepts inquiries in natural human language, associates them with a knowledge base, and then responds (Fryer and Carpenter 2006). Though primarily designed to enhance productivity, they are also beneficial in a variety of different disciplines, including education, business, e-commerce, health, and

entertainment (Shawar& Atwell, 2007). Fully autonomous chatbots may have problems that can be overcome with the incorporation of human intelligence.

2.12 Conceptual Model



Source: *Researcher, 2024*

Conceptual Model of Effect of Artificial Intelligence on bank performance

A Conceptual model capturing the effect of Artificial Intelligence integration into business processes on a firm's performance, is shown above with the components of the dependent variable and those of the independent variable. The model further breaks down the relationships into smaller units such as, between mobile banking and cybersecurity; chatbot and manual error; Digital Customer Support system and Employee satisfaction, and finally the relationship between Robotic Process Automation and communication flow.

2.13 Theoretical Framework

The Bayesian Theory

The Bayesian theorem named after an 18th century mathematician Thomas Bayes, is based on a mathematical formula for determining conditional probability and permits the updating of predicted probabilities of an event, by including new information. It is used in finance to calculate or update risk assessment. AI on the other hand has garnered support in the financial sector as it could be deployed to assist financial practitioners in decreasing their workload through the use of computer power. Fintech development supports the combination of Bayesian statistics (one of the procedures in machine learning) in auditing and AI technology (due to its rapid advancement in the financial sector), to decrease costs, control risk, improve service quality, and increase profit. This combination has also assisted auditors in making more precise judgements through more objective and reasonable probability offerings, thereby minimizing errors based on the personal feelings, knowledge and experience of auditors. Largade (2018) created a rule-based Expert System to assist financial intuitions in making cooperative credit loan application choices.

Theory of Disruptive Innovation

The term "disruptive innovation" arose from a study by Clayton Christensen of Harvard Business School, exploring why some radical inventions actually strengthened the incumbent's position in a given industry, contrary to what prior models (such as the Henderson – Clark model) suggested. His study focused on the disk drive business in particular because it was the most active, technologically discontinuous, and complex industry at that point in time, considering the fact that the memory capacity packed into a square inch of disk rose at a pace of 35% each year between 1967 and 1973, reaching 1.75 megabytes in 1973, 12 megabytes in 1981, and 1100 megabytes in 1995. Disruptive theory is critical because it helps to explain the types of technology used by banks, in the sense that it obviates the need for traditional banking.

Schumpeter's Creative Destruction Theory

Schumpeter (1928, 1939) regarded innovations as continuous streams of creative destruction fueling a capitalist system's development rates. Schumpeter's thinking over time, evolved to the point where some scholars felt innovation was largely dependent on an exceptional individual’s willingness to take extraordinary risks as "an act of will". (Freeman, 1994) Schumpeter (1928) underlined capitalism's discontinuous and disruptive nature, leading to short- and long-term instability. He was not a technocrat, but he acknowledged the critical role of social and organizational forces in his cyclical process of industrial transformation. Schumpeter maintained that entrepreneurs, who could be individual inventors or R&D engineers in huge firms, generated the prospect for fresh profits through their ideas. In response, groups of imitators attracted by super-profits would generate a surge of investment, diminishing the innovation's profit margin. However, before the economy can rebalance, a new innovation or series of innovations, dubbed Kondratiev cycles by Schumpeter, would emerge to restart the business cycle. Despite his insights into the role of innovation, Schumpeter never satisfactorily described how innovation occurs. He was able to emphasize its importance and function in economic cycle timing, but he remained silent on its source. This enabled Keynesian economists to argue that investment levels were responsible for innovation. Not until the 1960s did economists resume their search for the source of innovation.

To that purpose, the study on innovation that has developed from Schumpeter's foundation has concentrated on the process by which innovation is generated and then spreads among enterprises, industries, and regions. The Schumpeterian Theory is relevant because new technology replaces older technology and is superior because it gives value to the adopter.

2.2.4 Theory of Diffusion of Innovation

Rogers's (1995) Diffusion of Innovation theory is a widely used paradigm in information systems research for understanding user acceptance of innovative technology. Rogers defines diffusion as "the process by which an innovation is disseminated to members of a social society over time via specified routes" (Rogers, 1995). The term "innovation" refers to a concept or product that is believed to be novel (Rogers, 1995). According to DOI, the rate of dissemination is affected by the relative advantage, complexity, compatibility, trialability, and observability of an innovation. Rogers (1995) defines relative advantage as "the extent to which an innovation is regarded to be superior to its predecessor." Complexity, which is analogous to TAM's perceived ease of use concept, is defined as "the degree to which a prospective user believes an innovation to be comparatively difficult to use and comprehend." Compatibility is described as "the extent to which an innovation is viewed as being consistent with the adopters' pre-existing values, beliefs, experiences, and requirements." Trialability is described as the 'ability of an idea to be explored with on a small scale.' Finally, observability is described as the "amount to which an innovation's results are evident" (Rogers, 1995).

As a result, the notion of Diffusion of Innovation is important to the study's objectives. The diffusion theory is critical because it explains why banks adopt new technologies. One of the reasons banks use technical advancements is to get a relevant advantage. This means that banks that embrace technological advancements gain a financial advantage over their counterparts who do not. This study specifically seeks to determine the relevant benefits that accrue to a bank for implementing artificial intelligence technology in its operations. The dependent variables being studied are cybersecurity, reduction in manual error, employee job satisfaction, and communication flow/information flow.

All of the theories used in the research (Bayesian theory, Disruptive Innovation Theory, Schumpeter's Theory of Creative Destruction, and Diffusion of Innovation theory) provide support and a deeper understanding of the concepts and variables. The topics covered include cybersecurity, digital customer service support, robotics automation, chatbot integration, human error, communication flow, and employee job satisfaction.

2.3 EMPIRICAL REVIEW

Nadim, Jahangir and Noorjahan Parvez (2012), posit that IT banking involves compatibility, convenience, and communication regarding customer adaptability which are some of the primary reasons for Information technology’s (IT) success. Credit card fraud, according to a study conducted by Aboagye (2010), is a substantial security risk because when a user's credit card or PIN is taken, unauthorized changes can be made. To guarantee that all transactions are captured, consumers must regularly review their card statements. Million, Assefa and Tafa (2013) in their studies on the influence of electronic banking on customer satisfaction in Ethiopia's banking sector using Dashen and Wogagen banks in Gondar city, reported that majority of e-banking

users were young, educated, salaried, and students; that businessmen and women were not actively using the service. This shows that there is a relationship between e-banking and demographic characteristics.

Robotic process automation (RPA) is a critical tool for businesses, according to NAFON (2021), because it allows for the streamlining of operations. RPA determines how much time is spent in corporate processes performing repetitive operations, passing information from one application system to another, or utilizing communications channels to seek out expertise or information needed for specific tasks or creative activities.

According to Shumaila (2012), IT banking adoption is a complicated and diverse process in which the personal, social, psychological, utilitarian, and behavioral components of the customers take precedence over the adoption itself and finally result in the desired behavior.

In the research conducted by Moghadam, Baytollah Akbari; Behboudi, Mehdi; and Jafari, Farzaneh (2012), clients are urged to prioritize electronic banking. By increasing a customer's desire to use IT banking via IT marketing, we may foster a positive attitude toward the bank's brand, which is a critical aspect in the effectiveness of IT banking.

Prabhakaran and Satya (2003) evaluated the attributes linked with the banking sector and examined the weighting given to each attribute when evaluating service quality. They determined through exploratory research of respondents in a metropolitan area, that the most essential aspect in a highly competitive economy with little product distinction, is service quality. Dependability, tangibility, responsiveness, assurance, and empathy were discovered to be the primary characteristics of service quality.

Malhotra and Singh (2007) conducted an investigation in India into the elements that influence a bank's choice to implement Internet banking. The data indicate that larger banks, banks with a younger age structure, banks with private ownership, banks with higher fixed asset expenses, banks with more deposits, and banks with fewer branches are more likely to use technology.

Gupta and Dev (2012) examined the elements that affect customer satisfaction in Indian banks, as well as their impact on satisfaction. A survey of 400 clients of 13 retail banks in India was conducted. Customer satisfaction was attributed to five criteria in banks: service quality, ambiance, client involvement, accessibility, and financials.

Sharma and Govindaluri (2014) examined the factors influencing the adoption of Internet banking in urban India and found out that the key predictors of attitudes towards it were perceived usefulness, perceived ease of use, social impact, awareness, internet connection quality, and computer self-efficacy.

Vyas and Raitani (2014) examined the elements influencing a customer's decision to switch from one financial service provider to another. Price, reputation, customer satisfaction, service quality, service items, competition, customer commitment, and involuntary switching all had a substantial effect on customers' switching behavior.

IT and telecommunications are critical components of every business's sustainability. Future research on mobile banking payments has benefited from a greater emphasis on amplification, concurrent causation, and multidimensional trust (Donner & Tellez, 2008

Banks are critical to a country's economic development because they influence the application of regulatory regulations that monitor economic activity and growth, which can only be performed through sophisticated technology-enabled solutions. When applied to business process reengineering, information technology is extremely effective at ensuring a company's capacity to compete and gain an edge over competitors. Central banks can innovate their banking procedures and policies in order to create greater transparency and a framework for increasing efficiency and preventing fraudulent behavior (Matthew, 2016). International business demands worldwide solutions that use artificial intelligence, resulting in a uniform framework or set of regulations in areas such as crypto currency, legally customized hacking at the individual level, and business model automation, among others).

The primary gap in the research is in determining how artificial intelligence has impacted the financial performance of Nigeria's commercial banks. As a result, this study intended to address this knowledge vacuum by determining the effect of artificial intelligence on the performance of Nigerian commercial banks. Bank success is determined by a combination of financial and non-financial factors (Al-Tamimi, 2010; Aburime, 2005). Previous research has established that commercial banks' performance is influenced by both internal and external influences (Flamini et al., 2009). As a result, Olwney & Shipho (2011) focused their analysis in Nigeria on the sector-specific determinants affecting the performance of commercial banks. However, no study of the influence of artificial intelligence on the performance of Nigerian commercial banks was conducted.

Numerous studies have been undertaken to determine the influence of mobile banking on commercial bank performance. Tchouassi (2012) examined whether mobile phones are actually effective at extending banking services to the unbanked by examining empirical evidence from selected Sub-Saharan African countries. The purpose of this project is to examine how mobile phones might be utilized to expand banking services to the poor, unbanked, and vulnerable. The study's findings indicate that vulnerable, poor, and low-income households in Sub-Saharan Africa typically lacked access to bank accounts and faced significant costs associated with conducting basic financial activities. The mobile phone revolutionized the supply of financial services to the unbanked. To make these services a reality, in addition to technological and commercial innovation, policy and regulatory innovation were required.

Donkor (2008) conducted a study and observed that banks have invested deeply into these electronic systems and telecommunication devices, customers, on the other hand, have been made to understand the benefits of using these systems; however, these systems are underutilized. Even though ICT products have brought about

transformational changes in financial intermediation, there are some serious challenges posed by these innovations in the industry.

As a result, a void which this study hopes to fill, exists in the literature that fully and comprehensively examines banks' non-financial and financial performance objectives, as well as the ways in which these objectives are spurred by artificial intelligence

3.0 METHODOLOGY

The questionnaire instrument was sent to selected branches of United Bank for Africa Plc in Lagos State to collect primary data from respondents, based on the nature of the research.

For descriptive estimates, frequency distribution and percentages were used, while regression models and analyses were used to test the hypotheses formulated plus the statistical properties of the variables. The Cronbach Alpha was used to determine the reliability of the question items and well-informed academicians validated the instrument for the study.

3.1. Research Design

The research adopted both qualitative and quantitative research designs. Qualitative because the variables artificial intelligence and bank performance are broad fields with several interpretations which require deep exploratory research plus understanding of the issues, so that new ideas can be generated. In addition, a case study was utilized. A quantitative research design was used also to generate unbiased data through well-structured instruments (questionnaire) that could be analysed through numbers and statistics for the purposes of generalisations, drawing conclusions and making informed decisions. It is important to note that there may be reservations about generalizability with the results from a case study approach, Yin (1994) asserts that this is based on theory rather than reality.

3.2. The study population

The population for this study comprises of all money deposit banks operating in Nigeria. Data gathered from the Central Bank of Nigeria's Bulletin 2020, reports that Nigeria currently has 22 of them licensed namely, Access Bank, Citibank, Ecobank, Fidelity Bank, First Bank of Nigeria, First City Monument Bank, Globus Bank, Guaranty Trust Bank, Heritage Bank, Keystone Bank, Polaris Bank, Providus Bank, Stanbic IBTC, Standard Chartered Bank, Sterling Bank, Suntrust Bank, Titan Trust, Union Bank of Nigeria, United Bank for Africa, Unity Bank, Wema Bank, and Zenith Bank.

3.3.1. Sample size

This study’s sample size was drawn from five departments among employees of the United Bank for Africa Plc (UBA), who work at the bank's head office in Marina. United Bank for Africa (UBA) is a recognized financial institution in all over Africa, according to Wikipedia. By December 2020, the group's financial assets totaled NGN 7.7 trillion (US$19.2 billion), while stakeholders' equity was NGN724.1 billion NGN (US$1.8 billion). About 20,000 individuals are employed by the bank. Some of the

bank's seventeen (17) divisions are corporate banking, oil and gas, commercial trading, export and import (international trade) information technology and operations and customer service. The information gathered from the organization's human resources department put the number of employees at the headquarters at 1700 as of November 10, 2021.

3.4. Sampling Technique

The sampling technique employed was a mix of probabilistic and non-probabilistic procedures. Quota sampling was used to calculate the number of respondents to use in each department and a stratified plus simple random sample technique was used to ensure that people on which the questionnaire were administered are conversant with the subject of the study. These are mostly staff of the bank who have been with at least five years.

According to Lucy (2006), when the target population exceeds 200, 10% of the population is sampled, while 40% of the population is sampled when it is less than 200.

Table 3.4.1 Strata and number of respondents chosen from five departments of UBA

S/N	UBA (DEPARTMENTS)	Population	Sample Size
1	**IT**	320 x 10%	32
2	**RISK**	330 x 10%	33
3	**CUSTOMER SERVICE**	310 x 10%	31
4	**OPERATIONS**	270 x 10%	27
5	**HR**	270 x 10%	27
	Total	**1500**	**150**

3.5. Data Collection Instrument and Method

The study utilized the questionnaire in obtaining data on the non-financial constructs examined in determining the influence of Artificial intelligence integration into business processes of money deposit banks in driving their performance. The questionnaire using a 5-point Likert scale, was broken into six sections to elicit responses on respondents' socio-demographic characteristics; the effect of mobile banking on cybersecurity; the impact of chatbots on reduction in manual error; the significance of Digital Customer Support system; employees' productivity and job satisfaction; and the relationship between Robotic Process Automation on communication flow.

The respondents were bank staff perceived to be experienced in the use of artificial intelligence technology in their day-to-day banking activities.

3.6. Pilot Study and Assessment of Reliability and Validity

A pilot study was conducted using twenty duplicates of the questionnaire to measure the ability of the instrument to adequately measure what it is supposed to measure using Statistical Package for Social Sciences (SPSS) and a Cronbach's Alpha coefficient of 0.83 was obtained which is above the generally accepted standard of 0.70. Validity of the instrument was obtained after scrutiny by highly rated

academicians in the University of Lagos.

The variables measured and their Cronbach's Alpha coefficients are presented below:

Variables of Study	**Cronbach's Alpha**
Mobile Banking	0.754
Chatbot	0.883
Digital Customer Support System	0.841
Robotic Process Automation	0.895
Cybersecurity	0.811
Reduction in manual error	0.838
Employee productivity or Employees' job satisfaction	0.753
Communication flow or Information flow	0.889
TOTAL	**0.83**

3.7. Model Specification

Variable definition and measurement

Dependent variable – Firm's performance

Independent variable – Artificial Intelligence Integration

Indicators of Firm's improved performance

Cybersecurity

Reduction in manual error

Productivity of employees or Employees' job satisfaction

Better Communication flow or Information flow

Indicators of Artificial Intelligence Integration

Mobile banking

Chatbot

Digital Customer Support System

Robotic Process Automation

Aggregated Functional Relationship

$Y = f(X)$

Where $Y = y_1, y_2, y_3, y_4$

$X = x_1, x_2, x_3, x_4$

$Y = \alpha_0 + \alpha_1 x_1 + \alpha_2 x_2 + \alpha_3 x_3 + \mu$

FIP = f (AII) ----------Eqn 3.1

Where, FIP = Firm's Improved Performance

AII = Artificial Intelligence Integration

Disaggregating the functional relationships

CBS = f (MBB) -------- Eqn 3.2

RME = f (CHB)-------- Eqn 3.3

EMP= f (DCSS)-------- Eqn 3.4

CMF= f (RPA)-------- Eqn 3.4

Where:

CBS = Cybersecurity

RME = Reduction in Manual Error

EMP = Employee's Productivity

CMF = Communication Flow

MBB = Mobile Banking

CHB = Chatbot

DCSS =Digital Customer Support System

RPA = Robotic Process Automation

4. Data presentation, analysis and interpretations

This section presents, analyses and interprets the data obtained in the investigation of the effect of artificial intelligence on the performance of money deposit banks. Out of the 150 questionnaires distributed, 130 completed and representing 86.7%. This percentage was considered adequate for the study supported by Mugenda & Mugenda (2012)'s submission that, a response rate of 50% is suitable for analysis and reporting.

4.1. Socio-Demographic Data

The socio-demographic data showed that 72 (55.4%) of the respondents were male, while 58 (44.6%) were female. The ages ranged between 20 and above with 37 (28.5%) between 20 and 30 years; 60 (46.1%) aged 31 to 40 and 41 and above were 33 (25.4%). Understandably, majority of participants were between the ages of 20 and 40 because this is the active working age group. Additionally, 48 (36.9%) of the respondents were single while 82 (63.1%) were married. 61 (51.5%) of the respondents were middle-level workers, 42 (32.3%) were on supervisory level, while 21 (16.2%) were top-level managers. Notably, most of the respondents belonged to the middle level. On years of job experience, 38% had five years and below; 28% had six to years; 16.3% had between eleven to fifteen years and the remaining 17.7% had over fifteen years of job experience.

Educationally, respondents with an HND/BSC made up 56 (43.1%), MSc or MBA made up 72 (55.4%) and only 2 (1.5%) had a PhD. This shows that an overwhelming majority of participants were literate, having an understanding of the study.

4.2.1. Responses to mobile banking

	SA	A	UD	D	SD	SUM
Our Mobile-banking services are convenient and user friendly	51 (39.2%)	72 (55.4%)	4 (3.1%)	3 (2.3%)	0 (0)	130 (100%)
The bank keeps customers information private and secured	43 (33.1%)	71 (54.6%)	13 (10%)	3 (2.3%)	0 (0)	130 (100%)
Our Mobile-banking services are reliable	46(35.4%)	66(50.8%)	7(5.4%)	5(3.8%)	6(4.6%)	130 (100%)
We leverage on biometrics for authentication	33 (25.4%)	80 (61.5%)	12 (9.2%)	3 (2.3%)	2 (1.5%)	130 (100%)
Customers need a code for verification to login on our Mobile banking platform	48 (36.9%)	53 (40.8%)	13 (10%)	14 (10.8%)	2 (1.5%)	130 (100%)

Responses to questions on Mobile banking by the respondents show agreement that mobile banking services rendered by the bank are convenient and user friendly (94.6%), reliable (86.2%), leverage on biometrics for authentication (86.9%) as well as guarantee security of customers' fund and private information (77.7%), to a very large extent, with dissensions or neutral people representing a bare minimal.

4.2.2. Responses to chatbot integration

	SA	A	UD	D	SD	SUM
Our Chabot are readily available and accessible across all channels	39 (30%)	53 (40.8%)	34 (26.2%)	2 (1.5%)	2 (1.5%)	130 (100%)

Questions and answers are clear and straightforward	35 (26.9%)	65 (50%)	20 (15.4%)	10 (7.7%)	0 (0)	130 (100%)
Our responses to customers go through series of processes	37 (28.5%)	66 (50.8%)	22 (16.9%)	5 (3.8%)	0 (0)	130 (100%)
Customers complaints are automatically saved unto the Customer Relationship Management	33 (25.4%)	53 (40.8%)	37 (28.5%)	5 (3.8%)	4 (3.1%)	130 (100%)
Our Chatbot services are always on standby 24 hours daily	31 (23.8%)	58 (44.6%)	32 (24.6%)	14 (10.8%)	2 (1.5%)	130 (100%)

Responses to chatbot integration show that the bank's operations adequately utilize chatbots in providing financial services to consumers (70.8%); guaranteeing them prompt responses (76.9%) and remedies to difficulties (79.3%); maintaining a 24-hour chat bot connection with consumers (78.4%) plus an efficient and productive utilization of customer relationship management (CRM) software (66.2%), to track customer complaints and crucial information. Less than 30% in four of the measures were neutral or in disagreement.

4.2.3. Responses to Digital Customer Support System

	SA	A	UD	D	SD	SUM
We make it simple for our customers to do business with us.	43 (33.1%)	73 (56.2%)	11 (8.5%)	3 (2.3%)	0 (0)	130 (100%)
We provide support to our customers via digital channels such as chat, email, text (SMS), social media, bank apps, and so on.	49 (37.7%)	65 (50%)	13 (10%)	3 (2.3%)	0 (0)	130 (100%)
We make it simple for clients to voice their discontent with our services by allowing them to use their devices from anywhere to do so.	38 (29.2%)	60 (46.2%)	18 (13.8%)	8 (6.2%)	6 (4.6%)	130 (100%)
We offer seamless collaboration between the bank and customers	35 (26.9%)	79 (60.8%)	14 (10.8%)	2 (1.5%)	0 (0)	130 (100%)
Customers can reach us on any of their devices (e.g, PC, mobile phones, etc)	63 (48.5%)	60 (46.2%)	7 (5.4%)	0 (0)	0 (0)	130 (100%)

A high percentage of the respondents agree that digital customer assistance is rendered by the banks to guarantee that consumers can reach the bank at any time of day (94.7%). Additionally, the bank makes contacting them simple and seamless (87.7%), the bank also maintains an accessible policy (89.3%), which fosters collaboration between the bank and its clients (97.7%); consumers may express their happiness or discontent with the company's goods and services via this channel (75.4%), while an insignificant percentage are either undecided or disagree.

4.2.4. Responses to Robotic Automation

	SA	A	UD	D	SD	SUM
We are able to save cost as most of our activities are paperless	61 (46.9%)	45 (34.6%)	14 (10.8%)	7 (5.4%)	3 (2.3%)	130 (100%)
Time is saved to concentrate on other quality-oriented tasks	48 (36.9%)	52 (40%)	24 (18.5%)	4 (3.1%)	2 (1.5%)	130 (100%)
The use of robotics automation has allowed for speedy delivery of our products and services	47 (36.2%)	56 (43.1%)	12 (9.2%)	11 (8.5%)	4 (3.1%)	130 (100%)
We operate a 24/7 Continuous Performance Services	34 (26.2%)	63 (48.5%)	23 (17.7%)	10 (7.7%)	0 (0)	130 (100%)
Reduction of data entry errors and other human related manual error	50 (38.5%)	46 (35.4%)	28 (21.5%)	6 (4.6)	0 (0)	130 (100%)

In responses to robotic automation, 96 (73.8%) of the respondents agree that mistakes are kept to a minimum, and the organization provides continuous performance assessment, evaluation and control services 24 hours a day 97 (74.6%). The usage of robotics automation has resulted in a more rapid delivery of the company's products and services (79.3), as more time can be spent on other critical tasks (76.9%) and running costs reduced as most activities are paperless (81.5%).

4.2.5. Responses to Cyber-Security

	SA	A	UD	D	SD	SUM
Our customers bio-data and financial information are encrypted.	50 (38.5%)	51 (39.2%)	19 (14.6%)	7 (5.4%)	3 (2.3%)	130 (100%)
In my company, customers always need a two-factor authentication code upon first login.	48 (36.9%)	53 (40.8%)	20 (15.4%)	9 (6.9%)	0 (0)	130 (100%)
In my company, customers biometrics are well captured and stored.	42 (32.3%)	74 (56.9%)	14 (10.8%)	0 (0%)	0 (0)	130 (100%)
My company leverage on appropriate software tools to collect and process data.	43 (33.1%)	72 (55.4%)	12 (9.2%)	3 (2.3%)	0 (0)	130 (100%)
We have well trained and experienced staff handling the cyber security department.	44 (33.8%)	67 (51.5%)	16 (12.3%)	3 (2.3%)	0 (0)	130 (100%)

Responses to the above reflect that cyber-security measures are in place to protect customers bio-data and financial information (77.7%); the bank uses appropriate software tools to collect and process data (88.5%), which are managed by competent and qualified IT staff (85.3%). Workers also were constantly updated on safety procedures (77.7%) and 89.2% of the respondents agree that customers biometrics are well captured and stored.

4.2.6. Responses to Manual Error Reduction

	SA	A	UD	D	SD	SUM
The bank is able to manage risk around finance and auditing	36 (27.7%)	75 (57.7%)	10 (7.7%)	9 (6.9%)	0 (0%)	130 (100%)
In my company, there are control measures in place to curb manual errors	52 (40%)	72 (55.4%)	6 (4.6%)	0 (0)	0 (0)	130 (100%)
Customers financial statements are accurate and reliable	45 (34.6%)	62 (47.7%)	20 (15.4%)	3 2.3%)	0 (0)	130 (100%)

In my company, there are in built system to monitor data collection processes	39 (30%)	80 (61.5%)	7 (5.4%)	4 (3.1%)	0 (0)	130 (100%)
All staffs are trained on the use of new software that reduces errors	38 (29.2%)	75 (57.7%)	7 (5.4%)	4 3.1%)	6 (4.6)	130 (100%)

In response to measures of Manual Error Reduction, 85.4% of the respondents believe the bank is able to manage risk around finance and audit; by ensuring that clients' financial statements are correct and up to date (82.3%); has control measures in place to curb manual errors (95.4%); through the use of built-in systems to monitor data processing operations (91.5%). 86.9% of the respondents believe that all these were achieved because all members of staff are trained on the use of new error reducing software.

4.2.7. Responses to Employee Job Satisfaction/Productivity

	SA	A	UD	D	SD	SUM
Employees are positive towards their job	38 (29.2%)	75 (57.7%)	7 (5.4%)	4 (3.1%)	6 (4.6%)	130 (100%)
Employees are enthusiastic and confident.	39 (30%)	66 (50.8%)	20 (15.4%)	5 (3.8%)	0 (0)	130 (100%)
Management rewards good performance.	38 (29.2%)	64 (49.2%	19 (14.6%)	7 (5.4%)	2 (1.5%)	130 (100%)
In my bank, employees carry out their task in the most skilful and creative manner	38 (29.2%)	78 (60%)	10 (7.7%)	4 (3.1%)	0 (0)	130 (100%)
Workload is reduced to barest minimum	34 (26.2%)	59(45.4 %)	26 (20%)	11 (8.5%)	0 (0)	130 (100%)

Results here show that employees are content with their work and have increased their productivity as a result of the usage of digital customer support services. Employees in the firm are optimistic about their jobs, eager and confident (80.8%); as a result of a strong incentive and management system in place (89.2%). Hence, personnel do their tasks with the utmost skill and creativity (89.2), as workloads are kept to a minimum.

4.2.8. Responses to Communication Flow/Information Flow

	SA	A	UD	D	SD	SUM
Existing and targeted customers have unrestricted access to our website	58 (44.6%)	51 (39.2%)	14 (10.8%)	4 (3.1%)	3 (2.3%)	130 (100%)
Our customers are able to receive information on our products frequently	57 (43.8%)	62 (47.7%)	11 (8.5%)	0 (0)	0 (0)	130 (100%)
Modern communication gadgets are available to workers in my bank	42 (32.3%)	67 (51.5%)	21 (16.2%)	0 (0)	0 (0)	130 (100%)
Feedbacks are commonly used in my company for improvements	45 (34.6%)	67 (51.5%)	15 (11.5%)	3 (2.3%)	0 (0)	130 (100%)
In my company, there is free and regular flow of information	30 (23.1%)	62 (47.7%)	20 (15.4%)	12 (9.2%)	6 (4.6)	130 (100%)

The above shows responses to the communication and information flow constructs by employees demonstrating that they agree to a large extent that technological devices enable staff to perform their jobs more efficiently, and that feedback is a critical

component of the bank's communication method or procedure, as clients may obtain information and communicate on the move.

4.3. Test of Hypotheses

In this section, the hypotheses formulated for this study were tested using regression analysis. The results reflect values in the Model Summary showing **R,** called the correlation coefficient which describes the correlation or relationship between an independent and a dependent variable. Its values range from -1 to +1 indicating respectively a perfect negative and positive relationship between the independent and dependent variable; **R Square**, also known as the coefficient of determination which explains the differences in the dependent variable accounted for by the independent variable. It ranges from 0 to 1 but typically expressed as a percentage during interpretation. **Adjusted R Square** is used to adjust R Square values by increasing the number of independent variables in your model. Additionally, the ANOVA table contains an **F statistic** for measuring the significance of the independent and dependent variables' associations. The significance level of the independent variable's individual t-test is denoted by the **p-value** and usually at 5% level of significance, where the chosen alpha (α) is 0.05. Thus, if the p-value is at 5% and above, we accept the hypothesis and if otherwise, we reject it.

The interpretations of the Regression analyses used to test the four (4) hypotheses formulated for this study are reported below:

4.3.1. Hypothesis 1

Ho: No correlation exists between mobile banking and UBA's Cyber-security

The regression analysis to test Hypothesis 1 above reveals that R Square = 0.229, with Standard Error of the Estimation =.42179. In addition, the results reveal that F = 38.031 and Sig = 0.000< 0.05. It also has a Beta value of 0.388, a t value of 6.167, and a Sig value of 0.000< 0.05. As 0.000 is less than the stated alpha value of 0.05, we reject the null hypothesis and assert that there is a significant relationship between mobile banking and cyber-security in the United Bank for Africa (UBA).

4.3.2. Hypothesis 2

Ho: The extent of Chatbot Integration is not significant on the reduction of manual error of UBA's virtual banking system.

The Regression analysis result to test Hypothesis 2 presents R Square = 0.015 with Standard Error of the Estimation =.54924. Also, F = 1.956 and Sig = 0.164 are both more than 0.05. Additionally, it has a beta of 0.96 and a t value of 11.015. As the Significance of 0.164 is more than the stated alpha value of 0.05, we accept the null hypothesis and conclude that Chatbot Integration has no discernible effect on the reduction of manual error in UBA's virtual banking system.

4.3.3. Hypothesis 3

Ho: The Digital Customer Support System has no effect on employees' job satisfaction.

The results of the Regression analysis testing Hypothesis 3 reveal that R Square = 0.030, with a Standard Error of the Estimation of.62892. Also, we have F = 3.893 and

Sig = 0.051 which are both greater than 0.05. Additionally, it has a beta of 0.209 and a t of 11.015. As 0.051 is more than the stated alpha of 0.05, we accept the null hypothesis and conclude that the Digital Customer Support System has no influence on employee work satisfaction.

4.3.4. Hypothesis 4

Ho: There is no discernible correlation between robotic process automation and communication flow.

The Regression analysis to test Hypothesis 4 above reveals R Square = 0.120 and Standard Error of the Estimation =.50924. The results also shows that F = 17.473, Sig = 0.000 < 0.05, and Sig = 0.000 <0.05. In addition, it has a Beta value of 0.347, a t value of 4.180, and a Sig. value of 0.000 < 0.05. As 0.000 is less than the stated alpha value of 0.05, we reject the null hypothesis and conclude that there is a statistically significant relationship between robotic process automation and communication flow.

4.4. Discussion of Findings

A regression analysis of mobile banking and cyber-security revealed a statistically significant positive correlation between the two. The bank claims that its mobile banking services are convenient and user-friendly, as well as confidential and secure in their handling of customer information. Additionally, the bank has taken precautions to ensure that biometric authentication is successful and requires consumers to produce a validation code when connecting to their mobile banking platform. Additionally, the bank protects its customers' biometric and financial information with encryption. This is consistent with Kröger's (2008)'s findings that cybersecurity breaches, contribute to the operational risks encountered by banks and financial institutions in the virtual world. This is because cyber infrastructure weaknesses enable hackers to compromise the banking network and cause operational disruptions. Mobile banking is closely related to cyber security, as cyber technology continues to alter the conventional perception about bank operational risks in a technology-driven economy.

A simple regression analysis of chatbot integration and manual error reduction revealed a statistically negligible negative correlation between the variables. When the variables for chatbot integration and manual error reduction are matched to the variables for other factors using multiple linear regression, a positive linear connection between the variables is observed. This corroborates Kucherbaev, Daniel, Tranquillini and Marchese's findings (2015) which stated that because chatbots have some elements of human involvement, its integration will not always result in a reduction in manual errors. They emphasized that such faults can be addressed by employees infusing them with their intellect. A chatbot that is mediated by a person utilizes at least one component of human computation, and this is not without error.

Furthermore, the link between Digital Customer Support System and work satisfaction reveals a statistically insignificant and negative link between the two variables in this research. When the Digital Customer Support System and employee work satisfaction are compared to other features by multiple linear regression, a positive linear relationship between the variables is observed. This is consistent with Raja, Pahat, and

Ta'zim's (2013) findings that the context of the Digital Customer Support System (online banking) has little direct effect on customer service delivery, but rather on behavioral factors such as cost, convenience, and security. This demonstrates that clients value and are satisfied with online banking when bank fees are reasonable or low, the service is simple to use, and financial transactions are secure. On the long run, once clients consider online banking services satisfactory, it automatically results in employee work satisfaction, as staff are recruited to serve customers, and customer discontent results in employee job dissatisfaction.

In conclusion, the regression analysis demonstrates that robotic process automation and communication flow have a statistically significant beneficial association. Customers and prospective customers have unrestricted access to company information as a result of automation; customers receive frequent information about their products; employees have access to modern communication gadgets and are trained on how to use them; feedback is frequently used to improve UBA; and the bank saves money and time as a result of the use of automated processes. It is sensible for organizations to continue embracing artificial intelligence since it enables workers to overcome workplace barriers, rigors, and stress, hence enhancing communication flow, employee contentment, and productivity. According to the research, this would result in enhanced employee efficiency and job satisfaction. This is in line with NAFCON's conclusions (2021) which states that robotic process automation (RPA) is a critical tool for businesses, as it enables operations to be simplified. RPA detects where time is spent in corporate processes executing repetitive operations, moving data between application systems, or utilizing communication channels to seek out expertise or information required for specific tasks or creative activities. Additionally, they stated that robotic automation assists Management and Employees in communicating more effectively in the Workplace, as AI can forecast presentation success rates and the types of engagement that are most appropriate for the target audience based on a variety of data.

5.0. Summary of findings, conclusion and recommendations

This section reports the summary of findings, draws conclusions based on them and makes some recommendations

5.1. Summary of Findings

The data indicated that incorporating artificial intelligence benefited the bank's performance. This is because the overwhelming majority of respondents agreed with the questionnaire's constructs on cybersecurity, integrated chatbots, manual error reduction, digital customer support systems, employee job satisfaction, and the impact of robotic process automation on communication flow on firm performance. Mobile banking, chatbots, a digital customer support system, and robotic process automation have all been identified as major determinants of corporate performance.

The following summarizes the study's major results.

i. Mobile banking is closely related to UBA's cybersecurity. Thus, artificial intelligence should indeed be integrated into firms' operations to boost performance.
ii. The integration of chatbots into UBA's virtual banking system had no apparent effect on the reduction of manual errors, rather, increasing chatbot integration resulted in a decrease in error reduction in a simple regression scenario.
iii. The Digital Customer Support System has no effect on employee work satisfaction, rather the appropriate and thorough deployment of artificial intelligence increased customer happiness and may stimulate repeated patronage and customer retention which may ultimately boost employee satisfaction.
iv. Automation of robotic processes and continuous embrace of AI has a substantial impact on communication flow, enabling workers to overcome workplace barriers, rigors, and stress, hence enhancing communication flow, employee contentment, and productivity.

5.2. Conclusion

In conclusion, mobile banking has a considerable impact on company performance. As the regression coefficient indicates, chatbots have an unfavorable relationship with company performance. As seen by the regression coefficient, enhancing the effectiveness of mobile banking through introduction of Robotic Process Automation (AI), has a significant impact on business performance. On the other hand, the negative correlation shown in the regression analysis between the Digital Customer Support System and the bank’s performance depicts that its adoption may not have any effect on performance.

5.3. Recommendations

In light of the research findings, the following recommendations are made:

i. Artificial intelligence should be integrated into organizations' operations to improve performance and aid in the attainment of corporate objectives, particularly non-financial ones.
ii. Appropriate and comprehensive deployment of artificial intelligence to assist in enhancing customer happiness is critical, as it will encourage continuous patronage, nurture repeat patronage, and even function as a strategy for client retention, based.
iii. Businesses need to utilize artificial intelligence to assist individuals in overcoming obstacles, rigours, and stress in the workplace, hence increasing employee happiness and productivity. This, the research indicates, would result in increased staff efficiency and work satisfaction.
iv. Application and usage of artificial intelligence should be taught as a business course to raise knowledge of the complexity and technicalities involved in its use, adoption, and application, as well as to promote enhanced corporate performance.
v. Research should be performed to discover the extent to which artificial intelligence can be continuously adapted to the ever-changing and dynamic

business environment, with the goal of expanding the functioning of artificial intelligence in the business sector.

vi. Enterprises should approach AI deliberately and purposefully in order to reap the benefits of its deployment inside their own operations.

5.4. Suggestions for Further Studies

i. This study focused on the financial industry using a money deposit bank in Lagos, Nigeria. It could be replicated in a non-financial industry and in other locations outside Lagos, in Nigeria.

ii. Extending the research to include an examination of artificial intelligence's impact on business, with a particular emphasis on non-monetary goals.

iii. Extending the research to non-profit organizations

iv. Examining the problem of "artificial intelligence" in greater detail by examining the various branches of artificial intelligence and its application to business operations.

5.5. Limitations

It is normal for every study no matter how good to have some limitations. These limitations however aid in suggestions for further studies. The limitation of this work is that data was gathered from a single financial institution in Lagos. The probability of the findings being different had data been gathered from more banks cannot be ruled out. Although only eight factors were examined, four of which were dependent and the other four independent, other predictors such as the influence of cyber-threats on artificial intelligence, and organizational performance enhancement can be examined in the future.

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