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The Impact of Electronic Banking on the Operations and Performance of Deposit Money Banks in Nigeria

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Abstract

This study examined how electronic banking has impacted on the operations and performance of deposit money banks in Nigeria using a case study of FBN, UBA and GTB. In pursuance of this objective, primary data were obtained by administering questionnaires to staffs of these three purposively selected banks. The Pearson correlation was used to analysed the results obtained using the Statistical Package for Social Sciences (SPSS) and it was observed that the role of E-banking to banks operations and performance cannot be underestimated, that the viability of E-banking presents a significant prospect and opportunities to the banking operations and that the nature of E-banking is secured-enough to ensure adequate patronage by customers. It was therefore concluded that Electronic banking is viable and plays a significant role in the operations and performance of deposit money bank in Nigeria, coupled with the fact that Electronic banking is secured-enough to ensure adequate patronage for good operations and performance in the financial service industry in Nigeria.

Keywords*: Electronic banking, Deposit Money Banks, Operational Efficiency, Pearson correlation*

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Background to the Study

In Nigeria, the fast increase in technological improvement, coupled with the growing acceptance of digital lifestyle and the world becoming increasingly addicted to e-business, the trend of cash transactions is now giving way to electronic payment system. Today's business environment is extremely dynamic and experience rapid changes as a result of technological development, increased awareness and demands that banks serve their customers electronically. Deposit Money Banks (Banks) have traditionally been in the forefront of harnessing technology to improve their products and services. The banking industry of the 21st century operates in a complex and competitive environment characterized by these changing conditions and highly unpredictable economic climate. Information and Communication Technology (ICT) is at the forefront and the centre of this global change curve of electronic banking system in Nigeria today. Electronic banking is the use of electronic and telecommunication networks to deliver a wide range of value added products and services to bank customers (Steven, 2002). The use of information technology in banking operations is called electronic banking.

The payment industry in Nigeria has over the years been transformed with the new wave of IT advancements. Currently, the use of cash has been replaced by digital cash and digital wallets. It can be rightly said that this is the fourth stage of evolution after barter, currency, paper money (Cheques) and now digital cash. From the reports of the CBN, Nigerian banks have exponentially embraced the use of ICT in the provision of banking services which has enhanced the application of e-payments.

The quest for Banks in Nigeria to have an efficient customer service delivery and also maintain global relevance in the system has led to the exploitation of the many advantages of ICT through the use of automated devices imperative in the industry. Many studies have also been conducted to establish the relevance of ICT to the operations and performance of Deposit Money Banks (DMBs).

Another motivation for the numerous studies on e-banking is customer satisfaction. Customer satisfaction holds the potential for increasing an organization's customer base, increase the use of more volatile customer mix and increase the firm's reputation. Consequently, obtaining a competitive advantage is secured through intelligent identification and satisfaction of customers' needs better and sooner than competitions and sustenance of customer's satisfaction through better products/services; a satisfied customer will definitely continue his patronage but unsatisfied customer will likely withdraw his patronage. There is therefore, the need to provide evidence on the extent to which ICT operations have impacted on customer service delivery in DMBs in Nigeria.

The CBN, has in recent times, engaged in series of reformations aimed at both making the Nigerian financial system formidable and also enhancing the overall economic performance of Nigeria, so as to place it on the right path in tune with global trends. One of the major reforms is the Cashless Policy; the cashless policy aimed at regulating cash-based transactions stipulates a 'cash handling charge' on daily cash withdrawals or cash

deposits that exceed N500,000.00 (Five Hundred Thousand Naira) for Individuals and N3,000,000.00 (Three Million Naira) for Corporate bodies. The policy aims at reducing not eliminating the amount of physical cash circulating in the economy, and encouraging more electronic-based transactions in Nigeria (Aduda and Kingoo, 2012).

Agboola, 2003 observes that as good as the cashless policy may be made to look; the system will come at some costs. As noted above, the use of Point-of-Sale (POS) terminals in the cashless system will attract special charges that do not go with cash transactions. A price tag of 1.25% of the cost of every transaction done through POS terminals will be charged by the operators of the terminals (Chibueze, Maxwell and Osondu, 2013). This may be considered over-burdensome on the banking public given that this will not obviate nor lessen the normal commission on turnover charged by banks on withdrawals. Apart from being an additional charge on bank customers, the charges appear to be too high. Normal bank commission on turnover is N5.00 for every N1000.00 representing 0.05% of the amount of such transactions, compared to the CBN approved charges of 1.25% which would implyN12.50 for every N1000.00.in light of the foregoing, there is need therefore to ascertain the relationship between e-banking and operations and performance of DMBs in Nigeria.

The world has witnessed an upsurge of electronic payment instruments meant to facilitate trade and simplify payments, before the introduction of e-payments into the Nigerian banking system; customers had to walk into the banking hall to do transactions of all kind. They had to queue up and spend more hours to talk to a teller to make their transactions. Inconveniences caused by these long queues discourage most customers who sometimes renegade from the queues in annoyance. For many years, bankers, IT experts, entrepreneurs and others have advocated for the replacement of physical cash and the introduction of more flexible, efficient and cost effective retail payment solutions (Siyanbola, 2013). Electronic banking has experienced explosive growth and has transformed traditional practices in banking (Gonzalez, 2008).

The significance of the study entails the gap in literature that this study intends to cover. Although, some studies had been conducted on the subject matter for Nigeria. See Hussein and Elyjoy, 2018; Taiwo and Agwu, 2017; Ahmadu, 2014; among others. This study therefore is set to examine the impact of electronic banking on the operations and performance of Deposit Money Banks in Nigeria. The current study, though adopting the same Pearson correlation technique is unique from previous studies because it makes use of a different case study of some selected Deposit Money Banks in Nigeria, that is, First Bank Nigeria Plc (FBN), United Bank of Africa Plc (UBA) and Guarantee Trust Bank Plc (GTB) which represents the three generation of Deposit Money Banks in Nigeria. Secondly, the Federal Capital Territory (FCT) will be used as sample to represent the whole country in assessing the impact of electronic banking on the operations and performance of Deposit Money Banks in Nigeria. The study also covers a unique period 1989 (inception of E-banking in Nigeria) to 2019, which is expected to provide further insights on the subject matter. In addition, findings of the study would contribute to the existing literature on the subject matter for Nigeria. This paper is structured along

different sections. This section is the introduction. Section two reviews literature related to the study, section three presents the methodology of the study, while section four presentations of data, analysis and interpretation and section five concludes the paper.

Literature Review and Theoretical Framework

Conceptual Review

The concept of electronic banking and its development could be viewed and explained in different ways. It is in recognition of this, that this section is devoted to explicitly conceptualize it, as used in this study. In what follows, the concept is conceptualized.

Development of Electronic Banking

Electronic banking is not one technology, but an attempt to merge several different technologies, but each evolving in different ways (Onodugo, 2015). The first applications of the computer age within banks are the use of mainframes and mini computers. These were used to process data such as customer accounts, bank inventories, personnel records, and accounting packages. At that period, technology was used as a support tool for banking operations, and the idea of direct customer services was less clear. Technology was then used to assist staff in doing their work faster, more conveniently, and with less human errors.

According to Kondabagil (2007), the first visible face of electronic banking, Automated Teller Machine (ATM), came into commercial use in 1968. The ATM, later evolved from being a mere currency dispenser into a multifunctional device that enables customers to conduct a whole range of transactions from account management, fund transfer, to bill payments.

In the latter half of the 1990s, but with the development of the Internet and the World Wide Web (WWW), customers could bank from the comfort of their homes (Salehi and Alipour, 2010) and since then, as affirmed in Offei and Nuamah-Gyambrah (2016), the banking industry has been undergoing changes, in form of innovative use of information technology and development in electronic commerce. For this reason, the emergence of e-banking can be said to be one of the advantages of e-commerce in relation to the needs of business to conduct easy, quick and precise banking operations (Hoseini and Dangoliani, 2015).

With the e-banking system, settlement of transactions either at the national or international level is speed up; thereby bridging the gap between the customer and the bank. Most of the services are being offered through several distribution e-channels with activities ranging from balance inquiry, cash withdrawals, bill payments, funds transfer, electronic payment, and loan applications, among others (Agwu and Carter, 2014).

Nevertheless, e-banking system can broadly be classified into the Mobile/telephone banking, Internet banking and Smart card banking. Hossain, et al (2013); Okechi and Kepeghom (2013) explain these three classes as follows:

i. **Mobile/Telephone Banking**: "Mobile banking is an innovation that has progressively rendered itself in pervasive ways cutting across several financial institutions and other sectors of the economy" and with this facility any person having a mobile number is able to use his/her number as a bank account. This service uses an automated phone answering system with instructions passing via voice or short messages service (SMS) to the remote computer. The computer decrypts the message and executes the instructions through a highly coded device, and then the response is given back to the customer. SMS services are operated using both the push messages (wherein banks chooses to send information to a customer's mobile phone without the customer initiating a request for the information) and pull messages (in this case, the customer initiates the request). Customers are privileged with services like funds transfer, utility bill payment, air time top-up, balance inquiry, etc. However, it has been reported that, though offered by banks in Nigeria, this service has not really gained recognition among the banking public and is still a far cry from what is expected in terms of its usage.

ii. **Internet Banking:** Though facilitates other transactions, e-commerce is one area greatly facilitated by this service. Internet banking allows customers of a financial institution to conduct financial transactions on a secure website operated by the institution, which can be a retail or virtual bank, credit union or building society. To access the online banking facility, customers have to register with the institution for the service, and set up some password (under various names) for customer verification. Though, some banks do experience high patronage of this service, reports by banks' staff shows that the general patronage of this service is somewhat between low and medium.

iii. **Smart Card Banking:** This is the conduct of banking transactions through the use of electronic cards (value card, verve card, naira credit card, visa card, master card etc). The smart card system makes it easy for bank customers to have access to cash, carry out transfers and make enquiries about their accounts without visiting the banking hall. The Verve card is the first chip card accepted on all available payment channels in Nigeria; allowing holders to conveniently pay for goods and services on all ATMs, Point of Sale(POS) machines, Web, etc connected to the InterSwitch network. The chip technology guarantees that information stored is not accessible to unauthorized persons. The ATM still remains the most widely used form of e-banking service because of its convenience, ease of use, time saving ability and fitting to customers' transaction needs.

Theoretical Review

This section provides an overview of the adoption of information system, the factors determining customers' acceptance of e-banking and its products and it also introduces the concept of customer loyalty. All the adoption models like the Technology Acceptance Model (TAM), Theory of Planned Behaviour (TPB) and the Theory of Reasoned Action

(TRA) were developed for studying technology adoption in developed countries; however, technology adoption in developed countries might be different from those of developing countries as the challenges are different in various contexts (Molla and Licker, 2005).

Technology Acceptance Theory

Davis, Bagozzi, and Warshaw (1989) propose the Technology Acceptance Theory (TAT) to explain the conceptual model that users' intention or acceptance degree towards information system or new technology. TAT is constructed on the foundations of perceived usefulness and perceived ease of use. Perceived usefulness refers to individual belief to improve the degree of job performance through using a particular new technology and information system. Perceived ease of use indicates how easy an individual learns how to operate or use new technology or information system (Davis et al.,1989; Gefen et al., 2003). The model places more emphasis on how perceived ease of use would positively affect perceived usefulness. Exogenous variables such as environment are also the antecedent that induces perceived usefulness and perceived ease of use. Thus, TAT is based on both important perceptive factors as perceived usefulness and perceived ease of use.TAT is widely applied on the research of information technology.

Liu and Arnett (2000), examined the significant variables to build a successful website based on TAT theory. Gefen et al. (2003) combined TAT and rust to propose an integrated model for explaining online consumer behavior. Pavlou (2003), proposes an e-commerce acceptance model of online consumers by separating and applying experiment designs and survey.

The study integrates TAT factors, the experiences of the public, perceived risk and faith. The empirical results show that the principle of e-government is that people fully trust the governmental organization and that they highly identify with information technology. As a result of the empirical study, scholars find that TAT does not only apply to examine new information technology accept intention or behavior, but also ensures that TAT is suitable for the explanation of online user behavior issues (Liu and Arnett, 2000; Gefen et al., 2003; Pavlou, 2003; Horst et al., 2007).

Theory of Planned Behavior

Early studies mainly focus on theory of reason action (TRA) as identified by (Fishbein and Ajzen, 1975). TRA is based on the fundamental variables of attitude and subjective norm. The two variables are seen to have a positive effect on individuals' behavioral intentions, which positively induce individuals' actual action. Attitude is an individual's positive or negative evaluation of self-performance of a particular behavior. The concept is the degree to which performance of the behavior is positively or negatively valued. Subjective norm is an individual's perception about particular behavior, which is influenced by the judgment of significant others (e.g., parents, spouse, friends, teachers etc). Behavioral intention is an indication of an individual's readiness to perform a given behavior and it is assumed to be immediate antecedent of behavior. However, the basic

hypothesis of TRA states that the occurrence of behavior is based on volitional control of one's willpower (Fishbein and Ajzen, 1975). Thus, the behavior occurs mostly from one's willingness. Thus, Ajzen (1985), modifies TRA and further proposes the Theory of Planned Behavior (TPB). Ajzen (1985), proposes TPB to explain and predict human behavior patterns. TPB extends the theoretical framework of TRA and adds perceived behavioral control to account for individuals' uncontrollable factors.

TPB is founded on the three factors such as perceived behavioral control, attitude, and subjective norms. Hence, behavioral intention is influenced by perceived behavioral control, attitude, and subjective norms. Actual behavior is, in turn, determined by behavioral intention. Among all, perceived behavioral control refers to individual's perceived ease or difficulty of performing the particular behaviors. In recent years, the use of internet has been widespread and has been more diversified.

Studies on TPB applying on electronic commerce have increased. Tan and Teo (2000) integrate TPB and diffusion of innovation theory to investigate the factors that affect people's intention towards using internet. Empirical results show that attitude and perceived behavior control would positively affect people's intention to use internet banking. In the subsequent studies, Huang et al. (2006) find that TPB indeed can explain the people's behavioral intention of on-line tax filing. Hsu et al., (2006) review users' continual behavior towards internet shopping by longitudinal investigation, which not only employ TPB factors (attitude, subject norms and perceived behavior control), but also integrate expectation disconfirmation theory to construct the research model. The empirical results show that subjective norms, attitude, and perceived behavior control are the major factors affecting consumers' continuous intention of internet shopping. In addition, equity concept which is respected by accounting scholars (Jackson and Milliron, 1986; Moser et al., 1995; Efebera et al., 2004) is also omitted in the pre-factors. To sum up, the empirical results of the above mentioned literature prove that TPB could be applied to explain the behavioral process of human beings engaged in or accepted information technology.

The Theory of Reasoned Action

The Theory of Reasoned Action (TRA) which was formulated in 1975 by Fishbein and Ajzen has been used extensively in marketing research. TRA has been applied to explain the behaviour beyond the acceptance of technology and includes four general concepts: behavioural attitudes, subjective norms, intention to use and actual use. It argues that individuals evaluate the consequences of a particular behaviour and create intentions to act that are consistent with their evaluations. More specifically, TRA states that individuals' behaviour can be predicted from their intentions, which can be predicted from their attitudes and subjective norms. Following the chain of prediction, further back, attitudes can be predicted from an individual's beliefs about the consequences of the behaviour. Subjective norms can be predicted by knowing how significant other individuals think the behavior should or should not be done. A particularly helpful aspect of TRA from a technological perspective is its assertion that any other factors that influence behaviour do so only indirectly by influencing attitudes and subjective norms.

Such variables would include, amongst other things, the system design characteristics, user characteristics (including cognitive styles and other personality variables) and task characteristics. Hence, TRA is quite appropriate in the context of predicting the behaviour of using multimedia technology. Although TRA, is a very general theory and as such does not specify what specific beliefs would be pertinent in particular situations. Nevertheless, the inclusion of subjective norm represents an important variable, which is not even included in more popular models.

Empirical Review

This section reviews relevant related empirical studies. Many foreign studies as well as studies specific to Nigeria have been carried out on the subject matter. Akyuz, M. and Opusunju (2019) examined the effect of internet banking on non-financial performance of First bank Nigeria Plc, Abuja. The study used survey research design and employed the use of structured questionnaire administered to the employees of 41 branches of First Bank Plc, Abuja. A population of 2231 employees was targeted and a sample size of 337 was derived using Taro Yamane formula. Point in time data was collected from primary source and Ordinary Least Square was adopted in analysing the data. Findings reveal that internet banking proxies such as cheap internet costs, 24 hours internet services and ICT competence of customers contributed significantly to the performance of First Bank Nigeria plc Abuja. Therefore, the study concludes that the effect of internet banking on the performance First Bank Nigeria Plc, Abuja is significant.

Rabiu, Ladan, Usman, and Garba (2019), examined the impact of E-banking on the operational efficiency of Banks in Nigeria, a case of Diamond Bank Plc, Bauchi branch, Nigeria. The research used primary sources of data collection. They distributed 138 questionnaires among customers of the Bank and the data collected where using regression analysis analysed. Findings reveals that the use of E-banking (Internet and Mobile banking) by the banks has improved the efficiency of these Banks, in terms of providing efficient services to customers electronically, reduces time taken to serve customers, allows new customers to open an account online, customers have easy access to their account at all the time 24/7. Furthermore, E-banking provides access to customer's information from the data base and cost of cheque and postage was eliminated using E- banking.

Enoruwa, Ezuem, and Nwani, (2019), examined the relationship between electronic banking and bank performance in Nigeria adopting data sourced from the Central Bank of Nigeria (CBN) bulletin for the period 2009 to 2017. Regression Analysis was used to test the strength and nature of relationship between the dependent and independent variable. The performance of the Nigerian banking sector was proxied by Total Bank Deposit while transaction values of Automated Teller Machine (ATM Debit Cards), Mobile Banking, Point of Sales (POS) and Web Pay was used as proxy for electronic banking. This study became necessary considering the increasing popularity of e-channel products in Nigerian banks and world over. The correlation results show that electronic channel products (ATM, POS, Web pay, Mobile Pay) are positively and significantly related to bank performance. The regression results also showed that all the predictors are highly correlated to each other.

Hussein and Elyjoy (2018), Examined the effect of internet banking on operational performance of commercial Banks in Nakuru County, Kenya. Primary data was analyzed using correlation and regression analysis. The study established that internet banking has a positive and significant effect on the operational performance of the commercial banks.

Taiwo and Agwu (2017), Investigated the roles e-banking adoption has played in the performance of organizations using a case study of commercial banks in Nigeria. The Pearson correlation was used to analyse the results obtained using Statistical Package for Social Sciences SPSS. It was concluded that the introduction of new channels into their e-banking operations drastically increased the bank performances, since the more active the customers are with their electronic transactions the more profitable it is for the banks.

Amu and Nwezeaku (2016), Studied the relationship between electronic banking and the performance of Nigerian commercial banks. Engle-Granger cointegration model was used to analyze data for the sample period January, 2009 to December, 2013. The study shows that POS is not cointegrated with both the savings and time deposits but are cointegrated with demand deposits.

Babatunde and Salawudeen (2017), Examined the impact of e-banking in Nigerian banking industry and financial institutions. The study employs both descriptive and inferential statistics to analyze data. Findings show that 22 credit officers or 63.9% of the respondents agreed with the opinion that e-banking system has made banking transactions easier, 11 credit officers representing 31.45% strongly agreed while 2 credit officers representing 5.7% were undecided and none of them either disagreed or strongly disagreed.

Hannington (2013), Examined the effect of e-banking on the financial performance of commercial banks in Kenya. The study makes use of descriptive and inferential statistics to analyze the secondary data used. The study finds out that e-banking has a strong and significant effect on the profitability of commercial banks in the Kenyan banking industry.

Kariuki (2012), in his research on the effect of product development on the Financial performance of commercial banks in Kenya concluded that new product development impacted positively on financial performance of banks in Kenya, however the same was not statistically significant. Yegon (2012) in his study on the impact of ICT investments on organizational performance at the Kenya Commercial Bank group limited concluded that the relationship was not very strong.

Cheruiyot (2010), in his study titled, "Impact of internet banking on Financial Performance of Commercial Banks in Kenya", found that internet banks are larger banks and have better operating efficiency ratios and profitability as compared to non-internet banks. Internet banks rely more heavily on core deposits for funding than non-internet

banks do. However, the multiple regression results reveal that profitability and offering internet banking does have a small significant association (less than 5%), larger significant and negative association with risk profile of the banks (more than 10%) meaning that internet based banks become better off from risks such as non-performing loans. However, the advantage expected of internet banking is yet to show some significant positive financial gains but begs for future investigation beyond financial measures used in the study as technology continues to penetrate the market. Mabrouk and Mamoghli (2010) in their study on Dynamics of Financial Innovation and Performance of Banking Firms: Context of an Emerging Banking Industry, analyzed the effect of the adoption of two types of financial innovations namely; product innovation (telephone banking and SMS banking and so on) and process innovation (Magnetic strip card (debit, ATM and credit card), Automatic cash dispenser; (Automatic teller machine; Electronic payment terminal and so on) on the performance of banks. Their analysis included two adoption behaviours, first mover in adoption of the financial innovation and imitator of the first movers. They found out that first mover initiative in product innovation improves profitability while process initiative has a positive effect on profitability and efficiency. Banks that imitate are less profitable and less efficient than first movers.

According to Agwu and Murray (2014), this optimal integration of all the activities of a bank through the deployment of modern information technology is based on bank process and in accordance with the organizational structure of banks. Therefore, electronic banking employs the use of information communication technology to drive banking business for immediate and future goals, hence for the banks, it is a strategic weapon used in achieving competitive advantage and increasing their market share (Agwu and Murray, 2015);Agwu and Carter,(2014) revealed the existence of a very modest move away from cash payments to electronic payments. According to the authors, over fifty per cent of transactions are now being handled through electronic channels; representing a massive shift. Investment in e-banking by these banks is largely motivated by the prospects of minimizing operating costs and maximizing operating revenue.

Ewubare and Tuaneh (2016), reveal that e-banking has impacted greatly on the financial efficiency of the Nigerian economy. However, they made use of quarterly time series data of 2008-2011. This significant relationship existing between the practice of e-banking and operational efficiency of Nigerian banks was also found in Ekwueme et al. (2012). Empirically assessing the operational efficiency of electronic banking in Nigeria, they also found the practice of e-banking significantly increasing operational efficiency of Nigerian banks, even with the existence of some security-related issues. In the same vein but from bank growth perspective, Abubakar (2014) discovered the existence of a significant relationship between mobile banking and total deposits, as well as internet banking and total asset of deposit money banks in Nigeria. However, in the other way round, no significant relationship was found for each.

According to Khrawish and Al-Sa'di (2011) e-banking services do attract high profitability for banks, as the absolute unit cost is lower than that of the fee collected from clients, but in Hossain et al. (2013), management are of the view that the cost of operating and maintaining e-banking facilities is quite high, while customers on the other hand believe the service charges are quite expensive. Nevertheless, studies (Khrawish and Al-Sa'di, 2011; Abaenewe et al., 2013; John and Rotimi, 2014; Hoseini and Dangoliani, 2015), have shown the existence of a significant relationship between the quality of electronic banking services provided and customer satisfaction, as well as e-banking adoption and profitability. Furthermore, electronic banking was found in Ekwueme et al. (2012) to have immensely enhanced the keeping money administrations of banks to their clients, though the study was confined to only six banks, operating in Lagos State, Nigeria. Examining the e-banking services offered by some selected commercial banks in Bangladesh, Hossain et al. (2015) discovered that these banks' adoption of online banking does increase their customer diversity and also improve the quality of their clients. Electronic banking was concluded to have a positive impact on socio-economic development. Khrawish and Al-Sa'di (2011), on the other hand, tested the impact of e-banking on the profitability of bank in Jordan for a period of 2000 -2009. They saw the effect of e-banking services on the profitability (measured with Return on Asset-ROA and Return on Equity- ROE) of banks in Jordan to be 'not significant'. Similarly, investigating the profitability performance of Nigerian banks following the full adoption of electronic banking system, Abaenewe et al. (2013) found out that the adoption of electronic banking has improved returns on the equity of Nigeria banks significantly but no positive improvement was established in relation to their returns on assets. However, having an understanding of the risks associated with e-banking services and evaluating the resulting risk management costs against the potential return on investment prior to offering e-banking services should be the concern of any financial institution's board and management (Kujur and Shah, 2015).

Theoretical Framework

This study adopts the Technology Acceptance Model (TAM). The Technology Acceptance Model (TAM) was introduced by Fred Davis in 1986 for his doctorate degree proposal as shown in figure 1 below. An adaptation of Theory of Reasonable Action, TAM is specifically tailored for modeling users' acceptance of information systems or technologies.

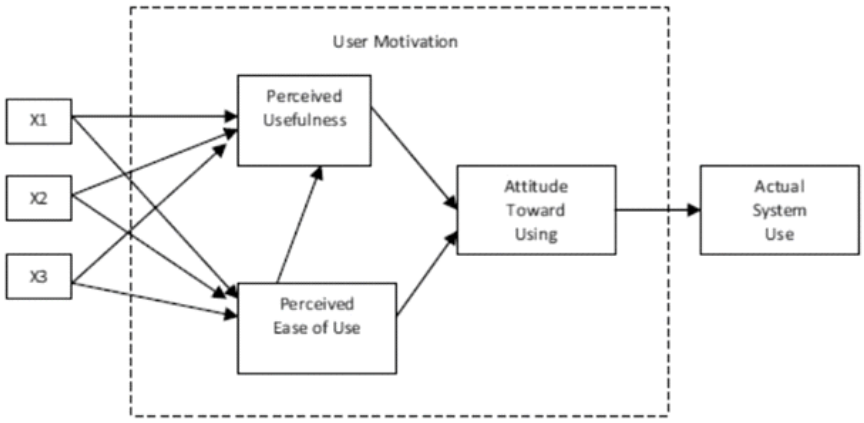

Figure 1: Original Technology Acceptance Model (Davis 1986)

In 1989, Davis used TAM to explain computer usage behaviour as shown in Figure 2. The goal of Davis's (1989) TAM is to explain the general determinants of computer acceptance that lead to explaining users' behaviour across a broad range of end-user computing technologies and user populations. The basic TAM model included and tested two specific beliefs: Perceived Usefulness (PU) and Perceived Ease of Use (PEU).

Perceived Usefulness is defined as the potential user's subjective likelihood that the use of a certain system (example single platform E-payment System) will improve his/her action and Perceived Ease of Use refers to the degree to which the potential user expects the target system to be effortless (Davis 1989). The belief of the person towards a system may be influenced by other factors referred to as external variables in TAM.

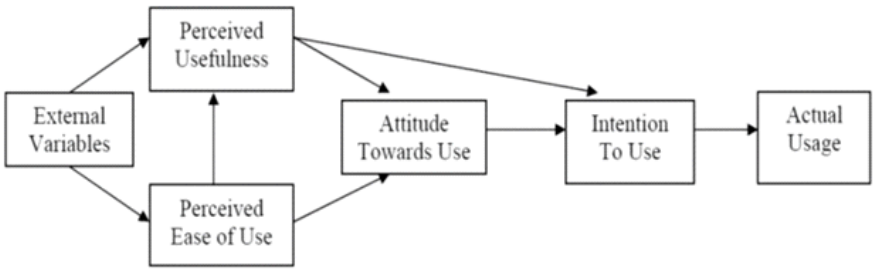

Figure 2: First modified version of Technology Acceptance Model (TAM) (Davis, Bogozzi and Warshaw, 1989)

The final version of Technology Acceptance Model was formed by Venkatesh and Davis 1996 as shown in figure 3 below, after the main finding of both perceived usefulness and perceived ease of use were found to have a direct influence on behaviour intention, thus eliminating the need for the attitude construct.

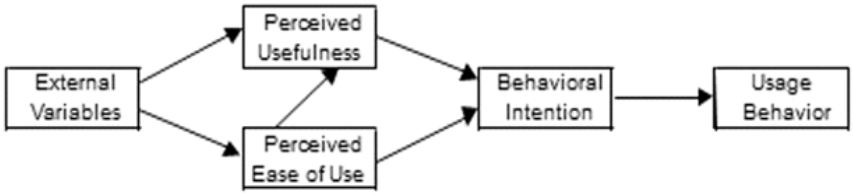

Figure 3: Final version of Technology Acceptance Model (TAM) (Venkatesh and Davis 1996).

Research Methodology

Methodology

The study utilizes Statistical Package for Social Sciences (SPSS) and the correlation analysis was exercised in order to test the hypothetical questions of the study. The Pearson correlation method was used to test the relationship between electronic banking adoption and the operations and performance of Deposit Money Banks in Nigeria. The choice of the Pearson technique is because the data is normally distributed (continuous) and the Pearson technique is the most suitable for normal distribution (continuous) data than other measures of correlation. Analysis of response from respondents was also presented in the appendix.

Research Design

This study was designed to ascertain bank's staff perceptions on the role of electronic banking on the operation and performance of Deposit Money Banks in Nigeria. As a result, the survey design was employed to evaluate the effectiveness of the following e-banking channels- internet banking, smartcard banking and mobile/telephone banking in the operations and performance of deposit money banks in Nigeria. There are currently 22 deposit money banks in Nigeria with different branches spread across the 36 states of the federation and the Federal Capital Territory (FCT), but only three of these DMB comprising First Bank Nigeria Plc. (FBN), United Bank of Africa Plc. (UBA) and Guarantee Trust Bank Plc. GTB were purposely selected. However, their branches in the FCT were used for this study due to their proximity and for a clear and precise study. Primary data were collected with the aid of questionnaires which was administered personally to staffs of these branches, who are the key developers, administrators and users of this service. A total of 108 questionnaires were administered using the simple random sampling technique to 36 respondents each from the three selected branches of the DMBs across the six (6) Area Councils of the FCT; implying that six (6) questionnaires were administered at each of the selected banks in each of the Area Councils.

A'priori Expectations

In line with economic theory, it is expected that electronic banking will have positive impact (relationship) in the operations and performance of Deposit Money Banks in Nigeria.

Instrument Validity and Reliability

The instrument validity was ascertained using a number of ways, which include discussing the questionnaire with colleagues and masters in this field and then pre-

testing the instrument in a pilot study after which the content validity was measured. Comments were received on the acceptability of the instrument vis-à-vis its length and ethical considerations. These comments as well as all other necessary adjustments were later taking into consideration in designing the final questionnaire that was used to generate data for the study. The reliability of the instrument was established by using the test-retest method. This was done by administering the same instrument to another set of respondents.

Data Presentation, Analysis and Discussion of Results
Data Presentation
To examine the impact of electronic banking on the operations and performance of deposit money banks in Nigeria, the hypothetical questions of the study, was tested using primary data generated through the use of questionnaire. The data are as presented in the appendix.

Data Analysis
To examine the effect of electronic banking on the operations and performance of deposit money banks in Nigeria, a total of 108 questionnaires prepared to be administered to six staffs of the selected three banks, in the six Area Councils that make up the FCT, but it was discovered that UBA and GTB were not located in Kuje, Abaji and Kwali Area Councils, while First bank was only not located at Kwali Area Council. Hence, only 66 (representing 61.1 percent response rate) were properly completed and returned. Out of these 66 respondents, majority were male (68.2 percent were male while 31.8 percent were female), and 36.4 percent have been working in the bank for less than 3 years, 34.8 percent for 4 to 6 years, 21.2 percent for 7 to 9 years, and 7.6 percent have been working for over 9 years. Similarly, only 12.1 percent hold OND and equivalent qualification, 51.5 percent holds B.Sc and equivalent qualification, 22.7 percent holds M.Sc and equivalent qualifications, 3 percent holds valid ACCA qualification, also, 4.5 percent holds ICAN qualification and 6.1 percent holds CIBN qualifications.

All the bank staffs agree to understanding what e-banking channels are; suggesting that most of the respondents did provide relevant information. In the same vein, all respondents were in agreement with their customers making use of more than one e-banking channel but 66.6 percent agreed to their customers having an understanding of e-banking channels, 21.2 percent were undecided, 9.1 percent disagreed while 3 percent strongly disagreed. Nevertheless, 63.7 percent of the banks' staffs did prefer the use of e-banking services to the traditional one while 25.8 percent preferred vice versa, 10.6 percent were undecided.. However, 93.9 percent agreed to e-banking having more of its overall performance on the bank than traditional banking but 6.1 percent of the respondents could not point out a clear distinction between both approaches overall performance. (*see appendix)*

Discussion of Results
The Role of Electronic Banking on Banks' Operations and Performance in Nigeria
In addressing the role of electronic banking on banks' operation and performance in Nigeria as stated in the specific objective one of the study, all the bank's staff admitted that

the role of E-banking on their bank's operation cannot be underestimated, likewise, all respondents agree to e-banking channel services having improved their bank's operation and performance than the traditional ones. As regard the operations and performance of their banks have significantly improved in recent time, 83.4 percent were in support, 9.1 percent were indifferent while 7.5 percent disagreed. But only 94 percent agreed to e-banking services having improved the strength of their bank compared to the traditional ones. 4.5 percent could not see a difference, while 1.5 percent disagreed. (see appendix I)

Pearson Correlation

H_{o1}: 2The role of electronic banking on the operations and performance of Deposit Money Banks in Nigeria is not significant.

Table 1: Correlation Result

Correlations

		The Operations and Performance of your Bank have significantly improved in recent time.	The role of E-Banking to bank's operation cannot be underestimated
The Operations and Performance of your Bank have significantly improved in recent time.	Pearson Correlation	1	.794**
	Sig. (2-tailed)		.000
	N	66	66
The role of E-Banking to bank's operation cannot be underestimated	Pearson Correlation	.794**	1
	Sig. (2-tailed)	.000	
	N	66	66

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

Here, we sought to investigate the role of Electronic banking on the operations and performance of deposit money banks in Nigeria. It was hypothesized that the role of Electronic banking on the operations of deposit money banks in Nigeria is not significant. The results in table 1 showed that there was a significant strong positive correlation between the role of Electronic banking and the operations and performance of deposit money banks in Nigeria ($r = 0.794$, $p < 0.05$). According to the results the hypothesis that the role of Electronic banking on the operations and performance of deposit money banks in Nigeria is not significant was rejected. It was therefore, concluded that Electronic banking plays a significant role in the operations and performance of deposit money banks in Nigeria.

The viability of electronic banking in deposit money banks in Nigeria

In addressing the second specific objective, 92.4 percent of the bank's staff agreed that the viability of E-banking presents a significant prospect and opportunities to the banking

operations while 7.6 percent were undecided. Whereas in relation to banking fraud reduction, 60.6 percent did agree, 19.7 percent were indifferent and 19.7 percent disagreed.

Likewise, 87.8 percent agreed to some increase in their customers' loyalty as a result of e-banking, 9.6 percent were undecided but 4.6 percent disagreed. In relation to the introduction of more channels to help improve their banks' performance, 98.5 percent were in support but 1.5 percent disagreed. As well, 80.3 percent agreed that e-banking increased their revenue and capital base, 12.1 percent were indifferent while 7.6 percent disagreed. Though majority (92.4 percent) of the staffs were in support of the introduction of e-banking services in Nigerian banks, indicating Nigeria do follow the world trends, majority (97 percent) did also agree that inadequate ICT awareness can distort its development.

Pearson Correlation

H_{o2}: The viability of electronic banking on the operations of Deposit Money Banks in Nigeria is not significant.

Table 2. Correlation Result

Correlations

		The operations and Performance of your Bank have significantly improved in recent time.	Viability of E-Banking presents a significant prospect and opportunities to the banking operations
The Operations and Performance of your Bank have significantly improved in recent time.	Pearson Correlation	1	.820**
	Sig. (2-tailed)		.000
	N	66	66
Viability of E-Banking presents a significant prospect and opportunities to the banking operations	Pearson Correlation	.820**	1
	Sig. (2-tailed)	.000	
	N	66	66

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

Here, we sought to investigate the viability of Electronic banking on operations of deposit money banks in Nigeria. It was hypothesized that the viability of Electronic banking on the operations of deposit money banks in Nigeria is not significant. The results in table 2 showed that there was a significant strong positive correlation between the viability of Electronic banking and operations of deposit money banks in Nigeria ($r = 0.820$, $p < 0.05$). According to the results the hypothesis that the viability of Electronic banking on the operations of deposit money banks in Nigeria is not significant was rejected. It was therefore, concluded that the viability of Electronic banking is significant in the operations of deposit money banks in Nigeria.

How Secured the Electronic Banking is in Nigeria to ensure adequate patronage for good operation and performance in the Financial Services Industry

To address the third specific objective, security measures are positioned in these banks to prevent website information from being altered, this all of the staffs agreed to. Also 75.6 percent of the respondents were in agreement that the nature of E-banking is secured-enough to ensure adequate patronage by customers, 21.2 were undecided while 3 percent disagreed. The bank staffs are properly educated on the operations of the E-channels introduced, to this, 95.5 percent agreed, while 4.5 percent were undecided. On that measures are in place to encourage customers to use these channels, 84.8 percent agreed, 10.6 percent were undecided while 4.6 percent disagreed.

Pearson Correlation

H_{o3}: Electronic banking has not significantly been secured-enough to ensure adequate patronage for good operation and performance in the financial service industry in Nigeria.

Table 3: Correlation Result

Correlations

		The Operations and Performance of your Bank have significantly improved in recent time.	The nature of Electronic banking is secured-enough to ensure adequate patronage by customers
The Operations and Performance of your Bank have significantly improved in recent time.	Pearson Correlation	1	,859**
	Sig. (2-tailed)		,000
	N	66	66
The nature of Electronic banking is secured-enough to ensure adequate patronage by customers	Pearson Correlation	,859**	1
	Sig. (2-tailed)	,000	
	N	66	66

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

Here, we sought to investigate whether Electronic banking is secured-enough to ensure adequate patronage for good operation and performance in the financial service industry in Nigeria. It was hypothesized that the Electronic banking has not significantly been secured-enough to ensure adequate patronage for good operation and performance in the financial service industry in Nigeria. The results in table 3 showed that there was a significant strong positive correlation between the security of Electronic banking and operations and performance of deposit money banks in Nigeria ($r = 0.859$, $p < 0.05$). According to the results the hypothesis that the Electronic banking has not significantly been secured-enough to ensure adequate patronage for good operation and performance in the financial service industry in Nigeria was rejected. It was therefore, concluded that Electronic banking is secure- enough to ensure adequate patronage for good operation and performance in the financial service industry in Nigeria.

Policy Implication of Findings

Based on the findings of the study, the following implications hold:

1. There should be constant enlightenment of bank's customers on the merits and demerits of E-banking channels. This is because, the study revealed that though some of the banks has some E-banking products in place, a good number of her customers are not making use of them due to lack of information or enlightenment. To encourage usage of E-banking channels, banks should consider providing incentives in form of low or zero charges in some of the E-banking services/products.
2. It is a vital duty of the banks to ensure adequate security in the operations of these E-banking products. This will go a long way in clearing the doubt of many bank customers who prefer manual banking system to the electronic banking system due to the activities of fraudsters who are now everywhere looking for the slightest opportunities to defraud bank customers. The relevant regulatory agencies like the Central bank of Nigeria (CBN) and Nigerian Communications Commission (NCC) should come to the aids of these banks in the areas of providing water-tight security in electronic banking financial transactions.
3. The banks should on regular basis train and retrain their staffs to ensure that they are always in tune with current reality. We leave in computer age where technological advancement happens often, hence there is the need to always train and retrain bank's staff to be able to catch-up with the ever advancement in technology especially as regard electronic banking.
4. The banks should always adhere to identifying the customer's needs as regards E-banking and strive address it with state of the art technology. By so doing the bank will always be in tune with current reality in the sector.

Summary, Conclusion and Recommendations

Summary of Major Findings

The study examined the impact of electronic banking on the operations and performance of deposit money banks in Nigeria. The gathered relevant information was processed using the Statistical Package for Social Sciences (SPSS) and the Pearson correlation analysis was exercise in order to test the hypothetical questions.

Three banks were purposively selected and the results generally indicate that the role of Electronic banking to banks operations and performance cannot be underestimated; The viability of E-banking presents a significant prospect and opportunities to the banking operations; And that the nature of E-banking is secured-enough to ensure adequate patronage by customers. The study therefore concludes that E-banking is viable and plays a significant role in the operations and performance of deposit money banks in Nigeria, coupled with the fact that E-banking is secured-enough to ensure adequate patronage for good operations and performance in the financial service industry in Nigeria which conforms to a'priori expectations.

The findings of this study are in line with the findings of Taiwo and Agwu (2017) who concludes that the introduction of new channels into their E-banking operations drastically increased the banks performances, since the more active customers are with their electronic transactions the more profitable it is for the banks. It is also in tandem with kagan et al (2005) who concluded that banks that provide extensive online banking services tend to perform better than those who lag behind with the adoption of electronic banking.

Conclusion

It is evident that electronic banking plays a viable and significant role in banks operations and performance in Nigeria and it is obvious that it is one of the major sources of increase in banks' general performance. Though there is still room for improvement as regard being secured-enough to ensure adequate patronage, it is possible that with the introduction of new channels, alongside technology advancement, operations and performances of banks in Nigeria can drastically improve. Most especially if efforts are put in place for an efficient implementation.

Recommendations

1. Result of the study discloses that most of the banks' customers have no understanding of e-banking channels despite that most of these banks e-banking channels are effective and efficient. It is therefore advised that measures should not just be put in place to encourage customers to use these channels but should be inclusive of how to educate them on how they are operated. Some banks have lost customers due to poor implementation of e- banking (Lee, (2010); John and Rotimi, 2014). Banks should not just invest in more e-channels but rather also see to it that these channels are efficient and effective in relation to services each of them performs.
2. To increase the smooth functioning of the payment system, the government also has a major role to play in the aspect of financing and training so as to come up with improved forms of e-channels.
3. It is a vital duty of the banks to ensure adequate security in the operations of these E-banking products. This will go a long way in clearing the doubt of many bank customers who prefer manual banking system to the electronic banking system due to the activities of fraudsters who are now everywhere looking for the slightest opportunities to defraud bank customers. The relevant regulatory agencies like the Central bank of Nigeria (CBN) and Nigerian Communications Commission (NCC) should come to the aids of these banks in the areas of providing water-tight security in electronic banking financial transactions.

Limitations of the study and suggestions for further studies

More academic research should be conducted to establish the effect of Electronic banking on operation and performance in other sectors other than banking as the study focused only on deposit money banks in Nigeria in order to establish whether Electronic banking does affect their operations and performance.

Also, Researchers with the intention of carrying out research in this area should look into the effect of an increase in e-banking channels on the Nigerian banking sector. Will it cause an increase in customer satisfaction, gross profit of the bank, and the economy as a whole? What is the survivorship of banks if e-banking channels are totally removed from the banking system.

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APPENDIX

		Frequency	Percent	Valid percent	Cumulative percent
Sex	Male	45	68.2	68.2	68.2
	Female	21	31.8	31.8	100
	Total	66	100	100	
Age	18-25	6	9.1	9.1	9.1
	26-33	32	48.5	48.5	57.6
	34 & above	28	42.4	42.4	100
	Total	66	100	100	
Qualification	OND/NCE	8	12.1	12.1	12.1
	B.Sc/HND	34	51.5	51.5	63.6
	M.Sc/MBA	15	22.7	22.7	86.3
	Valid ACCA	2	3	3	89.3
	ICAN	3	4.5	4.5	93.8
	CIBN	4	6.1	6.1	100
	Total	66	100	100	
How long have you been with the bank?	0-3	24	36.4	36.4	36.4
	4-6	23	34.8	34.8	71.2
	7-9	14	21.2	21.2	92.4
	10 & above	5	7.6	7.6	100
	Total	66	100	100	
I understand what E-banking channels are	SA	51	77.3	77.3	77.3
	A	15	22.7	22.7	100
	Total	66	100	100	
Do customers use more than one E-banking channels	SA	42	63.6	63.6	63.6
	A	24	36.4	36.4	100
	Total	66	100	100	
Customers have full knowledge and understand the usefulness of E-banking channels	SA	21	31.8	31.8	31.8
	A	23	34.8	34.8	66.6
	UN	14	21.2	21.2	87.8
	D	6	9.1	9.1	96.9
	SD	2	3	3	100
	Total	66	100	100	
E-banking is preferred to traditional banking	SA	30	45.5	45.5	45.5
	A	12	18.2	18.2	63.7
	UN	7	10.6	10.6	74.3
	D	11	16.7	16.7	91
	SD	6	9.1	9.1	100
	Total	66	100	100	
The role of E-banking to bank's operations cannot be underestimated	SA	47	71.2	71.2	71.2
	A	19	28.8	28.8	100
	Total	66	100	100	
E-banking has more of its overall performance on the bank than traditional banking	SA	47	71.2	71.2	71.2
	A	15	22.7	22.7	93.9
	UN	4	6.1	6.1	100
	Total	66	100	100	
The operations and performance of your bank have significantly improved in recent time	SA	37	56.1	56.1	56.1
	A	18	27.3	27.3	83.4
	UN	6	9.1	9.1	92.5
	D	5	7.5	7.5	100
	Total	66	100	100	

The introduction of E-banking channel payment services has improved the bank's operation and performance than traditional banking	SA	47	71.2	71.2	71.2
	A	19	28.8	28.8	100
	Total	66	100	100	
The introduction of E-banking channel payment service has improved banks financial strength than traditional banking	SA	38	57.6	57.6	57.6
	A	24	36.4	36.4	94
	UN	3	4.5	4.5	98.5
	D	1	1.5	1.5	100
	Total	66	100	100	
The relationship between the bank and her customers has increased and remains loyal since the introduction of E-banking channels	SA	35	53	53	53
	A	23	34.8	34.8	87.8
	UN	5	7.6	7.6	95.4
	D	3	4.6	4.6	100
	Total	66	100	100	
Viability of E-banking presents a significant prospect and opportunity to the banking operations	SA	39	59.1	59.1	59.1
	A	22	33.3	33.3	92.4
	UN	5	7.6	7.6	100
	Total	66	100	100	
The introduction of more E-banking channels will increase bank's performance	SA	41	62.1	62.1	62.1
	A	24	36.4	36.4	98.5
	D	1	1.5	1.5	100
	Total	66	100	100	
The nature of E-banking is secured-enough to ensure adequate patronage by customers	SA	22	33.3	33.3	33.3
	A	28	42.4	42.4	75.7
	UN	14	21.2	21.2	96.6
	D	2	3.1	3.1	100
	Total	66	100	100	
E-banking has increased the revenue and capital base of the bank than traditional banking	SA	28	42.4	42.4	42.4
	A	25	37.9	37.9	80.3
	UN	8	12.1	12.1	92.4
	D	5	7.6	7.6	100
	Total	66	100	100	
E-banking has led to the reduction of banking fraud	SA	23	34.8	34.8	34.8
	A	17	25.8	25.8	60.6
	UN	13	19.7	19.7	80.3
	D	13	19.7	19.7	100
	Total	66	100	100	
Security measures are put in place to prevent web site information from being altered	SA	46	69.7	69.7	69.7
	A	20	30.3	30.3	100
	Total	66	100	100	
The bank's staffs are properly educated on the operations of these channels	SA	38	57.6	57.6	57.6
	A	25	37.9	37.9	95.5
	UN	3	4.5	4.5	100
	Total	66	100	100	
Measures are set to encourage customers to use these E-banking channels	SA	22	33.3	33.3	33.3
	A	34	51.5	51.5	84.8
	UN	7	10.6	10.6	95.4
	D	3	4.6	4.6	100
	Total	66	100	100	

The introduction of E-banking to Nigeria follows the World trends	SA	42	63.6	63.6	63.6
	A	19	28.8	28.8	92.4
	UN	2	3	3	95.4
	D	3	4.6	4.6	100
	Total	66	100	100	
Inadequate ICT awareness can distort the development of E-banking in the bank	SA	38	57.6	57.6	57.6
	A	26	39.4	39.4	97
	UN	2	3	3	100
	Total	66	100	100	

(Source Field Report, 2019**)**