

Mobile Devices Usage and Efficiency of Bank Services: Evidence from the Nigerian Banking Sector

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Abstract: *Mobile devices have taken the center stage in almost every aspect of human endeavor. Mobile banking help banks improve the efficiency and effectiveness of services offered to customers, and enhances business processes, managerial decision making, and work group collaborations, which strengthens their competitive positions in rapidly changing and emerging economies. The study investigates the main factors that may enable or hinders mobile device usage and their influence on bank service efficiency level. The study adopt survey research design using structured question to sample response and opinion of staff and customer of five (5) selected banks operating in the Niger Delta State Nigeria. A total of two hundred and eighteen respondents formed the sample size of the study. Data collected were subjected to multiple regression analysis and results presented in tables and figure. The result of the analysis suggests strong association between mobile device usage and bank service efficiency. The result identified device portability, ease of usage, speed of transaction and security as key enablers of mobile banking service success. Furthermore the result revealed Operational complexity, safety concerns, network challenges and bank charges are adversely and significantly correlated with efficient bank service except cost of adoption. In the light of these outcome the study recommends among others that banks in Nigeria should consider taking advantage of their current information and communication technology capabilities to create more value yielding services to attract and satisfy customers.*

Keywords: Mobile devices, bank efficiency levels, Information technology, constraining factors, enabling factors

INTRODUCTION

One of the recent techniques for rating advanced business enterprise is Information and Communication Technology (ICT) infrastructural abilities. This is a revelation of the necessity of ICT for organizations. Specifically, banks make use of ICT to advance the efficiency and effectiveness of the service they provide to clients, promote the processes of business and also foster better managerial decision making and collaborations in the organization (Ukessay, 2013). Therefore, the advancement of any organization is based on retaining loyal clients, advancing performance, reduction of cost, increasing the market value and also giving fast organizational responses. ICT is one of the main techniques that can be adopted in handling the problems due to the fact that there is high pace and uncertainty in recent competitive environment. Businesses perform under lots of pressures to produce more goods and at the same time making use of scarce resources in order to survive in the current dispensation; organizations must not only involve in taking traditional actions at reducing costs, they should also be creative like transforming structure or procedures and continually assessing the techniques or methods adopted in the competitive market.

In recent market environment, there is increase in the dynamics and experiences because of innovativeness, advancement in technologies, rise in knowledge and requirements from clients across sectors including entertainment, mortgages, etc. (Ekakitie and Obire, 2020; Agbada and Ekakitie, 2016). Institutions particularly the banking sector of the 21st century perform in a complex and very competitive environment that is featured with transformational situations and very unpredictable economic status with ICT at the middle of current transformation experienced in the world today. Agboola (2006). asserted that financial service providers should change their traditional method of practice in order to survive the competitive market in the 21st century and beyond. Therefore, ICT is now seen as a catalyst in several sectors in the world and it is capable of fostering the procedure needed to make sure that there is attainment of the different institutional objectives.

The advancement in ICT have narrowed digital differences and made the business world to become electronic sphere (e-world). Particularly, the advancement in technologies has led to the world's change in operation of banks as experienced in past decades. Internet technology has led to a paradigm shift in the activities of banks to the degree of bank imbibing internet technology to promote better and wider delivery of value-added services. As a result of this, banks in Nigeria particularly the commercial banks sees mobile and electronic banking as the most efficient method of separating themselves from other competitors by investing in advanced technologies (Adeoti, 2005).

In previous years, banks in Nigeria have experienced high level of success in the delivery of value-added services via mobile banking and there have been proofs of rise in imbibing ICT application by banks in Nigeria (Agboola, & Salawu 2008.).

Banks have continually being the forefront of adopting technology to promote their service delivery. The banking sector has overtime adopted electronic and telecommunication networks for delivering wide variety of value-added services. The various channel of delivery consist of telephones, personal computers and Automated Teller Machines (ATMs) that were first created in Nigeria by *Society Generale Bank*. With the popular utilization of computers, easy access to the internet and world-wide web (WWW), internet has been continually adopted by banks as a delivery channel to its large volume of clients. Almost all banks in Nigeria have a mobile banking application and presence. This method of banking is called mobile banking which is mostly an aspect of electronic banking (e-banking). The major difference being that internet banking, the channel of delivery is a public need. It provides for different online services such as balance enquiry, demand for cheque books, recording of stop payment instructions, balance transfer instructions, opening of account and other types of traditional banking services. In the banking and financial services, mobile banking is a product of electronic banking.

Mobile banking can simply be defined as any form of transactions that includes the transfer of information across telephones. It consists of individuals and institutions transferring information and instructions between each order with the use of electronic media (telephones). This entails several forms of business from clients through banking to business exchange of buying and selling goods and services between organizations.

The different products and services rendered by banks vary both in contrast and advancement. Globally, several studies exist on the application of mobile devices in banking and its impact on the banking industry. However, some of these studies provided mixed evidences.

The study's intendment was to determine mobile device usage levels and its impact on bank service efficiency from the Nigerian banking sector.

Research Questions

1. Do the mobile banking factor of device portability, ease of operational usage, speed in transaction, accuracy and security influence the level of efficiency of bank products?
2. Do the factors of device portability, ease of operational usage, speed in transaction, accuracy and security have any relationship with the level of efficiency of banking services to customers?
3. What is the impact of cost adoption, operational complexity, safety concerns, network challenges and bank charges on mobile bank service delivery?
4. Which specific factor of: cost of adoption, operational complexity, safety concerns, network challenges and bank charges pose the most challenge to the efficiency level of banks services using mobile banking?

Study Hypotheses: Flowing from the above study questions the following hypotheses are herewith put forward for testing.

H0₁: The factors of device portability, ease of operational usage, speed in transaction, accuracy and security do not influence efficiency levels of banking service.

H0₂: There is no significant relationship between mobile banking factors of device portability, ease of operational usage, speed in transaction, accuracy, security and level of bank efficiency.

H0₃: The factors of adoption cost, operation complexity, safety concerns, network challenges and bank charges has no significant effect on the banking service efficiency in Nigeria

H0₄: No specific factor of: cost of adoption, operational complexity, safety concerns, network challenges and bank charges poses the most challenge in the attainment of efficiency in bank service delivery.

The significance of the study are wide and varied, firstly, the study aims to shed more light on the importance of mobile device usage levels as it relates to service efficiency levels in Nigeria's banking sector. Second, the study's intendment is to provoke banks to evolve a string of customer-centric policy and competitive strategy to match up with the steady rise of customer demand to be served in a unique and swifter manner using better technologies. Lastly the study is expects to heighten value delivery and create better satisfied and contented customers that are ICT savvy.

The study scope contextually focused on mobile device usage level and bank service efficiency. It lays emphasis on mobile banking devices, their level of usage, and impact on bank efficiency level and is limited to the banking industry only. The study focused on five banks in the Nigeria banking industry: First Bank of Nigeria, Access Bank Plc, Zenith Bank Plc, United Bank for Africa and Guaranty Trust Bank. The geographical scope of this study is based on the BRACED States of Nigeria: (Bayelsa, Rivers, Akwa Ibom, Cross River, Edo and Delta States). These have a rich blend of above banks and their branches.

LITERATURE REVIEW

Conceptual Definitions

Mobile Devices: A mobile device is a type of technology that is majorly adopted in cellular communication and related telephony. Mobile devices are constantly advancing and their utilization is becoming dynamic and replacing old communication platforms in the market that are utilized for communication such as post office, land lines, pagers etc. The mobile technology has gone from just a simple device adopted for phone call and messaging to multi-tasking device utilized for Global Positioning System (GPS) navigation, internet browsing, gaming, instant messaging, especially, mobile banking. Mobile technology via tablet and portable computers is becoming very popular in developing countries of Africa and Asia.

Many experts have the belief that the future of computer technology relies on mobile computing with wireless networking (Ekakitie and Odanibeh, 2016).

Mobile devices have several and physical attributes. They are differentiated in size, weight, speed of processor and capacity of the memory. Mobile devices may be useful in stretching capabilities to give additional value and usefulness. Furthermore, the capacities of mobile devices normally have extra characteristics such as handheld Global Positioning Systems (GPS) cameras (still and video), or computers.

Mobile Banking services: Mobile banking is the process of carrying out financial transaction on a mobile device such as cell phone, tablet, etc. Mobile banking can be seen as a convenient way in today's digital world with a lot of banks providing chances to check deposits, pay for bills, send money to a friend or locate an ATM for instant transactions. All these factors are responsible for individuals adopting mobile banking.

Banking service is seen as the systems that give clients of financial institutions the opportunity of carrying out some financial transactions via a mobile phone or tablet. Mobile banking is not the same as mobile payments, which consist of the utilization of a mobile device to pay for products and services at the point of sale or the utilization of debit or credit cards in order to make Electronic Funds Transfer at Point of Sale (EFTPOS) payment. Mobile banking has not until now been utilized through SMS or the mobile web. Apple's foremost success with iPhone and the increase in development of Google Android have led to the rise in the adoption of special client programs called application. In the furthering of mobile banking services, these application can be downloaded to the mobile device. The development in web technologies such as HTML5, CSS3 and JavaScript has seen a lot of banks coming up with mobile web-based services in addition with traditional applications.

Banking Services & Efficiency

Recent and evolving economic trends in the Nigerian banking sector have revealed a lot of possibilities, especially in the achievement of customer satisfaction using technology to deliver superior value at short notices. With the presence of advanced technologies and the internet, many banks can now organize their various branch networks better, provide swifter transactions and acquire strong reputation as a strong a competitive brand (Ekakitie and Egede, 2016). As a result, the assessment of the performance in the banking sector has become an aspect of the superior managerial capacities, better trained personnel, faster market penetration and indeed deployment of superior technologies and knowhow. Top management of banks have seen the need to recognize and remove the factors responsible for inefficiencies in the banking industry; therefore, assisting their institutions in having advantages in the competitive market or at least find solutions to the problems that is being experienced in a unique way via effective hi-tech solutions. There was a major change in the banking system after the establishment of the Financial Sector Reform (2000 – 2007) and these reforms had effects on the activities of commercial banks. One of the aims of this reform was to enhance the effectiveness and efficiency of the banking sector.

In the banking industry, Nwachukwu, (2004). asserted that efficiency helps in the successful execution of macroeconomics policies which lead to sustainable advancement, growth of the economy and the society's welfare. This is similar to the assertions of Baptista, & Oliveira, (2016). as they defined it in relation to cost minimization.

The definition of bank's efficiency has been continuously argued by different scholars. To ascertain what consist of effectiveness and efficiency of banks, it is important one first of all ascertain the nature of banking vision as set out from the CEOs template. For Sealey and Lindley (2005) such vision entails two approaches to services delivery:

1. The production approach, which has the belief that the financial sector act as producers of services for those holding accounts. In other words, they are supposed to perform transactions on deposit accounts and process files like loans.
2. The intermediation approach, which has the belief that banks serve as financial intermediaries whose major function is to get finances from savers in exchange for their liabilities and in turn will give credit facilities to others from profit making (Chu and Lim, 2000). This approach can also be referred to as asset approach where the financial firms are assumed to act as an intermediary between the savers and the borrowers.

These approaches are all amenable to ICT, internet and mobile device usage to offer effective and efficient bank service delivery. The 21st century banking institutions cannot survive the tough competition in the outside world where free markets and dynamic oscillations holds sway.

Wali, (2010) opined that the efficiency quest enables banking institutions to be better shock absorbers, better planners, better risk assessors and better performance evaluators as they navigate to stem their banks from 'too risky' waters using technology as a tool for effective guide to decision making and increased profitability. Kiesnoski, (2000) gave a logical projection to the argument that

the development of the finance industry is relevant to the advancement of the economy and the effectiveness and efficiency of the banking system.

VARIABLE DEFINITIONS & HYPOTHESIS CONSTRUCTION

Mobile Banking Enablers & Service Efficiency Level

Device portability and bank service efficiency level: Device portability enables customers move around freely with their devices and perform bank transactions at any given location without having to go to a bank. This has led to a direct impact on bank service efficiency. The benefit of device portability is the improved quality of financial information, reduction in operational cost and increase in customers' satisfaction which has brought a positive increase on bank service efficiency (Isac, 2013).

Ease of usage and bank service efficiency level: David (2005) defined ease of utilization as the extent to which an individual has the belief that adopting a specific system would be free of strenuous efforts. A lot of studies have revealed that the effect of the perceived ease of utilization on a user's intention to use an innovation is either directly or indirectly ascertained through perceived usefulness. In their study, Ardhendu, Shekhar, Venkataramani, Bhama, & Ambarkhane, Dilip (2014,) asserts that the utilization of mobile financial services in Zimbabwe enabled the ease of use and imparted much on the efficiency of banks.

Speed in transaction and bank service efficiency level: This is the capability to give response to clients' transaction requirement promptly and flexibly. In the opinion of Adele-Louise (2014), the revolution of ICT has led to increase in changes in the business environment which no other industry has been influenced by the level of technological advancement as much as the banking and financial sector. With the adoption of mobile banking, clients are able to carry out several transactions simultaneously and at any place which is one of the main enablers of mobile banking. Drexelius, and Herzig (2001) identified that speed of transactions in the mobile banking system contribute to high service efficiency levels.

Accuracy & bank service efficiency level: By adopting mobile and internet banking, customers have several benefits by way of prompt and unaided access to their bank accounts and instant updates from banks on email or SMS at a high degree of accuracy. Accurate interaction from the bank and flexibility to attain the needed information on several financial products as per client's convenience lead to positive impact on the efficiency of banks and other deliverables.

Security and bank service efficiency level: Security in mobile banking is a major and very important factor in the banking system, where security researchers are constantly discovering malware that targets mobile banking apps. Mobile banking introduced different ways to strengthen mobile devices which includes; introduction of fingerprint, implementation of SIEM system, added multi-factor authentication, offering real-time text and email alert among others. These are geared to ensure the safety of the customer's accounts. Researchers have found Security to be a key driver of mobile banking service efficiency level (Ekakitie and Alagba, 2022).

Hypothesis 1: There is no significant relationship between mobile banking factors of device portability, ease of operational usage, speed in transaction, accuracy, security and level of bank efficiency.

Hypothesis 2: Mobile devices factors of device portability, ease of operational usage, speed in transaction, accuracy and security do not influence efficiency levels of banking service.

Mobile Banking Constraining Factors & Service Efficiency Level

Cost of adoption and bank service efficiency level: Mobile banking is effective on a smart phone, Apple devices, tablets, windows e.tc which is not very affordable for low-income earners to buy. Most of the services offered by mobile banking require the use of internet access and the purchase price along with its cost of maintenance and usage to keep up with the data subscription is very expensive to maintain. This discourages lots of customers from using the online services. When cost is prohibitive in the adoption of a new technology, it often results in customer apathy (Ekakitie and Odanibeh 2016; Davids 2010).

Complexity and bank service efficiency level: Some of the digital banking platforms which are the mobile applications and software are not very easy to utilize as a lot of them are designed with poor user interface which makes it difficult to navigate. This poses a great issue for the clients and their willingness to utilize mobile banking as a lot of them would not want to embark on trial and error with scarce funds since they are very much knowledgeable of the difficult processes involved in retrieving misplaced cash; that is if it will ever be retrieved. Studies by (Ramdani and Kawalek 2008; Rogers 2003) suggest that the more difficult or complex an innovation becomes the more its rate of adoption/diffusion is constrained.

Safety concerns and bank service efficiency level: There has been a lot of media campaigns to educate Nigerians on the possible security dangers linked with the adoption of mobile banking. This is because there is an increase in the situations of identity theft and cloning of cards. These campaigns have also advised against some customers that were skeptical as well as customers who have been victims of fraudulent acts. Individual customers in the Niger Delta have seemingly prefer ATM cards as opposed to their mobile phones as there is increase in phone snatching at gun point with the owners forced to reveal pins after which withdrawals will be made few moments after. Hacking is also on the increase with cell phone theft and scammers extracting PIN to transfer funds from victims account. Scholars like Ekakitie (2011) and Premkumar (2003) sees deficit of safety especially on supposedly secured channels as an inhibitor and can constrain levels of banking services patronage thus imparting efficiency and customer satisfaction negatively.

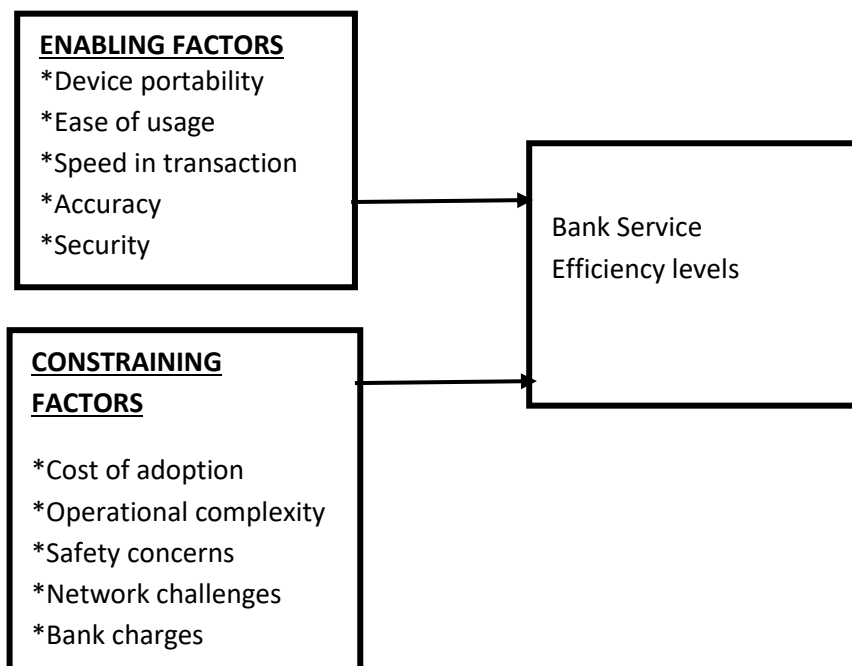
Network challenges and bank service efficiency level: Poor mobile network and internet service is also a great issue that has affected the effectiveness and efficiency of mobile banking in Nigeria. Some customers do not utilize mobile banking due to poor network in some parts of the Nigeria, especially rural areas not properly covered by major network providers, can be a tough challenge. Poor network can be a great hindrance as it can result to errors which can be costly as money is involved in some cases. Cases of double deductions to beneficiaries have been noted in Nigeria as a result of poor network (Ekakitie, 2016). Most times, the speed of SMS alert is slowed down by network which makes it hard to detect and report cases of fraud in time as most times, the account of the victim have been emptied before the SMS alert comes in. The Nigerian Communication Council NCC (2017 – 2021) has received several complaints on fund transfer failures as a result of poor network of ISP firms who have refused to take remedial actions. Ekakite and Obire (2020) have observed that effective networks can put SMEs and larger firms at per competitively.

High bank charges and bank service efficiency level: The advent of mobile banking has broadened the opportunities for revenue generation through bank charges. In recent times, there have been lots of complaints from customers who operate mobile banking about excessive bank charges. Charges by banks are usually on the high side, at the end of the month – a plethora of bank charge make the rounds ingloriously: withholding tax, value-added tax, account maintenance charge and SMS charge. By the end of the calculation, about 33% of the capitalized interest would have been taken back by banks in form of various types of charges. When adding the transaction by transfer charges, the interest would almost equal zero, which is the major reason most individual opt out of mobile banking and mostly go for the traditional way of banking in other to avoid unnecessary charges from banks. Excessive charges have been touted by experts as a drag and a discouraging factor in internet banking (Ekakitie and Olafare, 2016)

Hypothesis 3: The factors of adoption cost, operation complexity, safety concerns, network challenges and bank charges have no significant effect on the banking service efficiency levels in Nigeria

Hypothesis 4: No specific factor: of cost of adoption, operational complexity, safety concerns, network challenge and bank charges poses the most telling challenge in the attainment of efficiency in bank service delivery.

Figure 1.0: Model of bank service efficiency levels (2022)



Study Conceptual Model of the Study, 2022

EMPIRICAL STUDIES REVIEW

Several studies in the annals of management have lent credence to use of mobile devices and efficiency levels of banks and indeed customer satisfaction. According to Kricks (2009) some banks have relied on directives via telephone from high net-worth and trusted clients to effect certain ‘grades’ of transactions. Mobile banking requires that a client and bank accepts at the onset of the connection a agreed category of security information to be adopted to verify the authenticity of the customer to give telephone instructions and usually have a password selected by the client (Clarke & Furnell. (2005).

Simpson, (2012). expatiated that access to electronic means of payment and the increase in the number of clients connected to the internet has changed the views of banks in relation to the market and increased the advancement of internet banking. According to studies by Clarke & Furnell, (2005), internet banking needs an efficient security process that consist of efficient strategies through which users can be authenticated in a remote environment in a way that transactions carried out can be done within their respective environments. The technology of internet banking has transformed the banking sector tremendously in recent times.. For instance, in the USA while the cost of average transaction at full service bank is close to \$1.07, it decreases to \$0.27 at an ATM and falls to a penny if the same transaction is carried out online (Durkin, Jennings, Mulholland & Worthington (2008).

In Uganda, internet banking is restricted to banks in Kampala. Nile Bank in Uganda gives information to its clients through adopting website of the bank. Other services provided consist of utility payments for electricity and water and 3rd party payments such as postpaid telephone bills and much more which have given the clients the ability to pay their bills without being physically present in the bank, this is a strategy for saving time.

Shaikh (2013) assessed the Customer Adoption of E-banking Technology in Pakistan and discovered that clients increasingly make use of their e-banking as their experience develops with the system and that education played an important role in the usage of e-banking technology. David (2010). study found that the level of education of participants in mobile banking did not have a significant impact on the adoption and utilization of mobile banking. In Uganda, mobile banking is enhanced via *Bankom*, a local financial transaction services company and representative of Euro.net, this alliance help to facilitate many European bound transaction with increased efficiency (Clarke, & Furnell 2007).). There is also mobile banking in which airtime can be fixed on mobile phone electronically from the account of customers. The effect of information technology on the development of banking sector in Nigeria was studied by (Ekakitie & Egede, 2009; Alampay, 2010), This research focused on the utilization of technologies like telephone banking technology. It was found that the utilization of ICT has enhanced prompt and efficient service delivery to a significant extent.

RESEARCH METHODOLOGY

This section described the methodology used in the study. Agu (2014), see research design as a plan and strategy for gathering, processing and analyzing data on the way to solving identified study problem. The survey design was therefore adopted using the tool of questionnaire forms administered to target bank. The 5-point liker scale was used to rate the responses. The study population includes five (5) high profile deposit money banks in the Niger Delta, Nigeria. First bank of Nigeria, Access bank PLC, Zenith bank Plc. United bank for Africa and Guaranty Trust bank. The researchers purposively selected customers who have used at least one technology-based device for transaction or the other with the banks for at least a year. The total population of the study of 500 customers was derived as captured in the table below:

The Population of Customers from the selected banks		
S/N	Banks	Customers
1	First Bank of Nigeria	100 51
2	Access Bank of PLC	100 43
3	Zenith Bank of Nigeria	100 50
4	United Bank for Africa	100 46
5	Guaranty Trust Bank	100 33
Total		500 223

Source: Field Survey 2022

SN	Name Of Banks	Forms Deposited	Forms Returned By Customers	Return Rate (%)
1.	First Bank of Nigeria	70	59	84%
2.	Access Bank of PLC	70	55	78%

3.	Zenith Bank of Nigeria	70	56	80%
4.	United Bank for Africa	70	48	68%
5.	Guaranty Trust Bank	70	49	70%
	TOTAL	350	267	76%

Source: Field Survey 2022

The study first stratified the study population into a quota set not exceeding 100 customers per bank. Within each quota a purposive process of administering questionnaire forms was adopted. A total of 223 forms were given to customers in the five banks and retrieved instantly. But 214 forms were found usable; 51 were not returned and 32 were observed to have error of inconsistency. This gives a return rate of 95% which is considered very high. Currant and Blackburn (2010) consider 65% as adequate and representative of the population.

Reliability of research instrument

The pilot study was conducted using the headquarters of selected banks within in four (4) of the BRACED States of the Niger Delta of Nigeria. This survey ensured direct contact with respondents, enhanced face to face validity and researcher’s assistants had opportunity to interact and explain raised issues of concern to respondents and made the instrument better as noted errors were corrected.

Model Specification

Model 1, BE = f(β₀₁ + β₂DP + β₃ EOU+ β₄ ST + β₅ AC + β₆ SEC +E₁)1

Model 2, BE = β₀₁ + β₂ COA + β₃OC + β₄SC + β₅NETC ++ β₄BC+ U₁2

Where:

MODEL 1: BE = (Bank Efficiency), DP = Device portability, EOU = Ease of operational Usage, ST = Speed in Transaction, AC = Accuracy, SEC = Security, E = Error term

MODEL 2: BE = (Banking Efficiency), COA = Cost of adoption, OC = operational complexity, SC = Safety concerns, NETC= Challenge, BC = Bank charges, E = Error term

DATA PRESENTATIONS AND RESULT ANALYSIS

Enabling Factors:

Hypothesis 1

Table 4.18 Analysis of Mean Variance (ANOVA)

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	233.997	5	46.799	11.734	.000 ^b
	Residual	833.538	209	3.988		
	Total	1067.535	214			

a. Dependent Variable: Bank Services

b. Predictors: (Constant), Security, Accuracy, Device Portability, Speed in Transaction, Ease of Use

SOURCES: SPSS V 22 Result Output

Table 4.19

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	5.236	1.153		4.542	.000
	Device Portability	.066	.081	.079	.809	.419
	Ease of Use	-.081	.089	-.095	-.908	.035

Speed in Transaction	.085	.096	.083	.882	.379
Accuracy	.394	.104	.290	3.782	.000
Security	.146	.070	.184	2.074	.039

a. Dependent Variable: Bank Services

Table 4.19 reveals a significant relationship between factors of device portability, ease of usage, speed of transaction, accuracy, security and efficient bank services. As indicated in the multiple regression Table, mobile device factors have significant effect on efficiency of bank service delivery ($P = 0.000 < 0.05$) and using on the decision rule.

Decisionally, since the P-values $0.000 < 0.05$ (95% level of confidence) holds, the null hypothesis is rejected as it purports that there is no significant relationship between the enabling factors and bank service efficiency and accept the alternative that indeed there is a relationship and that relationship is positively significant. We can conclude in the study that the listed factors add value to financial transaction and indeed impart efficiency levels due to the impactful nexus.

Hypothesis 2

As regards this hypothesis the enabling factors of device portability, ease of usage, speed of transaction, accuracy and security, hypothesized against the dependent variable service efficiency has interesting outcomes. Firstly, the factor of device portability has a positive effect ($\beta = .079, P < 0.05$) on the dependent variable, the same is true for speed of transaction ($\beta = .083, P < 0.05$), ($\beta = .083, P < 0.05$), accuracy ($\beta = .290, P < 0.05$), and security ($\beta = .184, P < 0.05$). Thus, individually the factor of device portability is not significant at $P = 0.66 > 0.419$.

Constraining Factors:

Hypothesis 2

Table 4.21 Model Summary^b

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.657 ^a	.511	.494	1.877	1.650

a. Predictors: (Constant), bank charges, Cost of Adoption, Op Complexity, Network Challenges, Safety Concern

b. Dependent Variable: Bank Services

Table 4.22 ANOVA^a

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	331.561	5	66.312	18.831	.000 ^b
	Residual	735.974	209	3.521		
	Total	1067.535	214			

a. Dependent Variable: Bank Services

b. Predictors: (Constant), bank charges, Cost of Adoption, Op Complexity, Network Challenges, Safety Concern

Table 4.17 Coefficients^a

Model	Unstandardized Coefficients	Standardized Coefficients	t	Sig.
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	B	Std. Error	Beta		
1 (Constant)	10.934	.540		20.246	.000
Cost of Adoption	.104	.057	.141	1.836	.044*
Ops Complexity	.030	.052	.052	.583	.561
Safety Concerns	-.311	.079	-.449	-3.911	.000*
Network Challenges	.011	.067	.015	.172	.864
Bank charges	.299	.035	.499	8.538	.000*

a. Dependent Variable: Bank Services

*significant at 5% level

The result revealed there is a significant ($P 0.000 < 0.05$) relationship between constraints to portable mobile banking and level of efficient bank services, constraints to portable mobile banking exact great impact on level of efficiency of banking service. The coefficient of determination R^2 is 0.511 which implies that 51.1% variation (table 4.21) the efficiency of banking service is accounted for by constraints to portable mobile banking. Among the included constraints are three variables which exact significant effect on the dependent variable. From the parameter estimates, cost of adoption had significant ($P 0.044 < 0.05$, 0.104) and positive relation with level of efficient of bank service delivery, Safety concerns had significant ($P 0.000$, -0.333) negative effect on efficient bank service delivery and bank charges had significant ($P 0.000 < 0.05$, 0.299) and positive effect on level of efficient bank services. Operational complexity and network challenges had no significant effect on level of bank service ($P 0.561 > 0.05$, 0.030 and $P 0.864 > 0.05$, 0.011) respectively.

Based on the decision rule, since $p 0.000 < 0.05$, we reject the null hypothesis and accept the alternative hypothesis which state that some of the factor of cost of adoption, operational complexity, safety concerns, network challenge and bank charges pose the most challenge in the attainment of efficiency in the bank service delivery. Cost of adoption ($P 0.044 < 0.05$, 0.104), safety concerns ($P 0.000$, -0.333) and bank charges ($P 0.000 < 0.05$, 0.299) are the major constraints that affect portable mobile service delivery.

DISCUSSIONS OF FINDINGS & CONCLUSIONS

The following major findings in the study are herein articulated:

- i. There is a significant connection between elements of cost of adoption, operational complexity safety concerns network challenge and bank charges and efficient level of banking services in Nigeria. This result is in line with earlier studies on impact of ICT on bank service delivery. Prior studies (see Lee et al., 2000 and Mohammad and Saad, (2011)) find a significant positive link between financial innovation and the performance of the firm in the banking sector.
- ii. Mobile device factors of device portability, ease of operational usage, Speed in Transaction, accuracy and security has positive and significant influence on efficient banking service delivery in Nigeria. This outcome confirms past researches such as Agu, (2014), Alampay (2010) and Yusharto (2014) stating that the adoption and effective utilization of mobile devices fosters the efficiency of bank service delivery in serving their clients; therefore, a positive effect on the productivity.
- iii. Operational complexity, safety concerns', network challenges and bank charges are significantly correlated with efficient bank service expect cost of adoption. Adverse findings by Ukessay (2013) states that there is a negative impact of the cost of utilization of electronic banking because of its high link with costs and risks that is involved in transactions.
- iv. Some of the factor of cost of adoption, operational complexity, safety concerns, and network challenge and bank charges pose the most challenge in the attainment of efficiency in the bank service delivery. Cost of adoption, safety concerns and bank charges are the major constraints that affect portable mobile service delivery in Nigeria. This confirms previous study of Chiemekwe, Ewiewpaefe, & Chete (2006). where they asserted that the encouragement for electronic banking is majorly determined on the assertion of decrease in the cost of operation but a rise in operating income.

CONCLUSION

The outcomes of the study revealed investment in ICT resources has become a main factor in the performance and growth in the banking sector. Rise in the investment in ICT-Capital has led to an increase in the development in the sector. Furthermore, ICT fosters the absorption of high and medium skilled workforce. This on the long run has a positive impact on the labour output of the banking sector. The study show that ICT has enabled banks provide a wide variety of services to its clients, regulate activities of branches, attain the transformation in the policies of the government and also adjust to the needs of the market and competition. That is to say, the environment of the business has become so competitive and transformational and banks are in dire need of solutions to increase their developmental plans and give them the required capability to be different from others in the market.

RECOMMENDATIONS

The study outcome revealed that efficient mobile banking is influenced by investment in ICT capabilities, software and touch points driven by mobile devices. It is advised that bank executives tilt operational policy more in the direction of mobile transactions to enable ease of transactions by customers from even remote places using mobile devices.

The banking sector should see Mobile devices, especially the enabling factors as areas of massive deployment of resources as it does not only promote efficiency, it also offers diverse financial products to customers in addition to high rate of financial returns and profitability.

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