

# Effect of Information Communication Technology on Banks Performance in Nigeria

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**Abstract:** *This study examines the effect of ICT on Banks Performance in Nigeria, from 2000-2015. The study sought at to specifically determine the degree and level of ICT effect on banking performance, by investigating the impact of some selected ICT indicator like direct Line usage (DLine), MobileLine usage (MBLine) and Internet Network usage (INTERNET) on banks, performance using banks total assets as the dependent variable. Using the ordinary least square regression model as estimation tool the study shows that joint ICT variables significantly and positively impacts on bank total assets. The findings also showed that increased banks based investment in ICT had eventually increased banks assets. Based on the findings, this study recommends that banks should direct more attention toward ICT usage in their operations as they ensure adequate maintenance and proper monitoring of ICT equipment and gadgets (hardware and software) in order to ensure maximum contribution to the efficiency of the organization and customer's retention.*

**Keywords:** *ICT, bank assets, mobile banking, performance and electronic banking*

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## 1. Introduction

Information and communication technology (ICT) is fast becoming a dynamic channel that drives organizational competitiveness in the present day business environment. Presently, ICT is having a dramatic influence on almost all spheres of human activity, which the banking sector is the most significant as we can attest. Today's business environment is very dynamic and dramatic changes are high sequel to, technological changes, heating innovations, increased awareness and enormous demand from customers and clients. Business organization especially the banking industry in this 21<sup>st</sup> century, operate in a complex and highly competitive environment characterized by these unstable conditions and very high unpredictable economic climate, with ICT as the 'hub' of this global change curve.

ICT is a combination of Information Technology and Communication Technology. It merges competing with high speed communication link carrying data, sound and video (Alabi, 2005). Information Technology (IT) deals with the collection, storage, manipulation and transfer of information using electronic means. Communication Technology (CT) refers to the physical devices and software that link various computer hardware components and transfer data from one physical location to another (Laudon and Laudon, 2001).

There is no gain saying that globalization has brought about a heated competition in the financial services industry, and those firms in the industry need to

operate at their best. To remain competitive, firms need to be flexible to be able to respond rapidly to the fast changing market environment to which they are exposed (Emmanuel and Adebayo, 2011).

In the real sense, the banking sector has traditionally been one of the main users of technological innovations. Grainger- Smith and Oppenheim (1994) discovers that the banking sector is an old time beneficiary of the offering of IT, and that it played key role in the development of the banking industry, based on the fact that the main function of banks can be viewed not really as that of money, but that of the capture distribution, analysis and processing of financial information. They indicated that IT can enable banks widen the range of services offered to their customers, transform their operating system increase the volume of their services, operate at a higher level of efficiency and realize economies of scale. In similar vein, Elikhanor (2003), noted the range of products that banks can derive from investing more in IT as; time induction, improving operations, increased profitability, better management, customer relationship, streaming of operations, expansion of activities improving services, and minimization of exposure to risk in turbulent market, among others.

Various ICT devices have emerged to enhance the speed and quality of services delivery and have encountered a radical change in how banking services are being managed the world over. Shokan, (2005), identify Electronic Fund Transfer, Electronic Letter of Credit, Electronic Card, Debit Card, Electronic Billing and Automated Teller Machine. If ICT is applied appropriately it has the capacity to increase optimal performance in banking services. Proper queering analysis will help to factor the type, nature extent and speed of ICT products required in bank. However, optimal utilization of facilities could be recorded if the design is done, using a clear understanding of how the services are been measured.

The major of this paper lies on the fact nowadays, most banks are fully equipped with main core banking applications, assisted by the Central Computer System (CCS). Island wide ATM networks are also linked to branches and run on separate software applications. More so, banks are equipped with internet, providing much functionality along with e-mail facilities to branches. Internet, mobile and telephone banking as well as ATM services are also being provided as value added services, credit and debit cards usage are also popular among customers.

Software applications, like word processing spreadsheet and the internet forms day to day operations in addition to the use of core banking applications. Banks are spending large sum of money in acquiring ICT competence. They have made heavy investments in foreign currencies for hardware, software and soft skills. To add, banks spend a lot to train, maintain and retain its staff in ICT competence. Hence, this study tries to determine the impact of ICT banking on banks performance in Nigeria.

The main objective of the study is to examine the impact of ICT on banks performance in Nigeria. What impact has ICT on Banks performance in Nigeria? Will be the question that will be answered.

## **2. Literature Review**

### **2.1 Conceptual framework.**

Banks are competing in highly competitive environment to offer quality oriented services according to customer's expectation. Bank performance should be evaluated due to

stiffer competition (Gunu & Olabisi, 2011). Bank performance is a subjective measure of how well a bank use assets from its primary mode of operation and generate revenues. This term is also used as a general measure of a bank' overall health over a given period of time and be used to compare similar banks in the same industry.

Bank performance could be linked with market orientation, organizational learning, human resource productivity quality improvement or any other component. Quantitatively banks performance can be measured in terms of assets size, private sector lending, non bank private sector lending, lending relative to the GDP. Qualitatively/ non financial measures of assessing bank performance; It must be meaningful. It must reflect management's clarity about current situation and its viability to achieve its goals etc.

In Irechukwu, (2000) some bank services that have been revolutionalized through ICT use were listed as follows; opening of account mandate of customer accounts, transaction processing and recording. ICT has provided self service facilities (automated customer service machines) from where prospective customers can complete their account opening documents direct as online. It helps customers to validate their account numbers and receive directives on how and when to get their cheques booklets, credit and debit cards. ICT products usage in the banking industry in Nigeria includes automated teller machine (ATM), smart card, Telephone banking. Electronic fund transfer, electronic data interchange, Electronic home and office banking.

#### **2.1.2 Electronic Banking and the common banking products**

Ojokuku & Sajuyigbe (2012), identified the following ICT banking products:

##### **2.1.3 Point of sale terminals**

POS terminal handle cheque verifications, credit authorization, cash deposit and withdrawal, and cash payment. This enhances electronic fund transfer at the point of sale (EFTPOS). EFTPOS enables a customers' account to be debited immediately with the cost of purchase in an outlet such as a supermarket or petrol station. It consists of the accumulation of electronic payment messages by the retailer, which are subsequently passed on to appropriate institutions for processing. The purchase price is debited on the buyer's account and credited on the seller's account.

##### **2.1.4 The card system**

The card system is a unique electronic payment type. The smart cards are plastic devices with embedded integrated circuit being used for settlement of financial obligations. The power of cards lies in their sophistication and acceptability to store and manipulate data, and handle multiple applications on one card securely. Depending on the sophistication, it can be used as a credit Card, Debit Card and ATM (Automated Teller Machine) Card.

##### **2.1.5 A credit card**

This is a payment card issued to users as a system of payment. It allows the cardholders to pay for goods and services based on the holder's promise to pay them. The issuer of the card creates a revolving account and grants a line of credit to the consumer (or the user) from which the user can borrow money for payment to a merchant or as a cash advance to the user.

##### **2.1.6 A debit card**

This is also known as a bank card or check card is a plastic payment card that provides the cardholder electronic access to his or her bank account (s) at a financial Institution. Some cards have a stored value with which a payment is made, while most relay a message to

the cardholder's bank to withdraw funds from a payee's designated bank account. Online debit cards require electronic authorization of every transaction and the debits are reflected in the users account immediately. The transaction may be additionally secured with the personal identification number (PIN) authentication system; some online cards require such authentication for every transaction, essentially becoming automatic teller machine (ATM) cards.

### **2.1.7 Automated Teller Machine (ATM)**

An ATM device allows a bank customer to withdraw cash from his account via a cash dispenser (Machine), and the account is debited immediately. A fundamental advantage is that it needs not to be located within the banking premises. It is usually in stores, shopping malls, fuel stations etc. it saves customers time in services delivery as alternative to queuing in bank halls, customers can invest such time saved into other productive activities. ATMs are a cost efficient way of yielding higher productivity as they achieve higher productivity per period of time than human tellers.

### **2.1.8 Mobile Banking**

Mobile Banking refers to provision and availment of banking and financial services with the help of mobile telecommunication devices. The scope of offered services may include facilities to conduct bank and stock market transactions, to administer accounts and to access customized information.

Banks are competing in highly competitive environment to offer quality oriented services according to customer's expectation. Bank performance should be evaluated due to stiffer competition (Gunu & Olabisi, 2011).

## **2.2 Contemporary banking theories**

This study examined the contemporary banking theories among other banking theories. The preoccupation with assets is typical of the traditional view of a bank as being a passive acceptor of liabilities. Several significant developments in banking practices during the 1960s radically changed this traditional view of banking out of these new practices emerged a new theory, the liability management theory of banking (Ikechukwu, 2000). This paper considers the liability management theory amongst other contemporary banking theories.

Liability management is something of a misnomer. It does not mean that the bank manages only its liabilities and is passive with respect to its assets. Rather, the theory continues to recognize that the asset structure of the bank has a prominent role to play in providing the bank with liquidity (Laundon and Laundon 2001). But the theory goes beyond this one dimensional approach to liquidity and argues that the bank can also use its liabilities for liquidity purposes (Granyer and Oppenherin, 1994). The banking theory and practice interacted with one another in the development of the liability management concept banking.

## **2.3 Empirical Review**

A number of studies have been carried out on the effect of information communication technology on banks performance in Nigeria. For example, Adesola, Moradeyo and Oyeniti (2013) reports that the usage of ICT contributing significantly to the speed of banking operations, and efficient services delivery, workers' performance and banks' profit level. This would be attributed to the fact that all the deposit money banks in Nigeria have ATMs, telephone banking, internet banking, branch networking and

electronic transfer. Using simple regression analysis with the help of SPSS software version In a similar study, Luka and Frank (2012) examined the impact of ICT on banks, find that investment in ICT system and infrastructures has become a key element in productivity and growth in the banking industry. Using four parameters as follows: productivity, market structure, innovation and value chain as benchmarks.

The ground breaking empirical study of Ugo (2012) demonstrated that joint ICT variables significantly determine banks' capital growth but not banks' total asset; with internet network users and mobile lines users having the most significant influences. Also revealed was that increased investments in ICT will eventually increase banks' capital growth but may eventually lead to negative bank asset base.

Finally empirical discovery of Agbolade, (2011) revealed that, ICT exerts a positive and significant impact on banks profitability in Nigeria. This implies that increase in the level of investment and adoption of ICT in Nigerian banking industry will result also in increased level of banks profitability. This is confirmed by the level of the regression coefficient as well as the factor analysis which revealed that an insignificant size of profit exist without the introduction of the ICT.

### **3. Methodology**

#### **3.1 Research Design**

The research design adopted in this study is ex - post facto research design. This is because the data used in this study is from the secondary source and ex - post facto design, deals with secondary data.

The data used for the study was gotten from the secondary sources. These include the central Bank of Nigeria statistical bulletin, CBN annual reports and briefs, the internet, Publications of the Nigerian Communication Commission (NCC) and International Telecommunication Union.

The population of this study was all the banks in Nigeria Financial System. The sample size taken in this study was the deposit money banks (DMBs) in Nigeria.

#### **3.2 Model specification**

This study adopted the OLS model used by Osuala (2010) with little modifications. The underlying assumptions of this study states that banks performance BPerf is a function of ICT. It is given like this  $BPerf = F(ICT)$

Banks performance is the dependent variable while ICT becomes the independent variable. Banks total asset (Bank Assets) has selected as a proxy for bank performance, new Direct Line users (DLine) Mobile users (MBLine) and Internet Network users (INTERNET) are taken to be proxies for ICT.

Mathematically, bank Asset = f (Dline,/MBLine, INTERNET)

This can be stated econometrically as below:

$$\text{Bank asset} = \beta_0 + \beta_1 \text{DLine} + \beta_2 \text{MBLine} + \beta_3 \text{Internet} + u_i \dots (1)$$

Where:  $\beta_0$ , the constant/ intercept

$\beta_1$ ,  $\beta_2$  and  $\beta_3$  are the slopes the of the (various) independent variables

**Bank asset:** is the total bank asset the dependent variable.

DLine is the figure for direct line usage.

MBline is the figure for mobile line usage.

(INTERNET is the figure for internet network usage.

## Techniques of Analysis

Multiple regression analysis was done on the data using the E-view version 8.0

## 4. Data Presentation, Analysis, and Discussion of Findings

Data to be used will be extracted from CBN Statistical Bulletin, International

Telecommunication Union and Nigeria Communication Commission. Multiple regression analysis were done on the data using the Eview 8.0

### Restatement of Hypotheses

1 . H<sub>0</sub>: ICT has no significant impact on banks assets in Nigeria

## Result of Analysis

Dependent Variable: BANKASSE Method: Least Squares Date: 01/20/17 Time: 13:31 Sample: 2000 2015 Included observations: 16

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	1278823.	957793.9	1.335176	0.2066
DLINE	0.909361	0.972060	0.935500	0.3680
MBLINE	0.189072	0.034394	5.497216	0.0001
INTERNET	-0.011801	0.064635	-0.182579	0.8582
R-squared	0.989628	Mean dependent var		12963297
Adjusted R-squared	0.987035	S.D. dependent var		9552970.
S.E. of regression	1087754.	Akaike info criterion		30.84945
Sum squared resid	1.42E+13	Schwarz criterion		31.04259
Log likelihood	-242.7956	Hannan-Quinn criter.		30.85934
F-statistic	381.6431	Durbin-Watson stat		1.504728
Prob(F-statistic)	0.000000			

**Source:** E-view 8.0

The result shows that direct line (DLINE) has positive but weak impact on bank asset. It indicates that limit increase in DLINE leads to 0.909unit increase in banks assets. The t-cal result shows that its prob.value is 0.3680 implying an insignificant effect hence acceptance of the null hypothesis that fixed line telecommunication has no significant impact on growth of banks assets in Nigeria. This is not surprising because the national carrier in charge of fixed lines has had little investment from both the government and the private sector comprising of local and foreign investors. The poor investment and subsequent poor service has led to low patronage, poor returns and less contribution to banks assets.

The result also shows that GSM mobile usage has positive and significant effect on banks assets as limit increase in MBLIne leads to 0.189 unit increases in banks assets. The t-cal shows that its prob.value of 0.001 which is an indication that there is significant relationship between use of mobile lines and bank asset growth, thus the alternative hypothesis is accepted that GSM mobile usage has significant impact on growth of banks asset in Nigeria. This indicates that increasing access to the use of mobile phones and lines has impacted greatly on GSM providers' returns thus rubbing

off on the banks capital and assets.

In our third result, internet usage was found to have negative and significant effect on banks assets. That is, 1 unit increase in internet use leads to -0.011 decrease in bank assets. This could be as a result of fluctuation in internet usage since it is not all those that make use of smart phone accesses the internet despite the increase in the use of smart mobile phones. Moreover, there is also low literacy level on internet usage to transact banking business. The t-cal was found to have a prob. Value of 0.8582 implying an insignificant effect hence acceptance of the null hypothesis that Internet usage has no significant effect on growth of banks asset in Nigeria.

The F-cal was found to be 293.653 which is significant at 5% confidence level, an indication of the joint impact of the various variables that is, fixed lines, mobile lines and internet usage have impact on banks assets.

The coefficient of determination  $R^2$  result of 98.96% shows that the variables are strongly fitted, that is, 98.96 percent of the variation found in banks assets is explained by the presence of DLINE, MLINE and INTERNET while the remaining 1.2% is the unexplained variables. This was also confirmed by the adjusted  $R^2$  estimated as 98.7%. It goes to confirm that use of ICT services have impacted on banks performance especially in their assets since less money is withdrawn and transaction over virtual means rather than physical processes.

YEAR	BANK ASSET	D LINE	MLINE	INTERNET	
2000	2000	1568839.	553374	30000	78740
2001	2001	2247040.	600321	266461	113280
2002	2002	2766880.	702000	1 569050	414116
2003	2003	3047856.	888534	3149473	740394
2004	2004	3753278.	1027519	9147209	1749138
2005	2005	4515118.	1223258	18587000	4954121
2006	2006	7172932.	1687972	32322202	7946863
2007	2007	10981694	1579664	4039561 1	9964584
2008	2008	15919560	1307625	62988492	23981601
2009	2009	17522858	1482000	74518264	31076204
2010	2010	17331559	1050237	87297789	38329867
2011	2011	19396634	719406	95167308	46680049
2012	2012	21288144	418166	112777785	55506299
2013	2013	24301214	360537	127246092	64229097
2014	2014	27481533	123219	136676606	76324632
2015	2015	28117616	127410	148681362	97032543

Source: NCC Publication 2015

Dependent Variable: BANKASSET

Method: Least Squares Date: 01/20/17 Time: 13:31

Sample: 2000 2015

Included observations: 16

Variable	Coefficient	Std. Error	t-Statistic	Prob.
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Log likelihood	-242.7956	Hannan-Quinn criter.		30.85934
F-statistic	381.6431	Durbin-Watson stat		1 .504728
Prob(F-statistic)	0.000000			

Source: E-view version 8.0

## 5. Conclusion

The study focused on the effect of ICT on banks performance in Nigeria, using a spanning a sixteen years period from 2000 to 2015. Overall, the study shows that Nigerian banks have embraced ICT usage, more especially from the early 2000s and had extensively applied it in their business operations over the years. The results of the regression analysis also show that ICT indicators combined together have a strong positive and significant impact on total banks assets (Bank Assets). Individually, access to mobile line usage has exerted positive and significant impact on banks assets than access to internet network. This may be as a result of inability of many that have mobile lines to browse with them and high cost of internet network services and products. On the other hand, the weak side of direct line usage may be attributed to the decline in the use of land lines/direct lines (Fixed telecomm). People are no more patronizing the fixed telecomm products orchestrated by the advent of internet network, mobile cell phone and website usage.

## 6. Recommendations

Based on the findings, the paper recommendations as listed below:

- i. The government and those in authority should intensify every effort towards developing ICT friendly infrastructures to bring about workability of banking ICT products and services, including reduction in the cost of creating and sustaining such products and services in order to cut down system failures to the barest minimum.
- ii. Nigerian banks should channel greater attention towards ICT usage in their business transactions, for them to be able to sustain improved performance and remain competitive.
- iii. The banks should also endeavour to procure quality ICT gadgets that will improve efficiency and customers' retention.



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