INFORMATION TECHNOLOGY AND BANKING SERVICES: SYNERGY THAT DRIVES NICHE QUALITY CUSTOMER DRIVEN SERVICES IN NIGERIAN BANKS

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Abstract

The rising cost of information Technology (IT) in Nigerian banks together with higher benefit expectations associated with it have increased the need for understanding the costs and benefits relating to IT. The objective of this paper is to evaluate the effect of information Technology (IT) on quality customer driven banking services generally and to examine the notable gamut of information technology investments impact on bank income streams and services. This research work further evaluates the aspects of present day proactive banking operations where performance could be significantly enhanced through the application of information technology.

Keywords: Information Technology, Bank, Banking Services.

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1. INTRODUCTION

The implementation of financial reforms in Nigeria has raised academic interest as regards the proper timing of financial reforms within the overall adjustment programme and the appropriate sequencing of financial reform policies.These issues are now of particular concern because the implementation of financial reforms has been accompanied by variable rates of inflation and an increase in the number of problem banks. There are worries that these undesirable phenomena may have arisen from the improper timing and wrong sequencing of the Nigerian reform policies.All over the world, Information Technology (IT) has become the digital nervous system of banks. This is because the business of banking is no longer perceived as merely the generation of deposit liabilities and the creation of liquid assets; but rather the generation, storage, manipulation, communication and application of financial information. IT is perceived as an instrument for engendering competitive advantage in enterprises as it promotes greater efficiency and effectiveness in financial transactions. Information and communication technology in banking services represents a major innovation in the practice of banking in Nigeria it is a change from the manual system of transaction to the use of electronic device to perform operation with greater speed and accuracy. The development and use of IT in banks deposit mobilization emerge as solution to the problems inherited in the manual system transaction processing with the ever increasing volume of transaction that the banks have to handle the need to provide better quality service to customers in area like convenience, time and place of business transaction. Information technology (I.T) has provided an adequate solution so far in transaction. Information (I.T) has provided an adequate solution so far in these areas. This work will examine various form of I.T system used in banks.

2. Conceptual Framework

Business organization, especially the banking industry of the 21st century operates in a complex and competitive environment characterized by changing conditions and highly unpredictable economic climate. From the global perspective and within the context of national boundary of individual organizations, these changing environmental constraints not only affect their internal structure but also their survival, growth and development. Information Technology (IT) is at center of this global change curve. Laudon, and Laudon, (1991) contend that managers cannot ignore Information System because they play a critical role in contemporary organizations. They

pointed out that the entire cash flow of most fortune 500 companies is linked to Information System. Information Technology directly affects how managers decide, how they plan and what products and services are produced.

The lack of accurate quantitative measures for the output and value created by IT has made managers' job of evaluating Information Technology investment particularly difficult. However, whether investments done in IT actually real benefits to the organizations is still a matter of debate in the academy. Adetayo et al., (1999), BitettabdBitett (1995), emphasized the effect of IT on business and the effect of business on IT while Oyebisi, et al., (2000) claimed that only banks that overhaul the whole of their payment and delivery systems, operations and apply IT devices are likely to survive and prosper in the new millennium.

Electronic banking refers to the use of information communication and technology particularly the internet to buy, sell and market goods and services to customers. The internet has brought about a fundamental shift in national economics others that isolated by barriers to cross-border trade and investment, distance, time zone and language, isolated by national differences in government regulations, culture and business system (Mohammed, 2007).

3. Literature Review

At the heart of this new epoch of economic and technological development is Information Technology (IT). The world as we know it is changing dramatically in terms of the way we see, work, socialize, learn, shop and conduct business due to the widespread and increasing use of IT. The technology will engender what Toffler (1990) refers to as a 'power shift' giving rise to an entirely new 'system for wealth creation' and the distribution of power. It is for this reason that Frenzel (1996) writes that:Information Technology (IT) is radically altering the balance of power between institutions, government, and people by broadly disseminating important information. Power bases dependent on information virtually flows around the globe without restriction. Information technology has altered the way many people do their jobs, and has changed the nature of work in industrialized nations. The practice of management has been greatly affected and aspiring managers must be fluent in new management trends and techniques in order to succeed.

Writers like Toffer (1990), Glastonbury and LaMendola (1992), Frenzel (1996), Naisbitt (1994), and Gates (1995), are also of the opinion that, in the next millennium. IT would determine the countries that would be leaders and those that would be laggards, those that would be rich and those that would be poor, and those that would be powerful as against those that would be weak. It is the merging of the two technologies, especially their organizational and management aspects, that help in fashioning IT for organizational use (Woherem, 1991 and 1993; Frenzel, 1996). In the 1970s and 1980s, the focus is shifting quickly to telecommunications. Frenzel (1996) pointed out the importance of IT in enabling enterprises to develop more effective and efficient operational and management processes. It is also the reason why Holloway (1995) posit thus:*An increasingly important component of bank's technology focus is the personal computer. From risk management to commercial and consumer lending and from employee training to product development and delivery, personal computers are being used a as tool to re-engineer the bank. In many instances, local area network (LANs) and wide area networks (WANs) are facilitating the process, enabling bank employees to access and use information in a more timely and efficient fashion.* While Bell (1973) and Myeis (1970) both emphasised how computer technology enlarges range and spread at which data are available.Laudon (2008) pointed out that the world largest and most widely used network is the internet. Internet is the main vehicle for public computing (PAC). Internet offers an excellent environment for banks to experiment with the delivery of home banking (Bill, 2007). It has been used develop, virtual banking in Nigeria. Lynda (2008) defines Electronic Home and Office Banking (RHOB) as a subset of the business to customers and could be reduced, sometimes dramatically, by conducting actions over the internet. Loudon (2006) observed that internet is reshaping the daily life. By eliminating many technical, geographical and cost barriers obstructing the global flow of information the internet is accelerating the information communication and technology revolution inspiring new use of information systems and new business models.

One major attraction of internet and other tele-banking device is that they have facilitated Electronic Home and Office Banking (EHOB). This device enables customers to carry transaction with their bank through VSAT (Very Small Aperture Terminal) VSAT is a satellite communication system that servers home and business users. Customers with such terminals are able to contact the work for any form of information required. Information on bank balances.

For several years, scholar and policy makers lacked conclusive evidence that the high levels of spending on IT by businesses improves their productivity, leading to the coining of the term ''IT productivity Paradox''. Morrison and Bernact (1990); Baily (1986b) and Strassman (1995) and Franke (1987) posited that additional investments contributed negatively to productivity, arguing that estimated marginal benefits of investments (in IT) are less than the estimated marginal costs''.

In recent times, researchers working with firm-level data have found significant contributions from IT toward productivity (Lichtenberg 1995: Brynjolfson 1993: Bresnahan 1999: Brynjolfson and Hitt 1995; 1996; 1998; Barua et al, 1991 and Harris and Katz, 1991). Baua et al (1991), Steiner and Teixeira (1991) Strassmam (1995), Hitt and Brynjolfson (1996) and Renkema (2000) all argued that although IT investment have increased productivity, it has not resulted innormal business profitability rather there were some evidences of small or negative impact on profitability.

Information Communication and Technology (ICT) is the modern handling of information by electronic means which involves access to, storage of, processing, transportation or transfer and delivery (Bell 2008) it is acquisition, processing, storage and dissemination of vocal, pictorial, textual and numerical information by a micro-electronic based combination of computing and telecommunication (Lucey 2008).

The focus of ICT is on telecommunication and computerization (Lucey 2005) it implies the convergence of computing and communication (Telecommunication) technologies and its uses or application for global internet, Extranet World Wide Web (WWW), Visual reality cyberspace-the New Digital Mentality and culture (Uwaje, 2007). Information Communication and Technology comprises the physical devices and software that link (connect) various computer hardware components and transfer data from one physical location to another (Laudon 2008). Connectivity has facilitated the use of electronic delivery financial transaction. Channels Distances and geographical location are no longer barriers to financial transaction.

Networks

Digital computer networks interconnect multiple computers and other devices that are based on computer-based data. They are networks of computers scattered in different locations, such that data can be received or transferred from one location to another.

Depending on the size of area covered by the computers in a network, we can have (mainly) a LAN or WAN.

Digital computer networks differ from ordinary telecommunications networks in that the former carries digital (on and off) signals, whereas the latter carries analog signals. Once the network is in place, users can send e-mails (electronic messages, on any issue) to one another. They can also use it to automate some of their workflows, share computer resources such as software programs or printers, have access to a common bulletin-board, send data files other files to other users, an log in to remote computers.

a) Local Area Networks

Short distance electronic communication between intelligent workstations is supported by a networking technology known as local area network (LAN). The Institute of Electrical and Electronics Engineers (IEEE) defines a LAN as 'a data communication system that allows a number of independent devices to communicate directly with each other, within a moderately-sized geographical area over a physical communication channel of moderates data rates'.

b) Wide Area Networks

The networks that tie all these users together are called wide area networks (WANs).

LANs are designed around relatively simple bus or ring topologies but WANs cover much larger areas, sometimes spanning several continents. In such a situation, the LAN protocols are inappropriate and new ones must be defined. The topologies of WAN are complex, usually somewhere between a simple bus or ring structure and a fully connected one.

In addition to spatial considerations and complexity of design, there are other differences between LANs and WANs, for example, what a typical LAN uses include file transfer, electronic mail, and file servers; while people use WANs for electronic mail and file transfer, and also for remote log ins, that is, applications in which a user in one location logs in to a computer at another. Another difference is in routing.

c) The Internet

The Internet is a well known network. It actually consists of many networks which are collectively called the Internet. Its history dates back to the late 1960s when the Advanced

Research Projects Agency (ARPA) of the U.S. Department of Defense (DoD) began funding universities and private organizations for the purpose of developing communications systems. The research eventually led to the development of ARPANET, a small experimental network that demonstrated the feasibility of connecting different computers by a packet switching network. It has since grown and evolved into the Internet which connects thousands of universities, private institutions, and government agencies worldwide.

The millions of users on the Internet can communicate with one another in a variety of ways, including the following:

Telnet (terminal emulation link network). Telnet allows you to connect to a remote system and operate it from your computer.

*FTP (*File transfer protocol). A program that allows you to connect to a remote system and transfer files to and from that system.

*Gopher.*A browsing system that gives you access to data and information resources linked together by a menu system. For the most part, the World Wide Web is replacing this technology.

WWW (world wide web). A complex collection of graphically linked documents stored on thousands of computers around the world. Each document connects to other documents via hypertext links.

*WAIS (*Wide Area Information Search). A complex searching program (called a search engine) that locates information resources on the Internet by means of scoring system. Each resource is 'weighted' based on the pre-determined search criteria. The WAIS server then presents you with the results of the search.

*E-mail (*electronic mail). A method of sending typed notes or letters across a computer network. Some companies have e-mail that works within the company. You can also use the Internet to send e-mail.

*Usernet.*A collection of discussion groups (usually called *newsgroups)* stored in a central location.

World Wide Web

The world wide web is a large collection of documents stored on the Internet. Each of these documents is linked to other documents with a technology called *hypertext*, which comprises little coloured texts. Each time you click on a green word, the program takes you to a related

'page' or 'document'. That is how hypertext works. With the world wide web, each document can 'point to' or 'take you to' countless other documents on the web.

Today, this is the communication medium that is employed by banks which use the Internet to provide increasingly value-added services to their customers. Nigerian banks are not yet there, but should take appropriate steps towards becoming a part of this inexorable trend.

d) Intranet

An Intranet is a simple means of handling documents and information within an organization, ensuring that users are always provided with up-to-date data and information.

One of its major benefits is that it breaks down the walls of bureaucracy within an organization and enables all units to see what is happening in other units in order to interact with one another in an online, real-time mode.

Group Ware

Group Ware is any software product or technology that enables groups of people to work together. Group ware is designed to improve the productivity of workgroups. It is a relatively new technology that has been made possible by the growth and widespread use of electronic networking. The word 'groupware' was first coined by Lotus to position Lotus Notes. While Lotus Notes is the most visible early example of 'groupware', the technology pre-dates Notes.

Application of Information Technology in Nigerian Banks

World class businesses of our time maintain operation and structure that are easily amenable to new technology. Adopting the right technology is one of the strategic decisions that any bank would make.The following are the areas in which Nigerian Banks have developed information Technology to serve their customers(Richard2003).

1. Automated Teller Machine (ATM)

Automated Teller Machine (ATM) is a cash dispenser which is designed to enable customers' enjoys their banking service without coming into contact with bank tellers (cashiers).The

machine therefore performed the traditional function reserved for bank cashier and other counter staff, it is electronically operated and as such response to request by customers is done instantly. ATM is also introduced in Nigeria Banks to contain the problem of overcrowded banking hall as well as reduced dissatisfaction among bank customers. It could be on-line or off-line.

2. Electronic Fund Transfer

Electronic fund transfer in defined as any transfer of fund which is initiated through an electronic terminal, Telephone instrument, computer or magnetic tape so as to order, instruct or authorize a financial institution to debit or credit an account (Baker and Brandel, 1998). The system allows a customer account to be credited electronically within 24 hours any where in the country. It provides more suitable and cost effective way of transferring funds when compared with the traditional modes such as mail transfer and telegraphic transfer, money transfer through EFT is more secured and time saving.

3. Tele- Banking

Telephone Banking has introduced in the mod 1990's into the Nigerian Banking environment by the new generation banks to decongest the banking hall. The services allow bank customers to access banking services via dedicated telephone lines from the comfort their homes, office and automobiles.Through telephonebanking, customers could their balances, authorizes inter branch money transfer and query detailed transaction on their accounts while new cheque books, cheques orders and payment of due could also be effected.

Telephone banking services can be categorized into four namely:

- ❖ Accessing of account balance
- ❖ Transfer of self
- ❖ E-commerce payment
- ❖ Transfer to third party

4 Internet Banking

Oluwasanya . (2011) defined internet as an all-encompassing interconnection and interrelation of millions of computer all over the world. Each computer or personal computers

so connected maintain its own portion of the internet. All these PC'S operate a common language or protocol as a standard. This enables seamless communication between all these computers.

Information Technology Enabled Banking Services

There are some germane banking services and operations that are driven and enabled by information technology so as to engender quality customer driven services bank-wide. Information technology drivers of banking services are in different shapes and sizes notably:

a) *Income Streams Process Management*

The key too for doing this is an effective MIS, which is totally dependent on IT. Through IT, it is now possible to produce management accounts of a big multi-branch bank (which is about 95% or more complete) straight from the bank's IT systems immediately after the end of month processing.

b) *Transaction Processing and Recording*

The most apparent and widely applied advantage of technology rests in this ability to automate information-intensive (and particularly paper-intensive) transactions and services. Such information constitutes the core component of business process integration. Today's technology makes it possible to build an 'electronic highway' linking related business processes through shared information on a common IT platform.

c) Quality CustomerDriven Service

Service is at the heart of the business of banking information technology has played, is playing, and will continue to play a major role in the delivery of quality service in the banking industry. Financial institutions have used IT aggressively and innovatively to create the requisite competitive advantage and to dramatically improve the quality of service delivery to their customers.

d) *Account Opening*

Self-service (automated customer service machines) facilities now exist. From these machines, prospective customers wishing to open an account can (after being screened and found eligible) complete their account opening documents direct online, have their data validated, have account numbers assigned, and advised when/how their cheque books, credit/debit cards, etc, will be delivered to them.

e) Self-Service Tellers

Self-service tellers, such as touch screens for enquires, online ATMs for cash withdrawals, deposits and statements of account are now commonplace. These are used to make the delivery of banking services more participatory for customers, and more efficient and less monotonous for bank staff.

f) Complete Online, Real-time Capabilities.

This is one capability employed by banks today in their drive to provide more and more quality service to customers. A bank with this capability can deliver the same quality of service to its customers irrespective of the branch where a customer's account is maintained. These services has been successfully used to positively reinforce the relationships between banks and their customers who are no longer treated as belonging to a particular branch, but belonging to the bank as a whole.

g) Cash

ATMs are replacing live tellers and have made cash withdrawals more interactive and participatory for customers. They also help maintain confidentiality and improve the quality (speed and accuracy) of cash withdrawal transactions, processing and recording. For encashment of cheque by third parties, the availability of all information required to decide whether or not to pay a cheque is today, at the disposal of all.

h) Electronic/Home Banking

Rapid advancement in technology has made the provision of home banking services a pleasant reality to the public. Under the scheme, customers, for a reasonable fee, can receive an increasing range of banking services such as utility bill payments, setting-up standing orders, transferring funds from their accounts to that of another customer of same bank or to another customer of another bank, confirmation of account balances and, indeed, online statements of account.A customer would require a personal computer (PC)

equipped with a modem for connection to a digital telephone line to enjoy full home/electronic banking services, and the bankwhich provides this service must implement a secure electronic banking software, integrated to its core banking applications software.

i) *Customer Account Mandate Maintenance*

The document imaging capabilities of many banking applications software in the market today now make it possible for detailed information on a customer's mandate cards to be scanned into the system and tied to such information. This functionality has improved the security of customer mandate maintenance and the efficiency of mandate verification (a mandatory task for detecting forgery and to avoid making payments out from a customer's account on a wrong mandate).

j) *Stopped Cheque*

Many applications software now come with cheque number validation functionality. With this function, banks can effortlessly and accurately flag a stopped instrument and successfully avoid paying instruments in error.

k) *Risk Management*

Corporations are known to maintain their corporate policies and procedure manual on CD ROM, which is networked to all PCs in the organization for easy reference. Citibank is one institution that employs this IT-aided information dissemination strategy, called CITI-MAIL.

l) *Credit Risk Disbursements*

Credit risk disbursements is becoming increasingly centralized due to the functionalityof IT. It should be done only when a loan customer has met all the conditions precedent for drawing down the approved facility..

m) *Approved Credit Limits Monitoring*

With the power of information technology (IT), Risk Management Officers in banks are now more able than ever before to monitor the bank's exposure to customers. The linking of related accounts has facilitated the monitoring nor only of individual accounts, but also of a group of accounts, thereby ensuring that group credit limits are not exceeded even when some accounts belonging to a group are well within their individual limits.The limits monitoring facility is known to be playing a major role in budgetary control.

n) Corporate Planning

This is the driving force for strategy formulation and decision making aimed at creating competitive advantages for the organization. Consequently, the decision on the degree of automating the processes of an organization, the adoption of the manual and auto interfaces, and the type of comprehensive IT solution to be implemented to achieve all of this is influenced, to a large extent, by corporate planning.

o) Reconciliation and Reversal of Wrong Entries

Bank reconciliation is a long standing and effective management control over bank balances. The whole idea is not just to reconcile the bank balance as reported in the books of a customer with that on the bank statement, but to ensure that all outstanding items on both the bank statement and the customers books are genuine reconciling items..

p) Opportunity Management

For any given situation, people will develop a repertoire of responsive actions. If any behavior proves to have a consistent outcome, then people will begin to form a strong association between the action and the result. If this continues over time, then the association will become an assumption, or what is often referred to as a known practice.

q) Cheques & Clearing

IT has revolutionized the processing of cheques and other negotiable instruments by automating their processing. This is possible today as a result of the integration of the Magnetic Ink Character Recognition (MICR) technology into banking. The MICR technology involves the use of pre-encoders to code instruments with serial numbers, the bank's and customer's unique details, and post-encode to enter the amount on the code line of each cheque received by the collecting bank from its customers, before presenting the cheques at the clearing house.

r) Fund Transfer

Full online, real time IT capabilities have revolutionized fund transfers by banks. Seamless interfacing for transactions in this category e.g, ATMs, automated approvals of

credit card purchases, Bio-ID which sometimes employ bar-code readers for photographs, signatures, fingerprints, etc.

s) *Value Dating*

The value date is a vital piece of information for all transaction affecting the treasury and money market contract, be it a loan (asset) or a deposit (liability) deal as well as all interest-bearing accounts, e.g overdraft.

t) *Rate Charges*

Like value dating, interest and exchange rates are vital information to all interest bearing and foreign exchange transactions. These rates vary enormously with time.

u) *Effective Presentation*

a. The starting point of every strategic assignment is to properly articulate the concepts and ideas through analysis, before recommending, from a cost/benefit point of view, the best alternative course of action for the organization. These are professionally presented to the bank's management for approval, before implementation.

v) *Service Quality*

Quality control is important for the healthy growth of banks. There is need for clearly defined sets of standards to be achieved, especially concerning service delivery to customers.

w) Corporate Planning

Corporate planning is done through special IT package for work study, ergonomics, operations research, linear programming and similar mathematical models, are able to cope with the present day challenges of benchmarking the quality of their service, comparing performance with those of competitors, and recommending requisite process improvements or re-engineering schemes to upgrade and sustain service quality at the desired levels.

x) *Resources Allocation*

One IT-aided management technique which has been successfully employed in the financial services industry to great advantage is the 'Queuing Theory' which has been applied to problems related to waiting periods at the counters.

y) Financial Controls

The responsibility of the financial controller of a bank includes ensuring that proper books of accounts are kept; and that the accounting policies of the bank are appropriate and consistently applied.

z) The Chart of Accounts

The chart of accounts is the foundation on which the financial controller builds both his MIS and statutory compliance reporting job function.

aa) Budgeting and Budgetary Controls

The financial controls unit of any modern organization relies, to a large extent, on sophisticated IT capabilities to effectively perform this task. The annual profit management process begins with the preparation of the corporate budget for that year.

Pains of Information Technology in Nigerian Banks

In Nigeria, the use of computers has been more widespread in banks than in all other sectors of the economy, except, perhaps, the energy sector. Yet, the banks still have a long way to go in order to meet the standards of computer and telecommunications use in banks in other parts of the world. There are many problems confronting banks in Nigeria in their use of IT. Studies have revealed the most of the problems of the banks are telecommunications-related, and are directly traceable to problems with the public telephone network and services which are the backbone of their communications links, and which depends on the services of the national public telecommunication operator, the Nigerian Telecommunications.

We have identified eleven major categories of IT-related problems facing the banking industry in Nigeria today.

One of the major challenges facing Nigerian banks in their attempt to ensure a smooth exchange of electronic data and information are as follows:

- The need to build a better and more optimal infrastructure that will serve as a backbone for communications within the banks.

- The need for banks to come together to collaborate in sourcing some new and common technologies such as the VSAT, and to decide common standards for credit and electronic wallet cards.
- The need to professionalize IT systems development, use and management in Nigerian banks;
- The need to impress upon the government and the public the importance of improving the present telecommunications infrastructure;
- The need to establish independent and private radio and satellite networks.

4. Conclusive Remarks and Recommendations

Information and communication technology have become very important as delivery systems and productivity tools of electronic data and information. Nigerian banks have now realized that banking today requires prompt quality driven services, efficiency and the ability of customers to be served in any of their branches in any part of the country, without any encumbrances. As a result of these, banks embarked on the use of integrated banking applications that can help them to provide efficient, comprehensive and nation-wide services to their customers, through the use of WANs. With the acquisition of the above systems, they sold their services with promises of delivering online, real-time services. However, they have been finding out that their systems are down for about 50% of the time. Therefore, the single most important problem hindering Nigerian banks from providing international class banking services is the poor state of the country's telecommunications infrastructure.

Some of the more practicable solutions that have been recommended as ways of moving the banking industry forward with regards to their communication problems and challenges are outlined below:

- Government should be sensitized about the need to formulate policies that would allow for long-term investments in the telecommunications industry
- Emphasis should be placed on the importance of maintaining existing infrastructure and equipment
- A reduction in import duties, tax and the time it takes IT equipment to be cleared at the Customs is needed.

- The awareness of the banks, and indeed the general public, on the advantages of IT and communications should be increased by way of enlightenment campaigns and through any other productive means.
- For the essence of this research work; it has confirmed that the ICT has continued to change the face and mode of banking in Nigeria. But a lot of efforts are however required to fully utilize its numerous capabilities for this reason the following are recommended:
- Banks in Nigeria should explore the internet more intensely to avoid themselves of the bountiful opportunities locally and globally. This can be done by utilizing the service of internet provider (ISP_s)
- Banks should also ensure safety of financial transactions on the net and ATM via authentication. Authorization, data integrity, and non-repudiation and also well protected private networks should be employed were the source of the request for payment is recorded and proven.
- The Power Holding Company of Nigeria should be revitalised to provide more reliable electric power supply to the consumers. Meanwhile Alternative source of power such as independent power stations and generating plants should be used to avoid the damaging effect erratic power supply.
- The national telecommunication carriers, Globacom, Mtn, Airtel, Visafone, Multilinks, Starcoms, Etisalatetc should be properly reengineered to improve on its efficiency in the provision of telecommunication service which give the necessary platform for full banking automation.
- The government and private initiative be encouraged to improve on this sector of the economy there is need for improved national image on the international arena and in appropriate legislation put in place to guide the operations of Web commerce.
- Similarity, concerted efforts are required for the provision of basic infrastructure in the areas Web presence, internet access, and e-payment.
- The entire populace must be encouraged to embrace the e-banking culture as this will in turn reduce the amount of cash in circulation and boost he e-commerce culture.

- Sequel to the above findings, the study recommends that Nigerian banks should invest more on IT capital. This will assist in improving the contribution of IT capital to productivity and further enhance the contribution of IT investments to productivity.
- Nigerian banks should adopt policies that support the employment of more IT labour because it is the most significant of all the independent variables in the study. Banks also need to support research aimed at evolving better strategy for making IT investment to enhance profitability.
- Finally, there is need to develop better datasets and models that will be able to control for more of the additional factors that affects profitability with the possibility of revealing a relationship between IT investment and financial performance while the use of intermediate outputs such as inventory levels, planning cycles, assets utilization and measures of operations performance known to have direct link profitability to establish the impact of IT investments.

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