IMPACT OF INFORMATION AND COMMUNICATION TECHNOLOGY ON PERFORMANCE OF BANKS IN NIGERIA: A STUDY OF SOME SELECTED BANKS IN KARU

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A PROJECT SUBMITED TO THE SCHOOL OF POSTGRADUATE STUDIES, NASARAWA STATE UNIVERSITY, KEFFI IN PARTIAL FULFILMENT OF THE REQUIREMENTS FOR THE AWARD OF MASTERS IN BUSINESS ADMINISTRATION (MBA)

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DECLARATION

I hereby declare that this dissertation has been written by me and it is a report of my research work. It has not been presented in any previous application for any Masters in Business Administration. All quotations are indicated and sources of information specifically acknowledged by means of references.

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CERTIFICATION

This research project "**IMPACT OF INFORMATION AND COMMUNICATION TECHNOLOGY ON PERFORMANCE OF BANKS IN NIGERIA:A STUDY OF SOME SELECTED BANKS IN KARU**" meets the regulations governing the award of Masters in Business Administration (MBA) of the School of Postgraduate Studies, Nasarawa State University, Keffi, and is approved for its contribution to knowledge.

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DEDICATION

This research project is dedicated to Almighty God.

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ABSTRACT

The objective of the study was to examine the impact of information technology in banking transactions to determine whether it has improved the efficiency of the industry in terms of high performance and providing services to customers. The methodology adopted in this research is the primary and secondary method of gathering data. The population of the study consist of members of staff of Diamond Bank Plc,First Bank Plc and Ecobank Plc in Karu, Nasarawa State and the statistical techniques used in analyzing data is the chi-square technique. The finding shows that adoption of Information and Communication Technology in Nigerian banking sector has helped tremendously save time on banking transaction, increased speed of transaction, also helped to reduce error rate in banking transaction leading to improved service delivery. The study recommended that banks should embark on more effective training for the staff so as to meet the present technological challenges, in order to further enhance their performance. And also management of banks should procure quality Information and Communication Technology gadgets that will enhance efficiency and customers.

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CHAPTER ONE

INTRODUCTION

1.1Background to the study

Information has always played a prominent role in human life but the emergence of social progress and the vigorous development in science and technology has immeasurably increased the role of information in every facet of human endeavour. The rapid expansion of a mass of diversified information has born the term “information explosion” and gave rise to a scientific approach in information and elucidation of its most characteristic properties which has led to principal changes in interpretation of the concept of information. It was broadened to include information exchange not only among men but also among machines as well as the exchange of signals in the animal and plant worlds.

The need for efficiency and effectiveness in the running of the Banks as leading players in the cohort of financial services providers of a nation thus cannot be overemphasized (Binugo and Aregbeshola, 2014). Before the coming of information technology, the transaction of businesses especially in the financial sector was difficult and stressful; hence, the low performance level of banks in Nigeria. Technology has indeed influenced the performance of all Nigerian Banks in the last decade. This period has been associated with the provision of dynamic customers focused on banking services, improved regulation and high profitability. Binugo and Aregbeshola (2014) assert that recent advances in the technological world giving birth to the emergence of information and communication technology (ICT) have led to remarkable changes in the ways businesses are run in contemporary times. This development is underscored by contemporary advancements engineered by the knowledge economy. It is also important to state that

modern banking in Nigeria is driven by the outputs from robust local and global research and development

The pace of change brought by new technologies has had a significant effect on the way people live, work, and play globally. Today's business environment is very dynamic and experiences rapid changes as a result of creativity, innovation, technological changes, increased awareness and demands from customers. Business organizations, especially the banking industry of the 21st century operates in a complex and competitive environment characterized by these changing conditions and highly unpredictable economic climate with Information and Communication Technology(ICT) is at the centre of this global change curve. Laudon and Laudon, (1991) contend that managers cannot ignore Information Systems because they play a critical role in contemporary organization. They point out that the entire cash flow of most fortune500 companies is linked to Information System. The application of information and communication technology concept, techniques, policies and implementation strategies to banking services has become a subject of fundamental importance and concerns to all banks and a prerequisite for local and global competitiveness. ICT directly affects the various management functions of planning, organising and the nature of services offered in the banking industry. It has continuously changed the way banks organised their corporate relation worldwide with the variety of innovative devices available to enhance the speed and quality of services delivery The universal banking system was introduced in Nigeria in the early 1990s and rest of the world as an offshoot of globalization. Under this new system, banks were no longer specialized in either merchant banking or commercial banking; rather they are allowed to

provide banking and other financial services to their customers under the new universal banking license. Banks could therefore provide commercial banking, stock broking, insurance business, asset and trustee management services under the new banking regulation. It also prompted a rapid and significant branch office expansion program with its attendant significant increases in the volume of customers' transactions in banking industry for survival and profitability (Johnson, 2005).

The increased demand for information and communication technology (ICT) in banking sector became imminent and unavoidable in the world at large and Nigeria in particular. Invariably, the future lies in the ICT driven banking systems and services. Banks have embarked on deployment of ICT based banking products and services such as automated teller machine (ATM), internet banking, mobile banking solutions, point of sale terminals, computerized financial accounting and reporting, human resources solution among others (Ovia, 2005).

Linked to this, was the banking license liberalization of the early 1990s in Nigeria.

The landmark period witnessed the birth of the new generation banks (i.e. GT Bank, Zenith Bank, etc.) that commenced operations with the state-of-the-art technology, which exposed the sluggishness and inefficiency of the older banks (i.e. the three Giants; First Bank, UBA and Union Bank). Some researches had shown that the then "re-engineering" fever, compelled the old generation banks to change. It was further stated that the trend actually took selected commercial banks some time to follow suit because the issues were much more than designing algorithms and chewing seminal computing papers from first class journals.

The role of ICT in the banking sector became of interest to this study due to the significant role it plays in the economy by stimulating economic growth through the intermediation of funds to economic agents that need them for productive activities. This function is very vital for any economy that intends to experience meaningful growth because it makes arrangements that bring borrowers and lenders of financial resource together and more efficiently too than if they had to relate directly with one another (Adam, 1998; Ojo, 2007).

1.2 Statement of the problem

One of the challenges confronting e-banking in Nigeria could be classified into three classes as human, operational and technical constraints. The human constraints include physical disability, poor sight, illiteracy and ageing. The operational constraints include insecurity of funds transferred, frauds and standardization of channels. The technical constraints are centered on the lack of supporting infrastructures such as erratic electricity supply, interdependence and lack of encryption on short message system (SMS) messages (Agbada, 2008).

Other identified problems that can have an impact on the banks in the adoption of ICT can be grouped broadly as psychological and behavioural. These include consumer awareness, security, accessibility to computers, reluctance to change, the cost of adoption, and preference for personalized services among others.

Additionally, diffusion of smart card innovation needs high investment for the upgrades of ATMs and EFT/POS terminals to be capable of accepting smart cards and presumably a substantial investment in adding smart card technology for mobile computers and telephony stand to be another challenge. The implementation of smart cards for the whole

Europe, according to Visa figures, requires eight billion dollars ($8 billion) investment. Although this is an affordable amount for many of the potential players, most players would only pay the entire amount if it would give them some proprietary or luck in advantage. So far, no player has felt confident enough to take a committed first mover position. This is in developed countries, what more of a developing country like Nigeria (Ovia, 2005).

Coupled with these problems is a situation where a bank issue an individual debit card that is associated with an account with a line of credit and is also an ATM debit card, the individual can perform a number of different types of transactions with the same card. The line of credit could be accessed fraudulently, where the owner has recourse under consumer credit legislation and under regulation if the fraud involves an electronic fund transfer (EFT). When automated teller machine (ATMs) or electronic point of sale (POS) terminals are used, his liability is limited under the EFTA. If, however, the fraudulent use of the card directly debits his bank account in a paper-based transaction, the consumer has no recourse under current legislation. This is an example where the same card represents three different instruments, each of which, in the case of fraud, would require different actions by the consumer (Agbada, 2008).

1.3 Research Questions

i. What is the impact of information and communication technology on time saving of bank transactions?

ii. To what extent has information and communication technology reduce error rate of banking transactions?

iii. What is the impact of information and communication technology on speed of banking transactions?

1.4 Objectives of the study

The broad objective of this study is to examine the impact of information and communication technology on banking transactions in Nigeria, specific objectives are:

i. To examine the impact of information and communication technology on time saving of banking transactions

ii. To determine whether information and communication technology has reduce error rate of banking transactions

iii. To determine whether information and communication technology has increase the speed of banking transactions

1.5 Statement of Research Hypotheses

For purpose of this study the following null hypotheses are formulated for testing

Hypothesis I:

H_0: information and communication technology has no significant impact on time saving of banking transactions

H_1: information and communication technology has significant impact on time saving of banking transactions

Hypothesis II:

H_0: information and communication technology has no significant impact on error rate reduction of banking transactions

H_1: information and communication technology has significant impact on error rate reduction of banking transactions

Hypothesis III

H_0: information and communication technology has not significantly increased the speed of banking transactions

H_1: information and communication technology has significantly increased the speed of banking transactions

1.6 Scope and Limitations of the study

The study intends to evaluate the impact of ICT in banking sector with emphasis on some selected Banks in Karu, Nasarawa State Nigeria. The study of this nature is normally faced with lack of accessibility to data because most of the data are classified and considered to be confidential in nature. However this limitation was overcome by relying on officials in the bank that were capable of furnishing the required information by virtue of their ranks and files. The data obtained is expected to serve the purpose of the analysis. Secondly, lack of cooperation from the bank management and staff on issues relating to ICT investment and other ICT related issues. Often, banks are reluctant to divulge data bothering on these issues for competitive reasons.

1.7 Significance of the study

Information and communication technology has major driving force to the development of technology which has imparted positive in virtually every sector the Nigeria Economy. Information and communication technology has also improved customers knowledge

about the use of computers and other gadgets through which of a bank can access their bank account and make other payment anywhere in the world.

Thus this study will be of great importance to banking industry and any firm to who uses ICT tools in their operations. It will also help them choose the best ICT techniques and strategies to adopt in order to enhance their performance.

This study will also be of great significant to bank customers; since it will expose them to the various banking system provided through ICT and know the one to choose at any given situation.

CHAPTER TWO

LITERATURE REVIEW

2.1 Conceptual Framework

2.1 Concept of Information Technology (ICT)

Information Communication Technology (ICT) is a combination of 'Information Technology and 'Communication Technology'. It merges computing with high speed communications 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' 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).

According to Mejabi, (2008), Information Technology is a general term that describes any technology that helps to produce, manipulate, store, communicate and or disseminate information. Information technology is a term which generally covers the harnessing of electronic technology for the information needs of businesses at all levels (Anderson, 1990).Technology can be referred to as the application of knowledge for the execution of a given task. It entails skills and processes for carrying out activities (works) in a given context. While information and communication technology (ICT), encompasses computer systems, telecommunication, networks and multimedia applications (Frenzel, 1996). It came into use in the late 1980s replacing earlier terms like electronic data processing (EDP), management information system (MIS), although latter terms are still in use (Frenzel, 1996). ICT has transcended the role of support services or only electronic data processing, its fields of applications are somewhat global and unlimited. Its devices

especially the internet through the world wide web (www) and modern computer email facilities have further strengthened early innovations like the telephone and fax. Other ICT devices include data recognition equipment, factory automation hardware and services, telecommuting and teleconference using real time and online system (Adeoti, 2005). It is a concept that is having a remarkable effect on almost entire aspects of the human endeavors. This means that it involves the application of principles to engage physical component in achieving an intended goal. The convergence of computer and telecommunication after about four decades of applying computers to routine data processing, mainly in information storage and retrieval, has created new development where information has become the engine of growth around the world. This development has created catch-up opportunities for developing countries such as Nigeria to attain desired levels of development without necessarily 'reinventing the wheels of economic growth. The new technology has brought far-reaching revolution in societies, which has tremendously transformed most business (banking) scenes (Ovia, 2005).

E-banking service is a powerful tool to reach the doorsteps of unreached community to bring them to the main stream of the economy and also to help them to access banking services. No doubt that today's banking business environment has become dynamic and has undergone rapid change because of the introduction and upgrading of technological tools.

ICT is a combination of computer technology and telecommunication channels like verbal communication, writing, audio-visual and electronic media. Communication and technology are widely used in all aspects of life and increasingly applied to all the sectors of the economy. ICT is a combination of hard ware, software and telecommunications.

ICT can be described as:

Information: - processed data

Communication: - exchange of information from one point to another, either electronically or non-electronically.

Technology: - specific scientific knowledge used in a practical way with advanced tools.

2.1.2 Concept of Banking Technology.

ICT has sprinkled miraculous water on the economy. It is hatching golden eggs and boosting the economy to achieve double digit growth. ICT strategy by bringing transparency and increasing efficiency is helping the banking sector to have a sound financial performance.

Core banking solution helps customers to transfer funds, to operate accounts and avail all banking transactions from any branch of a bank. It creates a network among all branches of a bank.

Core banking solution is used in many ways:

- To get a statement of accounts
- To transfer funds
- To make payments in any branch
- To get demand drafts in any branch.

The core banking solution aims at providing efficient transparent quality service.

1. ATM Service: ATM is also noted as Automated Teller Machine and it is also simply said in commoners' language as any space time money. It is an electronic communication device installed in the premises of a particular or established outside the

area of the bank to help customers to do their transactions without the need of bank staff. Customers have to insert card with magnetic strip which contains their bank information and enter the PIN code to perform financial transactions.

2. Mobile Banking: mobile banking technology is a system that allows customers who have smart phones to perform their banking transaction., It includes:

a. Checking bank statements.

b. Monitoring term deposits.

c. Accessing to mutual fund and equity statements.

d. Accessing to loan statements

e. Paying bills.etc

Therefore, it is said that mobile banking is an e-banking service provided by bank to do transactions in the physical absence of the customer.

3. Internet Banking is a convenient E-banking service provided by the banks to their customers. With this service, customers can do banking transaction anywhere or at home or office. Internet banking services provides the following services:

a. To check account information

b. To open fixed deposits

c. To recharge prepaid mobile

d. To pay utility bills

e. To transfer funds

f. To open or close accounts.

With net banking transactions customers can avail various services online even after banking hours.

I.T is defined by Laudon and Laudon (2001) as interconnected components that gather, process, store, and distributes information to support decision making of users. Information Technology consists of both hardware and software with accompanying knowledge that firms or enterprises uses to achieve business objectives**.** Information Communication Technology (ICT) is one of the technological resources that are being used by organization to enhance their operations. IT Technology give users‟ quality and up to date information that businesses need to make useful decisions for their organization (Laudon and Laudon, 1991) opined that managers cannot do without Information Systems because they play important role in contemporary business organisation. They further contended that IT flattens organization by:

- Pushing decision-making to the lower level employees as they receive information they require to make decisions with minimal supervision.
- IT enables managers to receive much more accurate and timely information which enhance decision making.
- Cost of management becomes much lower with integration of IT in business

organization.

Technology is no longer being used simply as a means for automating processes. Instead it is being used as a revolutionary means of delivering services to customers. The adoption of technology has led to the following benefits: greater productivity, profitability, and efficiency; faster service and customer satisfaction; convenience and flexibility; 24hour operations; and space and cost savings (Sivakumaran, 2005). Harrison Jr., chairman and chief executive officer of Chase Manhattan, which pioneered many innovative

applications of ICT in banking industry, observed that the Internet caused a technology revolution and it could have greater impact on change than the industrial revolution (Engler & Essinger, 2000).

2.1.2 Significance of ICT in the Banking Industry

The **revolution in** ICT has distorted the normal banking culture and created the avenue for banks to emerge into various markets thereby creating value where customer needs are sorted into various categories for prompt attention (Aliyu and Tasmin, 2012). Through this means, the banks are able to sell other products such as insurance and securities together with the banking products they already sell which are all unique to the particular firm. (Delgado and Nieto, 2004). However, the basic reason for making use of the internet and other ICT tools as delivery channels is its power to reduce operational expenses by eliminating the cost of running physical branches. This becomes relevant in the Spanish banking system which has too many branches across Europe since the banks using the internet and other ICT tools as delivery increase their income drastically than those using normal distribution channels DeYoung (2005) and Delgado et al (2006).. Haq (2005) posits that financial institutions are able to survive by maximizing income through the reduction of operational costs. The unit cost of using ICT tools in banking reduce rapidly than the cost associated with physical branch deliver as income grows. Thus Internet banking has become the only innovation that can substitute physical branches in the service delivery of banks (DeYoung et al 2007).Birch and Young (1997) posit that expectations of consumers are about comfort ability, prompt and quality service delivery and transactional security. The introduction of ICT tools in banking has raised the awareness of customer to the existence of a fast and efficient customer service delivery.

2.1.3 ICT in Business.

ICT is central to the operations of business globally and their relevance has assumed global dimension. According to Boateng and Molla (2002) Information and communications technologies (ICTs) has significantly altered the way business transactions are conducted and responding to ever growing demands of customers for most businesses organization. According to Garau, (2002), "The promise of ICTs in the banking sector has been seen in terms of its potential to increase customer base, reduce transaction costs, improve the quality and timeliness of response, enhance opportunities for advertising and branding, facilitate selfservice and service customization, and improve customer communication and relationship". Information Communication Technologies is imperative and has found itself in every business environment. According to Abor (2004) Electronic commerce which is one of the tools of ICT in business is believed to hold the promise of a new commercial revolution as it makes available less expensive and accessible way of exchanging information as well of conducting business transaction. This development has sparked a revolution in the banking sector for the provision of a payment system to match with the demands of the evolving market place (Balachandher *et al*, 2001).

According to OECD (2004), Computers accompanied by various categories of business software can improve information and knowledge management within an enterprise and bring about development of superior business processes and enhance performance. OECD further opined that the use of e-mail and the Internet can support and lead to improve business communication as in business to customers or business to business. In effect cost of transaction could be reduced, trigger in an increase transaction speed and reliability as

well as bring about improvement in quality of service. With regard to banking, a lot of studies have confirmed positive effects of ICT on bank output, cashiers‟ work, banking transaction, bank patronage, bank services delivery, customers‟ services quality as well as bank services. They concluded that, these have positive effects on the growth of banking (Balachandher *et al*, 2001: Idowu *et al*, 2002; Hunter, 1991; Whaling, 1995; Yasuharu, 2003), (Abor 2004).

2.1.4 Categories of information technologies

The Information Technologies can be divided into five categories. Computers, storage media, database, software and communications. Computers are hardware having configurations that consist of input device, output device and memory and storage device. Other equipment's of computer system include the screens/monitor, mouse, Keyboard, speakers, scanners and UPS.

Other various types of computer include: mainframe minicomputers, microcomputers. Laptop and notebook storage media also includes: internal, backing and archival magnetic media tape devices, magnetic, risks, optical media and microform. Database is just a collection of file of information but organized in such a way that the same information can be accessed from different computer in different locations. Closely allied to database, is a data dictionary. A data items used in a computer system, with details of their size and where they are stored and used. This help to prevent anomalies and duplication of information. Databases are also in types, local, corporate and public / subscribes. Software is the most important part of any information technology system. It is a tool, which enables the effective use of the computer. Information technologies are mixtures of solid-state technologies (hardware) and embedded software. Software is a set

of instruction with which the computer can operate and each individual‟s set of instruments is called a program. Types of software include system software, application software and general purpose software. (Adewale and Afolabi, 2013).

2.1.5 ICT Tools Used In Banking.

In recent times, the world is gradually becoming ever more integrated as a result of the integration of information and communication technologies. According to Mousoumi and Jamil (2010), ICT tools such as Email and messaging are now part and parcel of every day‟s communication life. This section looks at the various tools used to provide services in banking industry. One of the IT enabled tools used in banking globally is automated teller machine (ATM). Automatic Teller Machines (ATMs), according to El-haddad and Mahmeed, 1992) is one of the essential the technological innovations introduced in banking. According to them ATMs are probably the most obvious pieces of electronic device used to provide financial services and is indeed growing rapidly. The growth in ATM usage actually reveals it acceptability among customers as a means of accessing banking services.

ATMs is described as: “an ATM combines a computer terminal, record-keeping system and cash vault in one unit, permitting customers to enter the bank‟s book keeping system with a plastic card containing a Personal Identification Number (PIN) or by punching a special code number into the computer terminal linked to the bank‟s computerized records 24 hours a day” (Rose, 1999),. Adewale and Afolabi (2013) described “automated teller machine as a machine built into a well with a computerized system connected to the bank that is providing it”. The automated teller machine is self-service terminals usually at viable locations mainly to provide the services of a cashier and customer related services

during and after banking hours. ATMs perhaps due to the nature of its operations are usually located outside of banks, in some instances found at airports, malls, and at places far remote from the home bank of users Abor (2004). In Ghana ATM services are provided by almost all commercial and development banks. Any bank which is not providing this service is likely loose competitiveness. ATM can provide a lot of services to customers without human interface.

With ATM capabilities increasing rapidly, it is possible to use the presence and utilization of ATMs to take care of ever increasing customer needs. There are ATMs which can accept checks, receive payments of bills, give change and some issue stamps. This means ATM usage can reduce cost of transaction and give convenience to customers.

According to Abor (2004), using of both the ATM and human teller‟s means that productivity of banks will increase during banking period. He further opined that ATM‟s saves customers time in accessing service which in effect reduce queuing in bank halls, hence customers can use such time saved into other productive ventures. In the same study Abor (2004) revealed that, ATMs are the most widely accepted and highly patronized for service delivery as customers used them more than other form of electronic channel of service delivery.

Telephone banking has become a new initiative in banking industry in Ghana due to the improve telecommunication network. It encompasses the delivery of banking services to customers via the telephone which gives customers the opportunity to obtain banking services and products via telephone irrespective of the time, location and the way and manner they desire Adewale and Afolabi (2013).

According to Balachandher *et al*, (2001); "Telebanking (telephone banking) can be considered as a form of remote or virtual banking, which is essentially the delivery of branch financial services via telecommunication devices where the bank customers can perform retail banking transactions by dialling a touch-tone telephone or mobile communication unit, which is connected to an automated system of the bank by utilizing Automated Voice Response (AVR) technology"

Telephone networks are used for direct connection either as private network or dedicated telephone lines or public networks. Customers to be able to access service dial into the banks system via an access code and make enquiry for their balance, to transact or request for a statement. The enhanced telecommunication infrastructures and network as well as increasing usage of personal computers have prompted banks to take this move so as to provide customers access to their accounts and do business with the banks quite easier than before.

PC banking is another electronic delivery channel used by banks to give services to their customers. PC banking could be used by customers who actually have access and can use a personal computer and a modem, unlike Internet banking which furthermore needs access to the World Wide Web as advanced by (Frei *et al.*, 1997; Kalakota and Frei,1997). "Early versions of PC banking were expensive, complicated and did not achieve a sufficient level of consumer acceptance" (Channon, 1997), however, PC banking is relatively cost-effective as compared to telephone banking, and it is also superior in terms of convenience (Katz and Aspden, 1997).

According to Abor (2004) “PC-Banking is a service which allows the bank‟s customers to access information about their accounts via a proprietary network, usually with the help of proprietary software installed on their personal computer”. When customer gain access is he can perform several retail banking activities. Due to the increase in access and usage of personal computers, PC banking is having the potential to grow as several people are capable of using it to bring banking services to their homes.

Internet banking according to Essinger (1999) is: “to give customers access to their bank accounts via a web site and to enable them to enact certain transactions on their account, given compliance with stringent security checks”. Adewale and Afolabi (2013), “Internet banking is an outgrowth of personal computer banking”. According to them, Internet banking makes use of the internet as its delivery channel where it enables electronic banking by connecting to the bank for variety of services. Internet banking literally means the setting up of good webpage in a bank to offer information about its variety of products and services.

Through the internet users can access their account from browser software that carries out internet banking programs situated on the bank world wide web server. Internet banking offer more convenience and a great deal flexibility to customers as the can have a greater degree over their banking activities.

2.1.5 Branch Networking

Networking of branches is the computerization and inter-connecting of geographically scattered stand-alone bank branches, into one unified system in the form of a Wide Area Network (WAN) or Enterprise Network (EN); for the creating and sharing of consolidated customer information/records.

It offers quicker rate of inter-branch transactions as the consequence of distance and time are eliminated. Hence, there is more productivity per time period. Also, with the several networked branches serving the customer populace as one system, there is simulated division of labour among bank branches with its associated positive impact on productivity among the branches. Furthermore, as it curtails customer travel distance to bank branches it offers more time for **customers‟ productive activities.**

2.1.6 Electronic Funds Transfer at Point of Sale (EFTPoS)

An Electronic Funds Transfer at the Point of Sale is an on-line system that allows customers to transfer funds instantaneously from their bank accounts to merchant accounts when making purchases (at purchase points). A POS uses a debit card to activate an Electronic Fund Transfer Process (Chorafas, 1988).

Increased banking productivity results from the use of EFTPoS to service customers shopping payment requirements instead of clerical duties in handling cheques and cash withdrawals for shopping. Furthermore, the system continues after banking hours, hence continual productivity for the bank even after banking hours. It also saves customers time and energy in getting to bank branches or ATMs for cash withdrawals which can be harnessed into other productive activities.

2.1.7 ICT Cost Efficiency

ICT use has continued to permeate virtually every organization and is utilized in various areas. Various methods of storing, processing, distributing, and exchanging information with customers and within organizations have been identified and simplified (Kollberg and Dreyer, 2006). Recently, development of ICT affects the strategy, operations and structure of organizations significantly (Buhalis, 2003). ICT usage does not only provide

low operational costs, improve efficiency and increase profitability, but it also enhances the performance of the organisation to provide better customer services. Spanos et al. (2002) posit that ICT possesses enhancement and coordination attributes to be able to exercise control over the operations AND activities of many organizations and as such increase the use of management systems. Conversely, Ongori and Migiro (2010) posit that many organisations have been able to adopt the usage of ICT in its operations due the impact of globalization as a means of surviving in the industry and also to meet the ever-growing competitive markets. Bresnahan et al. (2002) argue that the usage of ICT results in long-lasting productivity gains in enterprises that use ICT. This is attributed to the fact that ICT promotes the efficient flow of data which helps these organizations to achieve desired results. Furthermore, ICT introduces changes in businesses and promotes competitive advantages and thus forcing organizations of all types to incorporate the usage of the innovation in their operations (Apulo and Latham, 2011).

However, on the basis of the socio-technical view (STV) of an organization, it is instructive to note that the ICT acquisition is in itself not a guarantee of improved organizational performance. The principle of STV holds that for there to be an optimal benefit from acquisition of ICT, its potential must be optimally harnessed in the interest of achievement of organizational objective (Trist, 1990). The theory posits that technology rarely possesses the capacity to improve the total performance of an organization. The underlying factor of this view is that, it recognises the phenomenon of interdependency between technological and social factors as well as sequential impacts of technology. The theory argues that organizations are neither exclusively social nor predominantly technical systems but are rather best conceived as sociotechnical systems.

The two dimensions of an organization though are independent but yet are correlative thus; organizational activities and its associated outputs are maximized when both social and technical structures of an organization are strengthened (Trist, 1990). This theory (STV) helps and adds to the RBV to brings to the fore the social complexity of a firm‟s use of technological and manual inputs. Thus organizational routines become unique making it difficult to copy and this becomes the basis for competitive urge and improved performance (Barney, 2001). The STV principle underscores the argument in favour of ICT cost efficiency being a necessary condition for the attainment of optimality in the deployment of ICT to enhance organizational performance. Cost efficiency in the spirit of strategic cost management is concerned with strategies aimed at obtaining maximum possible revenue with minimum possible inputs (Fethi & Pasiouras, 2010). Furthermore, Casu (2004) posit that efficiency can be measured in terms of observable increase in efficiency owing to technical progress which is a function of technological change.

2.1.8 Measures of Performance

Performance signifies the ability of a business to make significant revenue than what it cost it in the process of investment. Sanni (2006), argue that performance in terms of profitability measures the extent to which income is generated during a given period exceeds the expenses incurred during the same period, for the sole purpose of generating income. The performance of banks is usually measured by the Return on Assets (ROA) and Return on Equity (ROE). These variables are expressed as a function of internal and external determinants. The internal determinants may include banks specific variables such as the number of networked branches and quality of service they provide.

The external variables reflect the macro-economic environment and may include the inflation and monetary base. Returns on Assets (ROA) have been frequently used as proxies for performance. Return on Asset (ROA) reflects a bank‟s ability to effectively and efficiently manage its assets to generate maximum returns. It indicates the profit earned per cedi of assets. The ROA is a performance indicator because it is directly related to the profitability of banks (Sufian and Habibullah, 2009).

2.1.9 Impact of Information Technology in Nigeria Banks

Information technology has become a key element in the economic development of Nigeria and indeed the banking industry in general. Balogun (2016) also confirms that ICT is a concept that is having a remarkable effect on almost entire aspects of the human endeavours. Developing countries are increasingly being faced with the challenges of technological advancement and the constant proliferation of technologies. As part of the developmental process IT driven businesses, globally are growing in leaps and bounds for example the e-business, e-commerce, e-finance, e-banking etc. Information and Communication Technology have contributed to the distribution channels and networking of Nigerian Banks. The electronic delivery channels are collectively referred to as Electronic banking. E-banking is really not one technology but an attempt to merge several different technologies. Balogun (2016) also affirms that ICT involves the application of principles to engage physical component in processing, distributing, producing, transforming information to achieving an intended goal. ICT gadget includes telecoms, TV and Radio broadcasting, hardware and software, computer services and electronic media. The convergence of computer and Telecommunication after about four decades of applying computers to routine data processing, mainly in information storage and retrieval, has created a new development where information has become the engine of growth around the world. This development has created catch-up opp (Balogun, 2016).

Information Technology affects financial institutions by easing enquiry, saving time and improving service delivery. In recent decades, investment in IT by commercial banks has served to streamline operations, improve competitiveness and increase the variety and quality of services provided. According to Ukah (2013) Nigerian banking industry has

become highly ICT-based and is reaping the benefits of a technological revolution as evidenced by its application in most of its operations. Many commercial banks are making huge investments in technology to maintain and upgrade their infrastructure, in order not only to provide new electronic information based service, but also to take timely advantage of new off-the-shelf electronic services such as online retail banking which is making it possible for very small institutions to take advantage of new technologies at quite reasonable costs. These developments may ultimately change the competitive landscape in the financial services market.

Information and Communication Technology (ICT) facilitate the networking of commercial bank branches and to other banks within and outside the nation. Computerization and inter-connection of geographically scattered stand-along bank branches and other banks at national and global levels into one unified system in the form of a wide area network (WAN) or enterprise network (EN); for the creating and sharing of consolidated customer information or records. It offers a quicker rate of inter-branch transactions as the consequence of distance and time are eliminated. Hence, there is more productivity per time period. Also, with the several networked branches serving the customer populace as one system, there is a simulated division of labour among bank branches with its associated positive impact on productivity among the branches. Furthermore, the information sharing infrastructure put in place by the banks curtails customers travel distance to bank branches thereby providing more time for customers' productive activities.

In Nigeria, ICT usage especially in the banking sector, has considerably improved, even though it may not have been as high as those observed for advanced countries.

Information and communication technology has provided self-service facilities (automated customer service machines) from where prospective bank customers can complete their account opening documents directly online. Furzaneh (2012) in their research say that customers are encouraged to utilize ICT banking as first priority. Increasing the customer's arousal by ICT advertisements to use ICT banking creates a positive attitude toward the bank's brand, which in-turn is the key factors in ICT banking effectiveness. It assists the customer to validate their account numbers and receive instruction on when and how to receive their cheque books, credit and debit cards

The Global System Mobile (GSM), the mobile banking service basically allows customers to operate their accounts online. It offers retail banking services to customers at their offices/homes as an alternative to going to the bank branch/ATM. This saves customers time, and gives more convenience for higher productivity.

The Automated Teller Machine (ATM) is a combination of a computer terminals, record keeping system and cash vault in one unit, permitting customers to enter the bank's book keeping system with a plastic card containing a Personal Identification Number (PIN). The ATM work for 24 hrs. The bank monitors and loads cash when it is out of cash. Apart from serving cash withdrawal purposes, the same ATM can also accept deposits. ATMs are a cost–efficient way of yielding higher productivity as they achieve higher productivity per period of time than human Tellers; it saves customer's time in terms of service delivery as an alternative to queuing in bank halls.

Electronic Funds Transfer is an on-line system that allows customers to transfer funds instantaneously from their bank accounts to merchant accounts when making purchases (at purchase point). A POS uses a debit card to activate an Electronic Fund transfer process

(Chorafas, 1988). Increased banking productivity results from the use of EFT POS to service customers shopping payment requirements instead of clerical duties in handling cheques and cash withdrawals during banking hours, hence continual productivity and accrual to the bank even after banking hours. It saves customers invaluable time and energy in getting to bank branches or ATMs for cash withdrawals and this can be harnessed into other productive activities. Information technology has afforded customers and service providers the opportunity of paying bills and performing transactions of any kind electronically. Electronic payment can be credited and debited the same day customers can also make payments for goods and services without necessarily having physical contact with the cash. The Banks can send customer's statement of account, enquiries, promos, and the request of any kind is carried out via the electronic mailing facility.

2.2 Empirical Framework

Kevin et al (2013) investigated into the impact and Challenges of Information Communication Technology Adoption in the Tanzanian Banking Sector. Descriptive research design was employed as it facilitated collection of information from various categories of bank managers

i.e. Customer relations manager who informed the study on how customers use technology to relate with the bank, Cash manager who informed the study on how cash flows using technology and the IT managers who informed the study on technical issues and challenges and allow them to state their perceptions on impact and challenges on IT adoption in the banking sector. Their research instrument captured

under the methodology was categorized into two sections; that is the first part comprising the demographic characteristics/profile and the second part exploring positive impacts of ICT adoption in banking sector, bankers‟ and bankers opinions on the need, what encouraged them to adopt ICT and section two which consisted of 10 questions on challenge‟s facing ICT adoption. The main data collection they adopted was questionnaire. From the empirical findings, they discovered that majority of the respondents agreed that ICT has a major impact in banking .Other findings included; information communication technologies like mobile banking products, internet banking products help customers and bankers have remote access of banking solutions; ICT related online banking products like digital financial services saves time in making transactions and can be accessed from any anywhere at any time; CT has a positive impact where by it enables ;wider networking and links banks globally therefore enhancing smart banking solutions and services to the customers and also enabling wider networking, global links of banks. They therefore outlined a number of challenges in their study in including ; slowing down of ICT systems and equipment‟s, network communication errors; ignorance by majority of the customers about ICT usage especially online services and they don‟t own ICT gadgets which can enable them access online services;

Sonja (2010) investigated the effects of computerization on savings and credit cooperatives in Uganda. They found out that, majority of the respondents agreed that information communication technology has really promoted microfinance sustainability, reaching the poor people and Management information systems. However one of the challenging aspects of the usage of ICT revealed as lack of human

resource capacity in the banks in Uganda to man the administration of the computing services. They therefore suggested that more training should be required to ensure human resource capacity.

Adewale and Afolabi (2010) studied the effects of ICT on the growth of Nigerian banking industry. Information communication technology has become the engine block of every banking institution worldwide and Nigerian banking institutions are not exempted. They adopted the historical and survey research methods. Data were collected from both primary and secondary sources using chi-square and regression analysis were used in the aspect of formulated Hypothesis testing. They discovered that, banking system is not in line with global trends and that the application and usage of information technology in the banking system is necessary for efficient service delivery. They also realised that, the usage of electronic banking contribute to significantly revolutionizing service delivery to improve customer satisfaction through the various electronic fund transfer and payment services such as the automated teller machine (ATMs). The study recommends that, banks and other financial institutions should embark upon training programme for all operational staff of all banks and public awareness should be instituted to improve the knowledge of information communication technology and for performance adequacy to support the much needed efficiency and operational effectiveness and also to control the regular system failure that customers face.

Ofori-Dwumfuo and Botchway-Anang (2012) assessed issues and challenges encountered in the computerization of ARB Apex Banks by connecting rural banks as well as community banks in Ghana. They outlined some objectives of rural banks in Ghana as; provision of basic financial services to the poor; plays financial intermediary role by

mobilizing financial resources from within their area of operations in order to support small scale and medium enterprises and also ultimately improve the socio-economic well-being of the people in the rural communities they serve; since banking services in the rural areas are highly lacked, their introduction helps inculcate banking culture and attitude into the citizens in the rural communities in order to reduce the high volume liquidity and also serve as a financial source through which resources from government to the communities are channeled into. They used both qualitative and quantitative approaches in gathering the relevant information for the study. In order to address the challenges faced by the rural banks in Ghana based on the adoption of ICT, a survey was conducted on some of the staff of the banks involved directly in the implementation of the ICT process. A cross sectional comparative analysis approach was adopted through sampling a cross section of workers in the selected rural banks. The staff and management of both ARB Apex bank and the rural banks constituted the population for the study where 15 banks were selected. However, purposive and systematic sampling techniques were used to sample 50 respondents who participated fully in the study. Based on the results, they realised from the respondents that, 64% of the total respondents opined that they have been fully involved in the implementation of the ICT project. They conclusively stated that majority of the respondents have fully participated in the computerisation programs. Almost all the major variables used to measure the success of the ICT implementation in the rural banks was found to be performing above average. The study concluded that, on the whole, the project was well designed and implemented and envisaged challenges were adequately specified and catered for and that the first phase progressed successfully.

The “emerging role of information technology in banking sector‟s development of India” was studied by the researchers Mittal and Gupta (2013). Their study was based on the following objectives; to find out the progress of computerization in all the public sector banks in India; to analyse the banking innovations after computerization of public sector banks of India; to analyse the ATM progress in the public sector banks of India and; to identify challenges in the implementation of I.T. solutions in the public sector banks of India. Regulatory and competitive reasons combinations has led to the increasing importance of total banking automation in the Indian Banking Industry. They discovered from their study that, the bank that adopted the appropriate and right technology increased their productivity as well as gained competitive edge. They therefor recommended that, Indian Banks are to observe the latest technology and modify it to suit their environment. Information technology offers a chance for banks to build new systems that address a wide range of customer needs including many that may not be imaginable today.

Dabwor et al. (2017) studied the effect of ICT adoption on the competitive performance of banks in an emerging economy: The Nigerian experience. The study adopted both inferential and descriptive design using a t-test, the findings of the study revealed that a positive relationship exists between ICT and banks performance in Nigeria. This implies that a marginal change in the level of the investment and adoption of ICT such as (Automated teller machine, Web based transactions, and Mobile payments) in the banking industry resulted in a proportionate increase in the profit level. The study recommends that it is paramount for bank management to intensify investment in ICT products to facilitate speed, convenience, and accurate service delivery. In the same vein (Olatokun and Igbinedon, 2010) in their study observed that there has been increased deployment of

ATMs by banks in Nigeria; while only one bank had the ATM in 1998 this had increased to 14 in 2004. Between the beginning of the year 2005 and March 2006 debit card transactions increased from 1, 065,972 in 2004 to144, 448,615 between January 2005 to march 2006.

Wilson et al. (2014) examine the impact of Information and communication technology on bank profitability, they used a sample comprising one-quarter of the banks in Nigeria quoted on the Nigeria stock exchange. The study adopted the OLS regression techniques, it was found that the regression result was in conflict with the aprori expectations, which indicates that IT spending in the study period had no significant impact on future operating performance. However, the study further concludes on the findings of the result which shows that technology investment is inevitable for banking institutions to enable them to continue to operate efficiently in the current competitive banking industry.

In 2014, Ahmed examines the effect of its investment on productivity and profitability by analyzing data from the Arab banks. The result of the study indicate that there are substantial returns due to an increase in investment in IT capital, a fact which incentivizes the bank's management to shift its emphasis in IT investment from labor to capital

Oyinkola (2018) conducted a study on the impact of Information technology on banking operations in the First bank of Nigeria PLC. The data used was primary data and the research instruments used are questionnaires and personal interview for staff and customer of the bank. Simple frequency percentage was adopted as the statistical and the hypothesis was analyzed using Chi-square. The result revealed that IT has greatly improved the growth and performance of Nigerian commercial banks and has led to increased customers

satisfaction. The study recommends government support to improve local IT firms to foster importation, the lower tariff on the importation of IT related equipment and their agencies and regulatory bodies to upgrade their equipment as well.

Furthermore, Luka and Frank (2012) in their work, ―The impact of ICTs on banks: A Case study of the Nigerian Banking Industry‖, collected data via questionnaires from customers in the selected banks. Guaranty Trust Bank plc, First Bank of Nigeria plc, Zenith Bank international and United Bank for Africa (UBA). The response were measured with a 5 pointer likert - type rating, where strongly agree (SA) = 5; Agree (A) = 4; Neutral (N) = 3; Disagree = 2; Strongly Disagree = 1. The results of the research indicated that investment in the ICT system and infrastructures has become a key element in productivity and growth in the banking industry

A study conducted by Madueme (2010) on the impact of ICT on banking efficiency in Nigeria using a survey of 13 banks. The findings are based on the CAMEL rating and a transcendental logarithmic function of the banks, conclusions were made on the efficient values obtained through the CAMEL rating system were higher during post adoption era than before adoption and estimated that a 1% increase in ICT capital on average leads to 0.9185 Naira increase in bank output post ICT adoption era.

In order to determine the factors influencing customer's choice of banks in Nigeria, Maiyaki and Mokhtar (2010) evaluate the effect of availability of electronic banking facilities among others. The study adopted a survey study of 407 banks customers in 33 private and public organizations in Kano in the Northern part of the country, they found that the availability of electronic banking facilities such as ATM, online banking and

telephone banking do not have a significant influence on customers banks choice decision. This result was rationalized on the ground that ICTs have become widely diffused in the Nigerian banking sector that is all firms in the industry have embraced the ICT ideology.

Oluwagbemi et al. (2011) in their study on the impact of information in Nigeria banking industry, they adopted a qualitative method. In their findings it was revealed that the deployment of IT facilities in the Nigerian banking industry has brought about fundamental changes in the content and quality of banking business in the country. They conclude that Nigeria banks have been rapidly transformed from being just a bank to a one-stop shop financial solution provider. The study further recommends that there should be M-Commerce implementation in Nigeria based on the rate of growth and diffusion of mobile devices.

Binugo and Aregbeshola (2014) their study assess the impact of ICT on commercial bank performance in South Africa. The analysis of the data was done using the panel environment using the orthogonal transformation approach. The finding of the study indicates that the use of ICT increases the return on capital employed as well as the return on assets of the South African banking industry. The study recommends that banks emphasize policies that will enhance proper utilization of ICT equipment rather than additional investment.

2.3 Theoretical Framework

Contingency theory suggests that an information system should be designed in a flexible manner so as to consider the environment and organizational structure confronting an organization. Information systems also need to be adapting to the specific decisions being

considered. In other words, information systems need to be designed within an adaptive framework. Review of accounting information system literature also indicates that most AIS studies have incorporated contingency factors such as organizational structure, business strategy, and environmental condition in their research model but have neglected the influence of IT on AIS design. According to Lamminen et al. (2015) contingency approach assert that neither the type of strategy, nor the organizational configuration will directly affect performance. Rather, contingency theory suggests that the most important determinant of performance is the contingent fit between the chosen strategy and its contextual variables.

Similar to IT researches, these studies viewed IT from the technological perspective only but failed to incorporate other perspectives of IT sophistication such as informational, functional and managerial. Hunton and Flowers (1997) suggested that a more comprehensive AIS study is needed to explain the relationship between IT and accounting and its subsequent impact on the organization in general and accounting/accountants in particular. Very few of such studies have been carried out in developing countries especially in the Middle East. Due to the continuous flow of considerable amount of empirical studies which investigate the contingency factors and accounting and/or IS and indicates the importance and vitality of this theory, this study is theoretically and empirically constituted upon contingency theory which has long been applied in both accounting and information system disciplines. Ikpefan and Agwu (2015) opined that there is an imperative need for not mere technology upgrading but also its integration with the general way of functioning of banks to give them an edge in respect of services provided to optimizing the use of funds.

2.3.2 The Structure Conduct Performance (SCP) Model

According to Baye (2010) the structure of an industry connotes factors such as concentration, technology and market conditions whiles conduct refers to how individual firms act in the market; it involves decisions to invest in expansion or not. Performance on the other hand refers to the resulting profits and social welfare that arise in the market from the firm‟s investment. The Structure Conduct Performance (SCP) paradigm views these three aspects of the industry as being integrally related and asserts that the market structure causes firms to undertake innovations. In turn, this behaviour causes resources to be allocated in profitable ways leading to either an efficient or inefficient market.

Accordingly, the profit of firms operating in highly concentrated industries with better network coverage are better and higher than that of firms operating in industries with lower concentration. The Structure Conduct Performance (SCP) paradigm presupposes that a higher banking industry concentration permits the collusion of banks to improve on their networking experience and consequently gain substantial profits (Alzaidanin, 2003; Sathye, 2005; Samad, 2008).

Information Communication Technology combines information technology and communication technology in its operation. The combination of computing having highspeed communication links carries video, data and sound (Alabi, 2005). It is associated with the transfer of information after data has been collected, stored and manipulated through an electronic medium. Communication technology is made up of the physical hardware devices together with software with which a links can be created between the various computer hardware components for the purpose of transferring data to and fro various places (Laudon, 2001).

The link between Information Communication Technology and performance has attracted the attention of researchers in recent times. Several researches have been done to as certain this relationship. It is highly worthy of note that, there has never been an agreement on whether ICT contributes to organizational performance or not. Researchers trying to find the nature of the relationship between ICT and firm performance over the years have adopted different theoretical approaches. These theoretical approaches include Transaction cost theory

(Williamson, 2006), Value chain analysis (Porter, 1985) and Resource-based view (RBV). The Resource-based view is a more recent theory that is widely embraced by many including Bharadwaj (2000). This resource-based view (RBV) of the firm indicates that, competition of firms is on the issue of "uniqueness" or peculiar corporate resources that are considered to be valuable and rare but difficult to either imitate or substituted by other resources. The theory stemmed from the study of strategic management research and widely draws attention to the benefits of examining the value brought about by IT resources (Melville, Kraemer and Gurbaxani, 2004). The resource-based theory rationalizes firm‟s superior performance to organizational resources and capabilities. The firm‟s view based on resources addresses the effects and linkage of the financial performance of organizations to its specific and peculiar resources that is difficult to imitate or substitute (Barney, 1991).

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Research Design

Descriptive survey method was adopted in carrying out this study. Data were obtained through the use of questionnaires. The questions were done in simple and clear language to remove ambiguity. The questionnaires were intended to generate responses that will assist the researcher to address the research problem, objectives, questions and hypothesis.

3.2 Population, Sample and Sampling Techniques

The samples are drawn from karu, Nasarawa State. The population for this study comprises staff of 3 selected Banks. Therefore the research has a population size of 120 people. The selected Banks for this researcher include:

1. Diamond Bank Plc
2. First Bank Plc
3. Ecobank Plc

The total population of these are 120 staff (Management officers and junior staff)

A total number of 14 persons were randomly drawn from each of the selected Banks using the stratified random sampling technique to select qualified staff in various unit. A total of 42 people were therefore sampled. This method was adopted to provide an objective way of ensuring that samples are representatives of the population and sample statistics appropriate their population parameter. It also permits an objective generalization of the whole population.

3.3 Method of Data Collection

The researcher will make use of the most appropriate and suitable instruments for data collection. The instrument is questionnaire and direct interview the questionnaire will be

generated in line with the research questions in a simple and clear grammar to enable the respondent understand and respond to the research questions .In this study, the researcher will also employ other instruments for data collection like personal observation and interview. The questionnaire is a five point Likert scale that will examine how strongly target respondent agree or disagree with statements. The Likert scale will enable the use of an interval scale which increases the amount of statistical analysis that can be done. The questionnaire will be given to staff and customers of the selected banks.

The likert scale is based on a scale of 5 to 1 ranging from strongly agree (5), agree (4), undecided (3), disagree (2) and strongly disagree (1).

Secondary Data

Secondary Data include the use of books, journals and other printed materials, including internet source as supplementary evidences of other people and different authorize opinion about the subject in focus.

3.4 Techniques for Data Analysis and Model Specification

Two basic simple analytical tools were used in the analysis namely, use of simple percentage and the Chi-Square method of hypothesis testing. The statistical techniques, which will be employed in testing the hypothesis, set up for purpose of this research is the chi-square test. It is necessary to outline the steps and procedures guiding the use of chi-square (X^2) in this study. These are:

Calculate X^2 using the formula

The chi-square test statistic is a function of the squares of the deviations of the observed counts from their expected values weighted by the reciprocals of their expected values.

$$X^2 = \sum \frac{(Fo - Fe)^2}{Fe}$$

Where: Fo = Observed frequency

Fe = Expected frequency

$$Fe = \frac{CT \times RT}{GT}$$

Where: RT = Row total

CT = Column total

GT = Grand total

The calculated X^2 is a measure of the departure of obtained frequencies from the frequencies expected by change. The larger X^2 is the greater that obtained frequency deviate from the expected frequency.

Determine the degree of freedom (df) of the problem. It is interesting to note that the number of degree of freedom will equal the number of cell ,K, less one degree of freedom for each independent linear restriction placed upon the observed cell counts.

The general formula is (df) = (r-1) x(c-1)

Where r = Number of rows

c = Number of columns

Decision rule: if the calculated X^2 value is greater than the table value at 5% level of significance, we reject the null hypotheses and accept the alternative hypotheses.

3.5 Validity and reliability of the instrument

The instrument used was efficient and effective because it was able to drive relevant and necessary information for the purpose of the study.

The questionnaire question were simple concise and uncomplicated (i.e. straight to the point) and easy to understand and properly vetted by my respondents and was quite reliable.

CHAPTER FOUR

DATA PRESENTATION AND ANALYSIS

4.1 Data Presentation

This chapter dwells on the presentation and analysis of the data gathered in the course of the study. This also includes discussion of research findings and juxtaposition of the research findings with the research propositions.

4.2 Data Analysis and Results

Table 4.1: Composition of Questionnaires administration

Questionnaire	**Respondents**	**Percentage**
Questionnaire Returned	36	90 %
Questionnaire not Returned	6	10%
Total No. Distributed	42	100%

Research Question 1: What is the impact of information and communication technology on time saving of bank transactions?

Table 4.2 frequency and percentage analysis of impact of information and communication technology on time savings on banking transactions.

Factors	Frequency						Total	
	SA	%	UD	%	SD	%		
Convenient Business Hour	28	77.8	2	5.6	6	16.7	36	100
Prompt and Fair Attention	26	72.2	4	11.1	6	16.7	36	100
Access Accounts at Any Location	30	83.3	1	2.8	5	13.9	36	100
Access Account at Any Point in Time	26	72.2	2	5.6	8	22.2	36	100
Reduces Interpersonal Relationships	24	66.7	3	8.3	9	25	36	100

Research Question 2: To what extent has information and communication technology reduce error rate of banking transactions?

Table 4.3 frequency and percentage on impact of information and communication technology on error rate reduction of banking transaction.

Factors	Frequency						Total	
	SA	%	UD	%	SD	%		
Makes Enquiries on Accounts Faster	30	83.3	2	5.6	4	11.1	36	100
Hastens Funds Transfer	27	75	3	8.3	6	16.7	36	100
Makes Communication Easy	32	88.9	1	2.8	3	8.3	**36**	100

Research Question 3: What is the impact of information and communication technology on speed of banking transactions?

Table 4.3 frequency and percentage analysis on the impact of information and communication technology on speed of banking transactions

Factors	**Frequency**						**Total**	
	SA	%	UD	%	SD	%		
Easy detection of errors	28	77.8	2	5.6	6	16.7	36	100
Adoption of ICT make correction of errors more faster	22	61.1	6	16.7	8	22.2	36	100
Adoption of ICT has reduce mutilations	19	52.8	4	11.1	13	36.1	**36**	100

4.3 Discussion of Findings

In this section, we shall test the hypotheses formulated in chapter one to ascertain the rejection or acceptance of the null hypotheses. We shall do through the use of chi-square (X^2) statistical techniques. The hypotheses are stated in the null form.

Hypothesis one

H_{01}: information and communication technology has no significant impact on time saving of banking transactions

Table 4.4 Contingency table

	SA	**UD**	**SD**	**Total**
Adoption of ICT Facilities Convenient Business Hour	28	2	6	**36**
Adoption of ICT Enhances Prompt and Fair Attention	26	4	6	**36**
Ability to Access Accounts at Any Location	30	1	5	**36**

Ability to Access Account at Any Point in Time	26	2	8	**36**
Adoption of ICT reduces in Interpersonal Relationships	24	3	9	**36**
Total	**134**	**12**	**34**	**180**

Table 4.4.1

OF	EF	OF–EF	$(OF-EF)^2$	$(OF-EF)^2/EF$
28	27	1	1	0
2	27	-25	625	23.1
6	27	-21	441	16.3
26	27	-1	1	0
4	27	-23	529	19.6
6	2	4	16	8
30	2	28	784	392
1	2	-1	1	0.5
5	2	3	9	4.5
26	2	24	576	288
2	7	-5	25	3.6
8	7	1	1	0.1
24	7	17	289	41.3
3	7	-4	16	2.3
9	7	2	4	0.6
				799.9

x^2_{cal} =800

x^2_{tab} =15.507

Degree of Freedom=8

Significance Level=0.05

Since the computed value of x^2 (800) is greater than the table value (15.507) with a degree of freedom of 8 and 5% level of significance, we therefore reject the null hypothesis and accept the alternative hypothesis that information and communication technology has a significant impact on time saving of banking transaction.

Hypothesis two:

H_{02}: information and communication technology has no significant impact on error rate reduction of banking transactions

Table 4.5 Contingency table

	SA	**UD**	**SD**	**Total**
Adoption of ICT Makes Enquiries on Accounts Faster	30	2	4	36
Adoption of ICT hastens Funds Transfer	27	3	6	36
Adoption of ICT makes Communication Easy	32	1	3	36
Total	**89**	**6**	**13**	**108**

Table 4.5.1

OF	**EF**	**OF–EF**	**$(OF-EF)^2$**	**$(OF-EF)^2/EF$**
30	27	3	9	0.3
2	27	-25	625	23.1
4	27	-23	529	19.6
27	27	0	0	0
3	27	-24	576	21.3
6	2	4	16	8
32	2	30	900	450
1	2	-1	1	0.5
3	2	1	1	0.5
				523.3

x^2_{cal} =523

x^2_{tab} =9.488

Degree of Freedom=4

Significance Level=0.05

Since the computed value of x^2 (523) is greater than the table value (9.488) with a degree of freedom of 4 and 5% level of significance, we therefore reject the null hypothesis and accept the alternative that hypothesis information and communication technology has significant impact on error rate reduction of banking transactions

Hypothesis three:

H_{03}: information and communication technology has not significantly increased the speed of banking transactions

Table 4.6: Contingency table

	SA	**UD**	**SD**	**Total**
Adoption of ICT facilitate easy detection of errors	28	2	6	36
Adoption of ICT make correction of errors more faster	22	6	8	36
Adoption of ICT has reduce mutilations	19	4	13	36
Total	**69**	**12**	**27**	**108**

Table 4.6.1

OF	EF	OF–EF	$(OF-EF)^2$	$(OF-EF)^2/EF$
28	27	1	1	0
2	27	-25	625	23.1
6	27	-21	441	16.3
22	27	-5	25	0.9
6	27	-21	441	16.3
8	2	6	36	18
19	2	17	289	144.5
4	2	2	4	2
13	2	11	121	60.5
				281.6

x^2_{cal} =282

x^2_{tab} =9.488

Degree of Freedom=4

Significance Level=0.05

Since the computed value of x^2 (282) is greater than the table value (9.488) with a degree of freedom of 4 and 5% level of significance, we therefore reject the null hypothesis and accept the alternative hypothesis that information and communication technology has significantly increased the speed of banking transactions.

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Summary

The study examine specifically the impact of information and communication technology on banking transactions in Nigeria. In trying to achieve this objective, chi-square was adopted for data analysis.The study established that there is strong impact of information and communication technology on the performance of Nigeria banking industry. Technological development particularly in the area of information and communication technology is transforming the way commercial banks operate and do business in Nigeria. This has resulted in changes in the volume of trade, the interconnection between firms and increased business transactions from the national to international market places and this has also set in motion a revolution in the banking sector. Commercial banks are now required to invest in ICT for the provision of a transaction and payment system that is compatible with the demands of the electronically interconnected global market place. The adoption of various forms of ICT has greatly influenced the content and quality of banking operations and performance. The findings reveal that ICT (technology innovation) has influenced Nigerian banking industry performance. ICT has specifically increased banks Return on Equity. The research has shown that there has been a remarkable relationship between the increased volume of interbank transfers, use of POS on the one hand and ROE on the other hand. This means that the Nigerian banking sector made more profit from interbank transfers and the use of POS than any other form of ICT enabled services such as ATM, WP and MM respectively.

5.2 Conclusion

The survey as presented on this study examined the impact of Information and Communication Technology on banking transactions in Nigeria Banks with special reference to Diamond Bank Plc, First Bank Plc and Ecobank Plc. On the basis of the findings of this study, it can be concluded that the adoption of Information and Communication Technology in Nigerian banking sector has helped tremendously save time on banking transaction, increased speed of transaction, also helped to reduce error rate in banking transaction leading to efficiency and effectiveness of operations and service delivery. This study also showed that with the adoption of Information and Communication Technology in banking sector, customers can access their account anytime anywhere, make enquires and have quick response without going to the banking hall and this will promote higher customer satisfaction.

5.3 Recommendation

i. Investment in ICT has been proven to enhance the performance of Nigerian commercial banks. The banks should therefore give emphasis to efficient utilization of the ICT enabled services such as credit and electronic cards to pay at retail outlets, points of sales (POS), phone banking, electronic payment debit, Automated Teller Machines (ATM), home banking, internet banking, mobile banking, personal digital assistant banking.

ii. The study recommends that every bank in Nigeria should not only invest heavily on ICT especially the POS, but should distribute same to business outlets where business owners and customers will have access to smooth and hassle free transactions. It is therefore necessary for the government to emphasize the need for more policies that will boost the efficiency in utilization of ICT equipment by reducing the cost of acquiring them so as to reduce cost and boost the growth of the economy.

iii. The banks should embark on aggressive campaign and re-orientation of clients to create awareness for the customers to patronize the facilities especially in the area of use of POS, mobile banking and so on. Acceptance of these facilities will consolidate the gains from investing in them. In achieving this, every bank should partner with the government to make internet connectivity cheap and accessible, especially in the rural areas.

iv. The government should emphasize the need for more policies that will boost the use of ATM, POS, MM, WP and IBT hence long run equilibrium relationship with commercial banks performance.

v. Government and Banks should encourage consistent use of ATM, POS, MM, WP and IBT. These will sustain the ROE of commercial banks in the long run .

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