

**AN ASSESSMENT OF INFORMATION AND COMMUNICATION TECHNOLOGY (ICT)
ON THE PRODUCTIVITY OF SELECTED BANKS IN ILORIN**

SULEIMAN OLUSEGUN

DEPARTMENT OF BUSINESS ADMINISTRATION,
FACULTY OF MANAGEMENT SCIENCES,
UNIVERSITY OF ILORIN,
ILORIN, NIGERIA
EMAIL ADDRESS: olusegunsuleiman@gmail.com

AGUNBIADE ASIMIYU KOLA

DEPARTMENT OF BUSINESS ADMINISTRATION,
SCHOOL OF BUSINESS AND MANAGEMENT STUDIES,
FEDERAL POLYTECHNIC, OFFA
ILORIN, KWARA STATE.
EMAIL: kagunbiade@yahoo.com

&

ISIHAK ABDULRSAQ

DEPARTMENT OF BUSINESS ADMINISTRATION,
SCHOOL OF BUSINESS AND MANAGEMENT STUDIES,
FEDERAL POLYTECHNIC, OFFA,
ILORIN, KWARA STATE.
PHONE NUMBER: +2348038284753
EMAIL: isihakabdul@yahoo.com

ABSTRACT

Computers and telecommunication system 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 delivery of services, efficiency and the ability of customers to be served in any of their branches in any part of the country, without any encumbrance. As a result of this, banks embarked on the use of Integrated banking application that can help them to provide efficient, comprehensive and nation-wide services to their customers, through the use of WANs(wide area network). The focus of this study is on "Assessment of information and communication technology and e-commerce on the productivity of the Nigerian banking industry. Specifically, the study was designed to: (i) examine how technological innovation has improved the employees' performance (ii) examine how e-commerce has increased market share in Nigerian banks. Twelve banks were used for this study based on the fact that they are early adopters of ICT and e-commerce in Nigerian banking industry and have consistently utilize their ICT and e-commerce platform from 2005-2015. Twenty-five (25) questionnaires were distributed to each of these banks which make a total of 300 questionnaires used as sample size. The statistical tools employed in analyzing the data were frequency tables used in analyzing questionnaires; Pearson Product Moment Correlation Coefficient

*Technique. The major results of the study were: (1) the result of PPMC shows that there was significant relationship between technological innovation and the employees' performance of the Nigerian banking industry ($r = .278^{**}$, $N=232$ $P < .05$) (2) the result of PPMC shows that there was significant relationship between the adoption of e-commerce and the market share of the Nigerian banking industry ($r = .220^{**}$, $N=232$ $P < .05$). Findings from the analysis of the data indicate that technological innovation in Nigerian banking industry had revolutionized some banks 'services through the use of ICT as including account opening, customer account mandate, and transaction processing and recording. Based on the findings, it was recommended that banks should deploy ICT and e-commerce as a strategy to improve and develop the quality of products and services offered to customers in order to achieve their overall corporate objectives which is profit making.*

INTRODUCTION

In this information era, e-commerce is pertinent in the technologically advanced world of business. It has created electronic markets and provided opportunities for banks in Nigeria to reach customers in a very direct way (Ayo, Adewoye and Oni, 2011). This is due to advancement in information and communication technology (ICT). Information and communication technology offers enormous opportunities such as storing, processing, retrieving, disseminating and sharing of information (Apulu and Latham, 2009). The continued existence of banking industry in Nigeria in the 21st century is engendered by information and communication technology. The adoption of ICT had changed the way banks operate in this era of globalization by changing operational structures, increasing competition, creating competitive advantage and changing banks operations (Ongori, 2009).

As the economy of Nigeria is picking up in the service industry especially the banking industry with the introduction of the cashless economy by the Central Bank of Nigeria, electronic commerce will be the avenue of offering this fast, flexible, and cost effective ways of doing business and these will enhance their competitive edge coupled with the bank's branch network. With this development, it is expected that the use of the internet would easily facilitate the adoption of e-commerce in the Nigeria banking sector.

Information and communication technology (ICT) provides services such as automatic teller machines (ATM), electronic fund transfer, electronic smart cards, cell phone banking or mobile banking, point of sales terminal (POS) among others, are transforming the traditional way of banking business and providing competitive edge for banks that provide those electronic services. But to be competitive in the internet economy, companies need to utilize the power of the internet successfully

Professionalism and the zeal for market leadership brought the Nigerian banking industry and the economy at large into the euphoria of information and communication technology (ICT) and electronic commerce. Following the globalization trend, ICT and e-commerce are cognizant in Nigeria so as to put her banking industry on the path of global competitiveness. In recent years, the adoption of e-commerce began to occur quite extensively as a channel of distribution for financial services due to rapid advances in information technology and intensive competitive banking markets (Salehi and Alipour, 2010).

STATEMENT OF THE PROBLEM

One of the modern yardsticks used for rating a modern Nigerian bank is its ICT and e-commerce infrastructural layout. This is an indication of the importance of ICT for business establishments. Banks have adopted information and communication technology and e-commerce to improve the efficiency and effectiveness of services offered to customers, improve business processes, as well as to enhance managerial decision making and workgroup collaborations. This helps strengthen their competitive positions in rapidly changing and emerging economies. Environmental, organizational, and technological factors are creating a highly competitive business environment in which customers are the focal point.

In conducting this research, the researcher is faced with the following questions: The researchers want to understand how technological innovation has improved the employees' performance in the Nigerian banking industry.

The researcher wants to understand how the adoption of e-commerce has increased the market share of Nigerian Banking industry.

RESEARCH QUESTIONS

In order to achieve the objectives of this study, the following questions will be answered:

- i. Does technological innovation improve the employees' performance in the Nigerian banking industry?
- ii. Does the adoption of e-commerce increase the market share of Nigerian banking industry?

OBJECTIVES OF THE STUDY

The major objective of this study is to access and describe the effectiveness of Information and communication technology (ICT) and e-commerce on the productivity of the Nigerian banking industry. The specific objectives to be achieved include the following:

- i. To examine how technological innovation has improved the employees' performance in the Nigerian banking industry
- ii. To assess how the adoption of e-commerce has increased market share of the Nigerian banking industry.

RESEARCH HYPOTHESES

The following hypotheses will be developed and empirically tested; the result will be formed on the basis for recommendation and conclusion.

Hypothesis i

H₀₁: There is no significant relationship between technological innovation and employees' performance in the Nigerian banking industry.

Hypothesis ii

H₀₂: There is no significant relationship between the adoption of e-commerce and market share of the Nigerian banking industry.

SIGNIFICANCE OF THE STUDY

The benefits that shall accrue from this study to the Nigerian banking industry are many. But in this context, it shall be limited to the benefits accruing to the banking industry and depositors (customers).

- i. To the bank, the adoption of ICT and e-commerce will reduce the huge cost associated with production of withdrawal slips, deposit slips and making transfers by the banks would be saved, better use can now be made of the amount in procuring other consumables. The banking industry would become more transparent which attracts confidence in banking operations. In this sense, it will go a long way towards attracting foreign investors and the bank would become more liquid, vibrant and profitable. It will also reduce the number of cheque clearing days.
- ii. To the customers, with the adoption of ICT and e-commerce in the Nigerian banking system the customers can now access the bank all through the day because with the ATM (Automated Teller Machine), they can make withdrawal, transfer, recharge their phone, print mini statement of account and with the Point of sale terminal, they can pay their bills in a shopping mall, make huge transfers and finally with the internet they can transfer funds or make payments any time of the day. The technological innovations have also reduced the long queues of customers in the banking halls waiting to make transactions.

SCOPE OF THE STUDY

This research focuses on the ability of the Nigerian banking industry to discover and utilise opportunities based on ICT and e-commerce. This study only accessed the contributions of ICT and e-commerce on the productivity of Nigerian banking industry. The researchers decided to pay attention to twelve (12) banks within Ilorin metropolis. The justification for the choice of the study area is based on its economic viability and the banks used for the study utilize ICT platform within the area. The banks are: Access Bank Plc., Diamond Bank Plc., Ecobank Nigeria Plc., First Bank of Nigeria Plc., First City Monument Bank Plc., Guaranty Trust Bank Plc., Guaranty Trust Bank Plc., Skye Bank Plc., Stanbic IBTC Bank Ltd, Sterling Bank Plc., Union Bank Plc., United Bank of Africa Plc., and Zenith Bank Plc. The justification for the choice of these twelve banks is that, they were early adopters of ICT and e-commerce platform in Nigeria, they have established and consistently utilized their ICT and e-commerce platform from 2005 – 2015 and they have a wide network coverage for e-payment, e-transact and online banking in Nigeria.

LITERATURE REVIEW

The main objective of this section is the review of literature relevant to the research. Information and communication technology (ICT) and e-commerce have become the heart of banking sector, while banking industry is the heart of every robust economy therefore, the topics reviewed are as follows: the concept of ICT and e-commerce in the Nigerian banking industry, the implications of adoption of ICT and e-commerce in Nigeria, the contribution of ICT to the Nigerian banking industry, the impact of e-commerce to the global economy.

THE CONCEPT OF INFORMATION AND COMMUNICATION TECHNOLOGY AND ELECTRONIC COMMERCE IN THE BANKING INDUSTRY

In today's banking, Information and communication technology cannot be separated from banking activities since it facilitates the whole banking process. According to Banigo (2001), information and communication technology can be defined as electronic based technologies which can be used to collect store, process and package information and provide access to knowledge. The internet has helped them in information management at the detriment of official effort at curbing their activities. Castells (2001) reveals that, new transactions worth billions of dollars can only take place in seconds in the electronic circuit throughout the globe by pressing a single button. Zagaris (1999) reported that many Banks recognized that the growing integration of the world economy is facilitated by ongoing revolution in telecommunication and information technology.

According to Ezeamama (2010), it is reported that Information technology is radically changing all over the world, the volume and speed of handling transaction have improved tremendously as a result of the growth in Information technology, which has created a lot of business opportunities. Application of information and communication technology is capable of enhancing optimal performance in service delivery if appropriately carried out. According to Loonam (2008), ICT advancements, globalization, competition and changing social trends such as heightened customer pro-activeness and increased preferences for convenience have caused intense restructuring of the banking industry.

However, banks have made huge investments in telecommunication and electronic systems, users have also been validated to accept electronic banking system as useful and easy to use (Adesina and Ayo, 2010). On the other hand, electronic commerce is the sharing of business information, maintaining business relationships and conducting business transactions by means of telecommunication networks (Zwass, 1996). Electronic Commerce deals with facilitation of transactions and selling of products and services online either via the internet or any other telecommunications network (Jelassi and Enders 2005).

The use of electronic communication and digital information processing technology in business transactions help to create, transform and redefine relationships for value creation between or among organizations and between organizations and individuals (Emmanuel Lallana 2000)

In the World Trade Organization (WTO) Work Programme on Electronic Commerce (1998), e-Commerce is understood to “mean the production, distribution, marketing, sale or delivery of goods and services by electronic means”. A commercial transaction can be divided into three main stages: the advertising and searching stage, the ordering and payment stage and the delivery stage.

The exchange of information across electronics networks at any stage in the supply chain, whether within an organization, between businesses and consumers, or between the public and private sector, whether paid or unpaid (UK Government Cabinet office 1999). Some authors however could not describe e-Commerce in one definition, as they opined that e-Commerce can be viewed from different perspectives.

According to Turban (2008), e-Commerce can be defined from different perspectives which include but not limited to:

From a **communications perspective**, e-Commerce is perceived as the delivery of information, products and services and/or payments over varied communication lines i.e. telephones, computer networks, or other electronic channels. From a **business perspective**, e-Commerce is perceived as the application of technologies towards the automation of business transactions and flow of work.

From a **service perspective**, e-Commerce is perceived as a tool that caters for consumers, management of firms to reduce service costs in an effort to improve quality of goods and foster the speed of delivering services. From an **online perspective**, e-Commerce makes possible an enabling atmosphere for products transaction, services and information via the internet and other services that are available online.

However for the purpose of this research work, e-Commerce will be looked at from a perspective that involves transactions that may be either commercial or non-commercial and also if there is either a corresponding payment or otherwise thereby making e-Commerce synonymous with E-Business. In the light of all the above, e-Commerce is all about fully integrating the operations of an organization in such a way that all its various external activities and its internal business processes of research and development, sales and marketing, manufacturing, finance and accounts, inbound and outbound logistics, human resources management using information and communication technology (Jelassi& Enders 2005).

It is possible to trace a number of stages through which firms are passing as they progress towards e-commerce. Each stage is associated with a higher degree of networking and sophistication in communication modes, progression from traditional commerce to e-commerce business models which requires more radical restructuring of the internal structures (Windrum&Barranger, 2002).

In order to acquire a holistic view of the electronic commerce adoption phenomenon, the academic and research community has focused its research attention on the analysis of the electronic commerce adoption process. Within this framework, a great amount of effort has been placed on the examination of the electronic commerce adoption process as well as on the investigation of the significant factors that affect the specific process. The results of the specific research attempts and development have led to the formulation of certain electronic commerce adoption models (European Commission, 2007).

Within the staged adoption models, early stages of electronic commerce adoption are typically characterized by gaining access to the internet followed by the use of relatively simple applications, such as electronic mail (email) in order to dispense and gather information. Later, the business starts to publish a wider range of information in order to market its products or services and perhaps provide after – sales support. The development of electronic commerce practices come next, allowing the users of the corporate site to order and/ or pay for goods and services. In the most mature stages, the corporate website is fully integrated with the various back office systems such as enterprise resource planning (ERP), customer relationship management (CRM) and integrated supply chain management (SCM) applications (Mendo& Fitzgerald, 2005).

According to Harrison (2012), Nigeria at present operates a predominantly cash based payment system and is characterized by the psychology to physically hold and touch a payment medium like cash; a culture informed largely by ignorance, Trust, illiteracy and lack of appreciation of the need to use digital payment system like any of the following debit cards like visa card, verve card, master card, smart card, electronic funds transfer better still use a credit card on a Point of Sales Terminal (POS) to make bulk payment.

Despite the overwhelming superiority of electronic payment systems, business to business transactions are still predominantly concluded in Nigeria with the use of cash and to a limited extent banker’s

cheque until recently the introduction of Real Time Gross Settlement, NIBSS Electronic Fund Transfer (NEFT), Automatic Pay but yet business out fits still circumvent the law by splitting cheques in excess of NGN 10 million. The time lag between cheques lodgements and receipt of value as well as the high risk of fraud associated with such payment medium makes e-payment system a preferred alternative. However, the Nigeria Automated Clearing System (NACS) which has been in operation for some years ago was set up with the objective of significantly reducing clearing days and fraudulent transactions.

Effective payment system is a vital part of financial infrastructure of any economy. By enabling commercial transactions to be completed faster, safer and cheaper, it would have positive impact on economic growth and global competitiveness.

The following new innovations in Nigeria's financial sector are beginning to attract a great attention.

RTGS-(Real Time Gross Settlement):- This is used for funds settlement within banks and also third party interbank transfers. However, the third party transactions have to be routed through the books of the banks for onward credit to the beneficiary customer's account. The impact of such transactions is immediate.

Autopay: - This is a platform where funds movement is through Inter-Switch and the impact is immediate to the account of the customers involved. This is normally used where a large number of beneficiaries are involved.

NEFT- (Nigerian Inter Bank Settlement System Electronic Fund Transfer): This was designed for small value transfers into customers account but routed through the Central Bank of Nigeria (CBN) accounts of banks. This is now to be expanded to cover higher values. The impact of such transactions is within 24 hours as it follows the clearing process. This could be used for both single and bulk transactions. NEFT is a multi-scheme fund transfer platform.

Online Banking: (or Internet banking) allows customers to conduct financial transactions on a secure website operated by their retail outlet or at the comfort of one's home, given the overwhelming success of on-line banking, banks in Nigeria are gradually embracing internet banking and radical changes are beginning to take place in the Nigerian financial landscape. Customers are increasingly raising the stakes of expectations for quality customer services.

Telephone Banking: - is a service provided by a financial institution which allows its customers to perform transactions over the telephone. It is a technology enabled Service offering from banks to its customers, permitting them to operate selected banking services over their mobile phones using SMS messaging.

Electronic money: a generic name for plastic money and other forms of e-payments such as:

- **Smart card/value card:** Smart card is operational in Nigeria under the brand name of value card. The Nigeria holding company acts as settlement agent as well as coordinate hardware and software supply, while participating banks serve as card issuers.
- **Credit card:** A revolving credit on the card allows installment repayment. The credit when granted is either settled in full by the end of a specified period, or settled in part, with the remaining balance extended to the next billing period. Credit cards are also easy to use on the internet, as only the credit card details need to be sent to the beneficiary in order to effect payment.
- **Automated Teller Machine (ATM):** A complex self-service station for cash withdrawal, account information, credit transfer and cash deposits. ATM and credit card networks are linked in such a way to enable card holders of any bank to operate any ATM machine. The ATM machine is managed by interswitch and they act as settlement agents to all the 20 banks that are members.

In spite of the development in e-payment system, it is however burdened with the following constraints;

Inadequate ICT infrastructure: Inadequate ICT infrastructure and lack of reliable infrastructure are often hindrances that impair good e-payment deployment, IT portfolio of the retailers are the main reasons why e-payment is not growing effectively in Nigeria like other developing nations in Africa.

Absence of legal framework and policy: There is no enabling legal framework to guide the operations of e-payments system in Nigeria. Such a guideline should define relationships, rights and obligations as well as the scope of e-payment systems.

Dearth of e-workforce: without an effective e-workforce or knowledge managers that can use and maintain servers and other tools for enabling e-banking, the deployment and growth of e-payment system will be hampered.

Lack of Awareness and Social Acceptance: Awareness and social acceptance remain dominant issues that will for a long time confront e-payment in Nigeria. There is high hope of optimism that cash transaction will gradually efface and e-payment system would predominate in Nigeria especially with the new CBN proposed a cumulative daily deposit and withdrawal of NGN500,000 for individual and NGN 3,000,000 for corporate body and third party cheque withdrawal of NGN 150,000 respectively.

THE IMPACT OF INFORMATION AND COMMUNICATION TECHNOLOGY ON THE PRODUCTIVITY OF NIGERIAN BANKS

Information Technology has tremendously contributed to the expansion of the banking networks and range of the offered services during recent years (Evadat and Kozak, 2005). Information Technology or Information and communication (ICT) is the combination of computer, electronics and telecommunication equipment to generate information (Oladejo, 2007). The increase in emerging Information Technology has made banking services become more and more automated and less paper work than in the past as averred in the Central Bank of Nigeria reports and statistical bulletins (2005, 2006, 2007 and 2008) and other literature on banking and finance (Kozak, 2005; Ayo, 2006; Oladejo, 2007; Keramati, 2007).

Information and Communication Technology is vital to any organization. In other words, for every organization to achieve its goal at peak, information and communication technology must be fully involved. The need for communication makes business organization develop various means of disseminating Information among the people both within and outside the organization. ICT can also contribute to the acceleration of economic growth at the country level, when deployed in accordance with the specific needs and capacities of each country, the world bank report "E – development : from excitement to effectiveness.

Schwartz (2006), highlights that developed middle income countries and developing nations can reap benefits from having a healthy information technology (IT) supply sector. Industry could contribute by developing more efficient, user-friendly and affordable technologies and also joining various digital bridging ICT within reach of millions and also joining various digital bridging and community involvement programs and actions (Gichooly, 2005).

In the early history of every society, information is delivered through traditional methods like message carriers, talking drums, flutes etc. However, British people introduced the post and telegraph communication which eventually developed into the modern information technology. E.g. of the post and telegraph communication is the Nigeria telecommunication limited [NITEL] and Nigeria postal services [NIPOST] were established in 1984 to ensure efficient delivery of information through mail, telephone, telegram, telex and so on. Thus the information technology industry is an organization of establishments, which collects and transport messages as well as material and documents, safely, securely and efficiently, everywhere and always by land or air. As such, the information technology industry makes use of modern satellite communication facilities and different modes of transportation to transmit messages in information technology industry, thus a high capital based organization which has network spread by using modern sophisticated equipment (Akunyili, 2004).

In Nigeria today, some organization fails to harness new technology, they will find themselves unable to compete with their counter parts in the developed world. To compete, many turned to information and communication technology [ICT] for improved efficiency and reduced costs. Information and communication technology has a major tool for rendering and providing competitive advantage to the banking sector, in-terms of numerous computers in use and level of other computerized infrastructures. It has

also reduced the significances of other factors of production through information technology. It is possible for banks to carry out transactions without borders. Therefore, as a result of anchoring their operation on information based delivery system, the banks with information technology service have become more profitable. Most banks that want to survive the unpredictable and competitive business environment realize the importance of effective information and communication technology [ICT] in banking operations.

According to Awe (2000), banking operations are based on information management, i.e. sorting, retrieving and processing information. He posited that the most obvious use of computers is improving the quality of banking services to customers, the contributions of ICT to the banking sector is immediate, customers respond better to results than any promotional adverts. Information Technology in the banking sector has brought about efficiency and also increase in productivity. With the coming of Automated Teller Machine (ATM) bank offices and designated places, such as Airports, high profile eateries and shopping centres have been felt by the public as mind of revolution blowing in the banking sector in Nigeria over the couple of years.

To a large extent, the adoption of ATM of the banks have helped the banking sectors to achieve its goal as banking halls are being decongested with the installation of facility across the country. ATM [a form of I.T deployed in the banking sector] has increased the financial profile and added financial muscles to banks. So banks have acquired and installed more ATMs in order not to lose their customers to competitors. Thus ATM is commonly placed on the Nigeria financial landscape, According to records, the bank can boast of over 2,537 ATMs that have been installed nationwide as at 2007. As for cardholders, card payment could be made as often as one decides, because this innovation eliminates the need to carry large volumes of cash. The weekends are not left out as withdrawals are now done even on Sundays, the card payments also allows 24hrs banking. The contributions of information and communication technology [ICT] have or the banking sector cannot be overstated since it has helped in reducing the cost of doing business in banks, banks all over the world are involved in certain time consuming and routine task on a daily basis. IT handles these routine functions easily also and reduces operational cost in areas such as personal management administration, maintenance etc.

Information and communication technology also gives banks the ability to respond quickly to market events, change in the business environment or new directives from regulatory bodies such as the Central bank and ministry of finance. [ICT] has also provided local and global village. ICT has also provided the ability to offer worldwide services to customers in an easy and cost – effective manner through internet services which involves online enquiry on account balances and status: online request for immediate statement of account, payments of bills, downloading of account transaction; online transfer of money between accounts immediate e-mail communication with customers on any problem or request. Today ICT in banking sector have also increase security for customers since most things are done cordially, with the use of passwords in carrying out most transactions.

Information and communication technology [ICT] in the banking sector has also brought about revolutions in the economy since payment methods which include the use of credit cards, electronic transfer of funds from one bank to another, smart cards widely used in supermarkets and other retail outlets have contributed to the economic growth and developments. Computers and telecommunication systems 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 delivery of 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 (wide area network). With the acquisition of the above system, they sold their services with promises of delivery 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 Nigeria banks from providing international infrastructure and the contribution of [ICT] in the banking cannot be overemphasized. Information technology has helps in shaping both the banking world and our society in general. Many fields have been impacted by information technology and these include: Education, Health, Entertainment, communication, just to mention but a few. The impacts of information

technology are profound. As the world develops, more technology will emerge and this technology will have both positive and negative impacts.

BENEFITS OF ICT AND E-COMMERCE IN THE NIGERIAN BANKING INDUSTRY.

According to Basu and Muylle, (2007), banks can gain two fundamental types of benefits from ICT and e-commerce. These are generally described as: Value creation or value enhancement for one or more of a company's stakeholder's groups, and lower cost of providing goods and services (products) to their customers.

Value creation includes; improvement in internal and external communication through effective e-marketing, increment of sales through an e-commerce website integrated with a back office systems and improvement in supplier relations and productivity through collaborative work spaces (Basu and Muylle, 2007).

Lower costs are: reduction in communication and travel cost using online meeting tools; shared workspaces and; benefit from license free open source alternatives to proprietary software.

Businesses also see tremendous opportunities for cost saving, revenue generation, increased market share, marketing and market access, and improving customer service through direct links that facilitate speedy enquiry and feedback. Similarly, consumers can inter alia, access the world market through the virtual economy on the internet, choose from a wider variety of products, and shop in the comfort of their homes. Globalization and specifically liberalization of communication networks have all facilitated this breakthrough that further presents a massive boost for international trade. (Mark Bynoe, 2002).

Windrum and Berranger (2002), suggest that the commercial benefits of ICT and e-commerce lie in five areas;

Firstly, firms are able to expand their geographical reach. **Secondly**, important cost benefits lie in improved efficiency in procurement, production and logistics processes. **Thirdly**, there is enormous scope for gaining through improved customer communications and management. **Fourthly**, the internet reduces barriers to entry for new market entrants and provides an opportunity for small firms to reorient their supply chain relationships to forge new strategic partnership. **Finally**, e-commerce and ICT facilitate the development of new types of products and new business models for generating revenues in different ways as well as different revenue streams

THEORETICAL FRAMEWORK

INNOVATION DIFFUSION THEORY

Innovation diffusion theory was used as a foundation for this study. This theory was propounded by Rogers in 1983. Rogers (1983) defined organizational innovation as the development and implementation of ideas, systems, products, or technologies that are new to the organization adopting it. The adoption of innovations is a process that includes the generation, development, and implementation of new ideas or behaviors (Rogers, 1983). The innovation does not necessarily have to be new in terms of discovery or invention; it only has to be perceived as new by the organization (Zaltman, Duncan & Holbek, 1973). Thus, innovation diffusion theory is well suited for researching the adoption of e-commerce in developing countries.

Rogers, (1983) & Tornatzky and Fleischer, (1990) identified three different categories of factors – organizational, technological, and environmental factors – that influence the technological innovation decision. Kimberly and Evanisko, (1981) identified three groups of predictors of innovation: characteristics of organizational leaders, characteristics of organization, and characteristics of environment. In summary, four categories of factors can be found in technological innovation literature: (1) Managerial; (2) Organizational; (3) Technological; and (4) Environmental.

Researchers have identified the following common environmental factors relating to IT adoption (and specifically the adoption of Internet technologies): pressure from competitors, customers or suppliers; the role of government (incentives); partners' alliances; technological infrastructure; technology consultants;

image of Internet technology; and users' expectations (Aguila-Obra & Padilla-Melendez, 2006) Technological factors include complexity, compatibility, relative advantage, ease of use and usefulness (Davis, 1989 & Rogers, 1983).

The technological factors are related to barriers to technology adoption and its perceived benefits. The perceived benefits for managers could be direct, such as cost savings or income generation, or indirect, such as potential opportunities in new markets, marketing, or publicity (Poon and Swatman, 1999). Thus, when adopting an innovation, organizations must perceive the positive effects of the adoption – and hence its potential value – before starting the process (Vadapalli & Ramamurthy, 1997).

The organizational factors include: IT users' community; organizational structure; firm's processes; firm size; technological capabilities of the organization's members; the technological and financial resources available; the culture of the organization; process of selecting and implementing the IT; management backing and support for the project; and the project leader (Aguila-Obra & Padilla-Melendez, 2006).

CHALLENGES RELATED TO THE ADOPTION OF INFORMATION AND COMMUNICATION TECHNOLOGY AND E-COMMERCE IN THE NIGERIAN BANKING INDUSTRY.

Many writers of ICT and e-commerce extol the enormous potential and opportunities provided for consumers and businesses globally. However, there are some drawbacks and the benefits to be derived tend to be overstated (Mark, 2002). While many commentators hold the view that ICT and e-commerce has many advantages for developing countries, the African continent has a number of major challenges to overcome before it can more fully exploit the benefits of e-commerce. A number of constraints, specific to doing e-commerce and ICT in Africa, are apparent (Akoh, 2001).

These include but not limited to the following: low level of economic development and small per-capita incomes; limited skills base with which to build ICT and e-commerce services; the number of internet users needed to build a critical mass of online consumers and; lack of familiarity with even traditional forms of electronic commerce such as telephone sales and credit card use.

Perhaps, one of the greatest constraints to the adoption of ICT and e-commerce as means to generate efficiencies is a cultural reluctance to interface with buyers and suppliers electronically. Such challenges remain major obstacles, limiting the potential benefits of e-commerce (Akoh, 2001). Other challenges are the cost of implementation, security concerns, perceived customer readiness, lack of knowledge of information technology (IT) and e-commerce, the relatively high costs associated with investments in information and communication technologies, the lack of technical and managerial skills and reluctance on the part of companies to network with other enterprises and lack of executive support and concerns regarding the reliability of technology.

EMPIRICAL FRAMEWORK

Madueme (2010) assessed the impact of information and communication technology (ICT) on the efficiency of 13 commercial banks in Nigeria using TRANSLOG and CAMEL rating. The finding showed that ICT improved the efficiency of the banks and recommended increased investment in ICT by banks. Amaoko (2012) in his research on the impact of ICT on banking operations in Ghana, ICT has contributed positively to the provision of banking services and the growth of the Ghanaian banking industry. Internet banking and on-line banking is not yet developed in Ghana. The study recommended that banks should develop user friendly systems and applications for general population, Government and banks should play a key role in enhancing ICT infrastructure, put in place incentives like tax reduction, make PC available and affordable for regards to ICT through sensitization, workshops and support the skills development among bank personnel, there should be a central monitoring unit permanently manned by personnel, seizure of electronic cards etc. are handled with dispatch. Lastly the banking institutions should also come out with more electronic products and services to reduce the turnaround time of customers. Such products will give them the opportunity to sit at the comfort of their homes, workplaces and transact business with the banks.

Madueme, (2010) researched on evaluating banking productivity and ICT using Translog production function in Nigeria, the results showed that bank output such as loans and other assets increased

significantly to charges in expenditure on Information communication technology. ICT labor expenses impacted more on bank output more than capital expenditure on ICT gadgets. The study recommended on the need to increase investments in information technology in order to increase productivity of banks.

Auta (2010) examined the impact of e-banking on the Nigerian economy using Kaiser-Meyer-Olkin (KMO) Approach and Bartlett’s Test of Sphericity. The study showed that e-banking provides several advantages to the Nigerian banking sector and Nigerian customers have security, access and inadequate knowledge regarding e-banking services. To further ensure the use of e-banking, critical infrastructure like power and telecommunication was recommended to be provided with high level of stability.

Morufu and Taibat (2012) researched on bankers’ perception of electronic banking in Nigeria purposely to find out how bankers perceive the benefits and threats associated with electronic banking by investigating banks employees’ perception on electronic banking and its implications on bank service delivery. The study concluded that “minimizing inconvenience” and “government access to data” appear to be the most important benefit and risk respectively while “reducing human resource requirements” and “charges on high costs for services” are the least important benefits and risk associated with electronic banking. According to AhamadKaleem (2008) bankers in Pakistan perceive electronic banking as a tool for minimizing inconvenience, reducing transaction costs and saving time. Similarly, they believe that electronic banking increases the chances of government access to public data, increases the chances of fraud and that there is lack of information security.

METHODOLOGY

RESEARCH DESIGN

A research design is the arrangement of conditions for collection and analysis of data in a manner that aims to combine relevance to the research purpose with economy in procedure (Claire, 1962). Also, a research design is the detailed blue print used to guide a research study toward its objectives (Awotunde and Ugodulunwa, 2004). It is very important to determine the choice of research approach because it determines how the necessary data will be obtained. Hence, survey research is adopted for this study. According to Balaxer, Hughes and Tight (2001) a survey research is a method of obtaining research information by asking a set of pre-determined questions from a given sample of individuals drawn from a defined population. Also, primary source of data is adopted for this study which is in line with the survey research design.

POPULATION AND SAMPLE SIZE

A population is any group of individuals that have one or more characteristics in common and that are of interest to the researcher (Best and Kahn, 2006). Hence, this study focused on the Nigeria banking Industry within Ilorin metropolis but this is limited to the customers and staff in the industry because their activities directly involve utilization of ICT and e-commerce platforms which enhance their operations and transactions respectively.

Table 3.1 Breakdown of Questionnaires Distributed and Recovered

Questionnaire	Quantities	Percentage (%)
Printed and distributed	300	100
Recovered	280	93
Badly filled	48	17
Useful for Analysis	232	77

Source: Administered Questionnaire (2015)

Table 3.1 shows that 300 copies of questionnaire were printed and distributed to respondents. 280 copies of questionnaire which represent 93% were recovered, 232 (77%) copies of questionnaire were found useful for this study and this constitutes the sample size for this study.

This research employs three sampling techniques. These are: Convenience sampling technique, Stratified sampling and simple random sampling. Stratified sampling is used to divide the population to be surveyed into group with similar attribute. This is done to make the result of the study more acceptable, because of the international and national outlook of ICT and e-commerce in relation to banking industry. While, simple random sampling is further used to avoid subjective bias arising from personal choice of sampling units. This is a situation where every member of the population has equal chance of being selected for the study without bias.

DATA PRESENTATION AND DATA ANALYSIS

HYPOTHESES TESTING

Test of Hypothesis 1

Ho₁: There is no significant relationship between technological innovation and the employees' performance of the Nigerian banking industry.

Table 4.13

Descriptive Statistics			
	Mean	Std. Deviation	N
TECHNOLOGICAL INNOVATION	2.5259	1.54282	232
EMPLOYEE PERFORMANCE	13.4914	1.74820	232

Correlations			
		TECHNOLOGICAL INNOVATION	EMPLOYEE PERFORMANCE
TECHNOLOGICAL INNOVATION	Pearson Correlation	1	.278**
	Sig. (2-tailed)		.000
	N	232	232
EMPLOYEE PERFORMANCE	Pearson Correlation	.278**	1
	Sig. (2-tailed)	.000	
	N	232	232

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

Sources: Research's computation (2015)

Decision Rule

The Pearson Product Correlation Coefficient ($r = .278^{**}$, $N=232$ $P < .05$). shows a strong positive relationship between the two variables. Thus, the alternative hypothesis (H_1) connote that there is significant relationship between technological innovation and the employees' performance of the Nigerian banking industry is accepted. Null hypothesis (H_0) which states otherwise is hereby rejected. Hence, this is supported by the findings of Irechukwu (2000) who itemized some bank services that have been revolutionized through the use of ICT as including account opening, customer account mandate, and transaction processing and recording

Test of Hypothesis 2

Ho₂: There is no significant relationship between e-commerce and the market share of the Nigerian banking industry.

Table 4.14

Descriptive Statistics			
	Mean	Std. Deviation	N
E-COMMERCE	2.5259	1.54282	232
MARKET SHARE	12.7629	1.88863	232

Correlations			
		E-COMMERCE	MARKET SHARE
E-COMMERCE	Pearson Correlation	1	.220**
	Sig. (2-tailed)		.001
	N	232	232
MARKET SHARE	Pearson Correlation	.220**	1
	Sig. (2-tailed)	.001	
	N	232	232

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

DECISION RULE

The Pearson Product Correlation Coefficient ($r = .220^{**}$, $N=232$ $P < .05$). shows a strong positive relationship between the two variables. Thus, the alternative hypothesis (H_1) connote that there is significant relationship between e-commerce and the market share of the Nigerian banking industry is accepted. Null hypothesis (H_0) which states otherwise is hereby rejected. Hence, this view is supported by Josiah and Nancy, (2012) that e-commerce had increased banks' turnover and profitability. The use of e-commerce contributes to improved bank performance, in terms of increased market share, expanded product range, customised products and better response to client demand. They posited that only banks that adopt e-commerce effectively have the opportunity to secure real competitive advantage in this fast changing industry through real product or service differentiation.

SUMMARY OF FINDINGS

The introduction of ICT and e-commerce into the Nigerian banking industry will enhance effective and efficient service delivery to their customers. These include; value creation or value enhancement in the banking industry, the adoption of e-commerce will enhance productivity in the banking industry, facilitate easy marketing and word of mouth sale of the banks' products, it will reduce the cost of doing business. The findings from the hypothesis that ($r = .278^{**}$, $N=232$ $P < .05$). shows that there is significant relationship between technological innovation and the employees' performance of the Nigerian banking industry. It is observed that technological innovation has revolutionized some bank services which include account opening, customer account mandate, and transaction processing and recording.

CONCLUSION

Any bank in Nigeria that wants to leverage its market position must not leave any stone unturned by developing its information technology department. The present age general awareness of the internet business is so much that its adoption should not be taking for granted and this has helped communicating globally with customers using internet within their reach. Nigerian banking industry should buy the idea of fully implementing ICT and e-commerce as it will help in effective service delivery, reduce the bank's error rate and above all, help to analyse planning and control of various departmental units in the bank which will lead to increase in their bottom line. It is also observed that ICT and e-commerce enable the banks to market its product online and provide a range of service by web assistance beside capturing, processing and presenting information as a procedure to achieve their objectives

RECOMMENDATIONS

Based on the findings of this study, the study recommends the followings: (i) In this research work, it is evident that all the banks used are utilizing ICT and e-commerce to offer quality customer service delivery to their numerous customers. As a result, other banks should accept e-commerce deployment as a strategy to improve and develop the quality of products and services offered to customers in order to achieve their overall corporate objectives which is profit making. (ii) This study has proved that Information and communication technology (ICT) has effectively impacted on the reduction of banks' customers and increasing risk of bulk cash movement. Consequently, the researcher recommends that banks should optimize the available technologies to improve on the reduction of customers increasing risk of bulk cash movement and reduce the cost associated with cash movement as well as overnight insurance booking, when the insurance limit of the branch is exceeded. (iii) The study recommended that, banks should always train and re-train their staff on the use of these new technologies for effective service delivery to the customers.

REFERENCES

- Akunyili, D. (2004). Ethical Consideration in the development of courier industry; A Conference paper Presented at the Nigeria courier summit Lagos.
- Amaoko, A. (2012). The impact of information communication technology (ICT) on banking operations in Ghana. *International Journal of Business and Management* Tomorrow Vol. 2 No. 3.
- Apulu, I. and Latham, A. (2009). Information and Communication Technology Adoption: Challenges for Nigerian SMEs, *TMC Academic Journal*, 4(2), pp. 64-80
- Auta, M.E. (2010). "E-banking in Developing Economy: Empirical Evidence from Nigeria, *Journal of Applied Quantitative Methods*, Vol. 5(2), 212-222
- Awotunde, P.O & Ugodulunwa, C.U. (2004). *Research Methods in Education*, Jos, Nigeria: Fab Anieh Nig. Ltd
- Ayo, C.K., Adewoye, J.O, and Oni, A.A. (2011). Business-to-Consumer e-commerce in Nigeria: Prospects and Challenges", *African Journal of Business Management*, Vol.5 (13), 5109-5117
- Banigo, J. (2001), information technology demystified. *A report from the uniform technical steering committee, open systems help rated banks compete*: pp. 35
- Best, J.W. & Kahn, J. (2006). *Research in Education*: New Delhi: Prentice Hall of India Pvt. Ltd.
- Blaxter, L., Hughes, C. & Tight, M. (2001). *How to Research*. USA: Open University Press.
- Castells, M. (2001). *The Internet Galaxy: Reflections on the Internet, Business and Society*, Oxford; New York: Oxford University Press.
- Emmanuel, G. and Sife, A. (2008). *Challenges of Managing Information and communication technologies for educational Experiences* from Sokoine National Agricultural Library. *International Journal and education and development using ICT*, 4 (3), 43-62. .
- Ezeamama, M. (2010). *Fundamental of financial management*; Enugu: Ema press ltd:

- Loonam, M. and Loughlin, D. O. (2008). An Observation Analysis of e-service quality in Online Banking. *Journal of Financial Services Marketing*, Vol. 13, No. 2, pp. 164-178.
- Madueme, I.S. (2010). Evaluation of the Impact of Information Communication Technology on Banking Efficiency Using the Transcendental Logarithmic Production Function and Camel Rating. *International Journal of Engineering Science and Technology*, Vol.2 (1), 1-6
- Ongori, H. (2009). Role of Information Communication Technologies Adoption in SMEs: Evidence from Botswana, *Research Journal of Information Technology*, 1 (2), pp.79-85
- Rogers, E.M. (1995). *Diffusion of Innovations* (4th ed.). New York: Free Press.
- Salehi, M. and Alipour, M. (2010). E-banking in Emerging Economy: Empirical Evidence of Iran, *International Journal of Economics and Finance*, Vol.2 (1), pp. 201- 209
- Zwass V. (1996). Electronic Commerce: Structures and Issues. *International Journal of Electronic Commerce* Volume 1, Number 1, fall, 1996, pp. 3 - 23.