# INFORMATION AND COMMUNICATION TECHNOLOGY: A LUBRICANT TO THE WHEEL OF BANKS' SERVICES DELIVERY

***E. V. Agunuwa; Timothy Proso and Lucky Inaya***

## Abstract

This paper is focused on the examination of the influence of Information and Communication Technology (ICT) on banks' services delivery. To this end, the concept, components, and the introduction of ICT in the Nigerian banking industry were discussed. The advantages and challenges were also x-rayed. The exercise revealed a positive relationship between the application of ICT resources and banks' services delivery, in the sense that, it has significantly improved quality of services delivery to bank customers, enhanced prompt and fair attention, fast processing and recording of transactions, thereby reducing time spent by customers in the banks. It has made banking more convenient as office, home and telephone banking as well as automated payment services are now available to customers. The traditional manual recording system through the use of ledgers and cash books have been replaced by computerized information system, thereby reducing workload for bankers and enhanced convenient working hours. On this basis, appropriate decision making policies recommendations were made.

## Introduction

Over the recent decades, business environment has experienced a tremendous change. Information and Communication Technology (ICT) has transformed the world into a global village, necessary business information can be accessed anytime and anywhere at the press of a button, such that business connections and transactions can be effected irrespective of the distance between the parties on a real time basis. In this regard, for any organization or an individual to be relevant in the present competitive and dynamic environment, he has to hook up with the current trend of ICT. Owing to this view, the importance of an evaluation of the role of ICT in banks' services delivery cannot be overemphasized.

According to *Agboola (2003)*, the application of ICT concepts, techniques, policies and implementation strategies to banking services has become a subject of fundamental importance and concerns to all banks and indeed a prerequisite for local and global competitiveness. Further, he stated, ICT directly affects how managers decide, how they plan and what products and services are offered in the banking industry, and that ICT has continued to change the way banks and their corporate relationship are organized worldwide and the variety of innovative devices available to enhance the speed and quality of services delivery.

*Woherem (2000)* posits that only banks which overhaul the whole of their payment and delivery systems and apply ICT to their operations are likely to survive and prosper in the new millennium. He advised banks to re-examine their services and delivery systems in order to properly position them within the framework of the dictates of the dynamism of ICT.

*Toju (2008)*, in conclusion, states that technology has transformed the way the banking industry delivers its services. The ease and quality of services delivery has been transformed in the past few years, the Nigerian banking industry can very well be seen to be leveraging technology to improve services, maximize profit and by extension, grow the economy.

From the foregoing, it is obvious that the synergistic effect of ICT has created tremendous transformation in modern business landscape, with exceptional impact on the banking industry which is the bedrock of economic activities in any economy. Thus, this study is designed to examine the role of ICT in banks' services delivery, with a view to proffer appropriate recommendations for policy decision making.

**The Concept of ICT**

According to *Oxford Advanced Learner's Dictionary of Current English Language,* the word technology simply means application of science in various fields of learning e.g. Medicine, Engineering etc. *The BBC Dictionary of English Language* on the other hand defines technology as the activity or study of using scientific knowledge for practical purposes. Therefore, Information Technology (IT) simply means, the application of science in the realm of information exchange. In other words, Information Technology refers to the application of appropriate technologies to information processing *(Odogbo, 2001).* It is a term which generally covers the harnessing of electronic technology for the information needs of businesses at all levels *(Anderson, 1974)* And encompasses a range of new technologies and their applications, including all aspects of the use of computers, microelectronics, satellite and communication devices *(Okonta, 2005).*

Communication Technology on the other hand involves the physical devices and software that link various computers hardware components and transfer data from one physical location to another *(Landon and Landon, 2001).* Two or more computers are said to be in communication when it is possible for information exchange to take place between them *(Odogbo, 2005).* The word communication and transmission can be used interchangeably to mean the same thing. According to the *Oxford Advanced Learners Dictionary of Current English Language,* "transmission" which is derived from the word "transmit" means, the process of passing or transferring something or data from one place to another. Data transmission can therefore be defined as the movement of data from one location to another. It involves movement of data from point of origin, that is, source or place of preparation to a location where it will be processed or used. This can take the form of physical transmission or electronic transmission. Physical transmission involves the use of diskettes, tapes, flash drives etc. while Electronic transmission involves computers which are linked together in a Network *(Odogbo, 2001).*

From the foregoing, ICT infrastructural framework can be regarded as an integration of the various components of both information technology and communication technology which interact with one another directly or indirectly for the achievement and sustainability of organizational objectives *(Tshinu et al, 2008).*

**Basic Components of ICT**

*Odogbo (2001)* identified some basic components of ICT. These include:

(a) File server (host computer).
(b) Client computers.
(c) Cables e.g. coaxial cables.
(d) Modem.
(e) Network/internet.

*(a)* **File Server (Host Computer):** The file server is a powerful computer that provides services to other computers in a network. It is dedicated to handling out files and or information to client

computers. The server controls the data as well as other resources the client computers need to access. The server is not only a faster computer with a better processor, but it also requires much more storage space to contain all the data that needs to be shared to the client computers. Server computers are optimized to hand out information as fast as possible *(Okonta, 2005).*

*(b)* **Client Computers:** The client computers are computers that use the services that are provided by the server (host computer). The client computers are usually less powerful than the server. They act as work stations or terminals to the system *(Anderson, 1974).*

*(c)* **Cables:** Information or data collated or processed may be needed to be transferred or transmitted from where it was collated or processed to where it will be used or documented. Therefore in a computer network, computers are interconnected to enable them to share files and other resources, send and receive electronic information from one another. This interconnectivity in a Local Area Network (LAN) is facilitated by the use of cables. Examples of such cables are Coaxial cable, Twisted pair cable, Fiber optic cable etc *(Okonta, 2005).*

*(d)* **Modem:** Network modems are the most basic networking technology other than cables. In this era of internet fever, modems are glamorous components. The word modem is an acronym for what a modem does. A modem takes the digital or discrete signal that computers put out and changes it to analog signal that can be sent across telephone lines. At its destination, the analog signal is retranslated to digital so that the receiving machine can understand it. The conversion and reconversion is known as modulation and demodulation hence the acronym "modem" *(Okonta, 2005).*

(e) **Network:** In a computer network system, computer can talk to each other, share the same information and share or benefit from the knowledge of other computers. Invariably, there must be a means of linking or joining these computers together to make communication and information exchange possible. The system of linking, joining or connecting computer together is termed "Computer Network".

Therefore, a computer network may be defined as a system of interconnecting or linking two or more computers together or several computers to hardware devices such as printers, using coaxial cables, telecommunication lines and other suitable devices like modem, for the purpose of data communication or information exchange *(Odogbo, 2001).*

There are two main types of Computer Networks. These include:

(a) Local Area Network (LAN).
(b) Wide Area Network (WAN).

(a) **Local Area Network (LAN):** It is a type of network used to interconnect computers in a single room or rooms within a building or buildings that are closely apart, using media such as coaxial cables or multi-stranded cables. Since in Local Area Network (LAN) computers are linked directly together using cables, LAN, therefore cannot be used over long distance as it is impossible to find a coaxial cable whose length can stretch from Nigeria to America.

(b) **Wide Area Network (WAN):** This on the other hand is a type of Network which interconnects computers on separate sites, separate cities or even separate countries. Simply put, WAN connects computers that are geographically wide apart. It joins two or more computers such that the communication line between them requires a wireless communication link, such as involving telecommunication and satellite link. A device called modem is used in connecting the computer to the system.

**Major Product of WAN (Internet)**

According to *Odogbo (2001)*, a major product of the Wide Area Network (WAN) is the "Internet". He states that the word "Internet" is an acronym which is derived from the word "International Network". It may be defined as a massive international network of computers. He went further to identify the functions of Internet as follows:

(a) **Exchange of Information:** With internet, exchange of information round the globe is possible. Besides, it provides speedy and quick access to global information e.g. CNN news, BBC world news, Encyclopedia, Scholarships opportunities adverts etc.

(b) **E-Commerce or On-line Shopping:** It provides the opportunity of buying and selling on the net as well as advertising products and job vacancies. Using the appropriate browser, you can visit big time supermarkets and shops in western countries like America, viewing items and products that will win your attention without having to travel down.

(c) **E-Library:** It provides you the opportunity of access to books, journals, magazines and newspapers, on the net. For example, Oxford University Library Books and Journals can be accessed.

(d) **E-Learning/Education:** Distant learning can be conducted via the net. Diplomas, Bachelor's degree etc, are now gotten through the internet without travelling to the school campus as lectures can be received and examination written through the internet and bag these degrees and certificates right there at home.

(e) **E-mail:** Electronic mail is the most common and most enjoyed function of the internet. It has to do with the sending, and receiving of mail electronically, and is far more efficiency than the use of the traditional post office.

(f) **Conferencing:** Through the internet, leaders of respective nations can meet for discussions with each one, not having to move out of their office or countries to a particular venue. Though they are geographically wide apart, yet they are together. This is also called "electronic meeting".

(g) **Friends:** You can also win friends (pen pals) around the world just by surfing through the net.

(h) **E-Banking:** Banking transaction can be carried out on the net.

**Emergence of ICT in the Nigerian Banking Industry**

The emergence of ICT in the Nigerian banking industry is synonymous to the advent of computerization of banks' operational system in the Nigerian economy. The use of the computer is still very new in our society. The computer technology emerged in late 1940s, in the advanced countries of North America and Europe. Its significant appearance or introduction into the Nigerian economy was in the 1970s through the multinational corporations such as United African Company (UAC), National Cash Register (NCR) etc. The banks embraced it in the 1980s. As an expensive machine, it was not easy for most banks to computerize all their bank operational networks *(Ajomale, 1990).*

However, with the advent of new generation banks and the resultant crushing competition among banks, coupled with the determination to improve quality of services delivery in order to survive the competition and remain relevant in the banking business, Nigerian banks are now fully computerized and operating in the internet. The number of hours customers spent in transacting banking business has reduced reasonably, except when there is network failure. Customers can now transact their banking businesses irrespective of the branch where their account is domicile.

**Application of ICT in the Banking Industry**

Application of ICT is gaining wide recognition in all areas of human endeavour. One major area that has sufficiently and maximally utilized the resources of ICT is the banking industry. Banks have now become totally dependent on the use of ICT resources. In the past, large bulks of book keeping works were being handled manually. But today, most physical documents and ledgers containing data or information on customers' accounts have been converted or replaced by computer data. The growing role of the banks, the explosion in the banking habit of the society, the rapid expansion in banks' products, the massive competition among banks occasioned by determination to impress customers and win a larger market share, informed to a large extent, the magnitude to which ICT is embraced in the banking industry.

Some areas of the application of ICT in the banking industry include:

(a) Electronic fund transfer.
(b) Preparation and updating of customers statement of accounts.
(c) Processing of deposits, withdrawals, standing orders etc.
(d) Sorting and processing of cheques.
(e) Counting of money and identification of fake currency.
(f) Electronic home and office banking.
(g) Telephone banking.
(h) Banker automated clearing services. This involves the use of Magnetic Ink Character Reader (MICR) for cheque processing. It is capable of encoding, reading and sorting cheques *(Agboola, 2003).*
(i) Automated payment systems: Devices used here include Automated Teller Machine (ATM), Plastic cards and Electronic Funds Transfer *(Agboola, 2003).*
(j) Electronic data sharing and interchange.
(k) Online data processing and recording.
(l) Provisions for self services facilities: It is an automated customer service system in which prospective customers can complete their account opening documents directly online. It

assists customers to validate their accounts number and receive instruction on when, how and where to receive their cheque books, credit and debit cards *(Irechukwu, 2000).*

**Advantages of the Application of ICT in the Banking Industry**

The advantages of the application of ICT in the banking industry is enormous, some of the advantages include:

(a) With the help of the resources of ICT, cashiers on the counter can have access to account data of customers and immediately process their transactions, irrespective of the branch in which the account is domiciled, meaning that bank customers can have access to the money in their account in any branch of the bank all over the country, this has reduced the risk of travelling along with cash.

(b) The application of ICT has made for improved quality of services delivery to banks customers, prompt and fair attention, and quick processing and recording of transactions, thereby reducing time spent by customers in the banks.

(c) Reduced work load for bankers as manual recording system through the use of ledgers and cash books have been replaced by computerized information systems.

(d) ICT resources have made a landmark improvement on account statement generation, account reconciliation and collection of account balances.

(e) Though the installation of ICT equipments is capital intensive, but its ability to accommodate a high volume of work, makes for the expansion of bank products and services with a relatively lower cost of delivery and hence more revenue and higher level of profit.

(f) Application of ICT resources enhance accuracy of record, minimize errors and assist management in speedy and quality decision making.

(g) The application of ICT to the payment system has reduced emphasis on cash handling, there has been a modest move away from cash as the advantages of cash diminishes in line with the increase in the value of transactions. This is because the higher the value of transaction, the higher the preference for the use of automated payment system (Electronic transfer). Therefore tending toward a less cash base or a cashless economy *(Adagunodo, 2000).*

(h) Money is now being transferred at a press of a button, the transfer of money from point "A" to point "B" has resulted in turning the actual money into bits and bytes through satellite transporters, fibre optic cables or regular telephone signals *(Ovia, 1997).*

(i) The introduction of ICT into the Nigerian banking industry has enhanced the global competitive strength of the banks *(Agboola, 2003).*

(j) The introduction of telephone banking, made it possible for customers to access their account at any hours of the day through the internet and obtain their account balance. This in addition to the use of credit and debit alert or transaction alert, made it possible for customers to monitor their bank accounts at any point in time.

(k) Also, the ICT resources in the banking industries create employment opportunities for computer operators or scientists, engineers, programmers and system analysts and as well provide market for producers and suppliers of ICT hardware and accessories.

**Challenges of ICT in the Banking Industry**

The challenges in the application of ICT in the banking industry are as well enormous. Some of these challenges include:

(a) **Errors in Data Posting:** It is hereby noted that the only means of identification of customer as far as the computer is concerned is the customer account number, therefore, if a debit or credit entry is wrongly posted to a customer account, the computer will not quarrel it, as long as the set of algorithm (instruction) expected by computer to carry our the posting task are satisfied. This imposes a duty of extreme care on the part of every banker.

(b) **Inbuilt Security Control:** All entries into the system will be controlled by the use of password and identification assigned to users of the terminals. Based on the interconnectivity, the same database is being accessed by the terminals in all branches of the bank. With these volume of work going on in the network system on real time basis, the question of effective security inbuilt control system become paramount.

This is because series of computer crimes have been detected over the years. The use of computers in committing crimes in banks is becoming common and once it occurs, huge sum of money is usually involved.

A famous bank fraud recorded in Information Journal of November 1975 involving a US bank and a programme analyst makes an interesting case for reading. A programme analyst working in the bank cleverly manipulated the bank's computer programmes that were used for printing of customer's statement of accounts. He created an accumulator in the programme where the cents digits in the balance of each customer account were being accumulated. It was reported that the programmer was making an average of US$300,000 per annum before the crime was detected *(Ajomale, 1990)*.

Another similar incident of computer crime was reported in Nigeria by a Commissioner of Police Mr. Abubakar Jika in November 1988. According to him, the crime involved the passing of false credit amounts into customer's accounts and withdrawing same through the convenience of customers of the same bank.

There have been several cases of interception of electronic funds transfer, involving several millions of Naira, people who have access to passwords and identification codes to computers of banks are able to intercept or even generate their own messages to transfer funds into bogus accounts in other banks *(Ajomale, 1990)*.

(c) **Legislative and Prosecution Challenges:** Although the ICPC and EFCC are there to prosecute financial and embezzlement crime related offenses, however it seems that our law enforcement officials are not yet adequately trained in this area and as such they lack the expertise to investigate complex computerized transactions. Besides, existing legislative provisions seem not to be stringent enough with regards to the weight of punishment which is commensurate to the gravity of these crimes, in view of the colossal amount involved and economic implications inherent in them.

(d) **Job Challenges:** Today, ICT has transformed the business environment in which bankers operate. The requirements for job qualification have changed drastically. If one must remain a successful banker, he has to be knowledgeable in ICT. The bottom line is that a banker who fails to embrace this new development in ICT may have no place in the banking business. Therefore, the need for every banker or prospective bankers to be proactive and adequately equip himself in this emerging technology is paramount.

**(e) Competitive Strength:** According to *Agboola (2003),* ICT has been discovered to be the main driving force of competition in the banking industry. In this view, for any bank to remain relevant in the scheme of things, acquire and sustain a reasonable market share, it has to embrace the use of the ICT resources to the maximum. This implies that the cost of installation and management of ICT has to acquire a reasonable space in its budget. Obviously, this has created a higher demand on the capital adequacy of the banks.

**Recommendations**

On the basis of these findings, the study recommends as follows:

(a) Investment in ICT should form an important component in the overall budget of banking institutions in order to enhance their competitive strength locally and globally.

(b) Bankers should be proactive and adequately equip themselves with the skills and knowledge of ICT through training and retraining in order for them to remain relevant in the scheme of things.

(c) Banking institutions on their part should make ICT one of the major features in their human resources development programmes.

(d) Banking institutions should ensure that adequate inbuilt security control systems are in place in their operational computer network system to guide against chances of computer bank related fraud and other financial malpractices by dishonest staff and customers.

(e) The government should form a team with the banks to organize and establish free training centres on ICT to equip members of the public in general for maximum utilization of the ICT resources which are now available to all bank customers.

(f) The law makers should come up with an act which specifies capital punishment for computer bank related fraud and other financial malpractices, to protect the banking system. This is because a healthy banking system is a sine-qua-non to an economically healthy economy.

**Conclusion**

In the light of the foregoing analysis, the importance of ICT in bank services delivery cannot be overemphasized. It has significantly improved quality of services delivery to bank customers, prompt and fair attention and fast processing and recording of transactions, thereby reducing time spent by customers in the banks. It has made banking more convenient as offices, home and telephone banking as well as automated payment services are now available to customers. The traditional manual recording system through the use of ledgers and cash books have been replaced by computerized information system thereby reducing workload for bankers and enhanced convenient working hours.

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