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Overview of electronic banking in Nigeria

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Abstract
The adoption of Information and Communication Technology in banking sector is generally referred to as electronic banking (E-banking) and application of its concepts, techniques, policies, and implementation strategies to banking services has become a subject of fundamental importance and concerns to all banks and indeed a pre-requisite for local and global competitiveness because, it directly affects the management decisions, plan and products and services to be offered by banks. Due to emergence of global economy; electronic banking has increasingly become an inevitable tool of banking business strategy and a strong catalyst for economic development.
This study is an overview of e-Banking in the Nigerian banking industry. Electronic banking offers ease of operation for both customers and the financial institution within the banking industry. Electronic banking has become popular because of its convenience and flexibility, and transaction related benefits like speed, efficiency and accessibility. Although there are still challenges facing e-banking operation in Nigeria such as insecurity and most importantly power challenges. The paper suggests that critical infrastructure like power; security and telecommunication should be strengthened to ensure the efficient application of electronic banking in Nigeria.

Keywords: Electronic Banking, Mobile Money, internet banking, Electronic Cards, ATM.

1. Introduction
Before the emergence of modern banking system, banking operation was manually done which lead to a slowdown in settlement of transactions. This manual system involves posting transactions from one ledger to another which human handles. Figures or counting of money which should be done through computers or electronic machine were computed and counted manually which were not 100% accurate thereby resulting to human errors. Most bank then use only one computer in carrying out transactions which ameliorate the sluggish nature of banking transaction.
Nigeria do not embrace electronic banking early compared to developed countries. Nigeria adopted electronic banking system in the early 2000s. During the introduction of electronic banking system, the use of raw cash was said to have bred corruption through the "cash and carry syndrome" usually linked with the swift movement of Ghana-must go" bags by some politicians. Such bags as some analyst say, are a major source of corrupt practices as dubious persons seeks to bribe their way to avoid been checked in some sensitive areas or places in a corrupt society.
Since electronic banking started in all Nigeria banks, it has been a woe for civil servants; checks show that some staff in establishments such as the national boundary commission for instance, are yet to receive their salaries for the previous months as efforts to electrically transfer salaries into their account have failed according to Ibrahim, D. (2009) [18].
"One bank will tell you it has transferred your salaries but the supposed recipient bank will tell you it has not received anything leaving you even more confused", says John, I. (2009). Olekah, J. (2009) [22] while acknowledging the initial hiccups that dogged the system, advises stakeholders against being discouraged as such "teething problems" are normal.
James, A. (2009) [20] a banker reported to vanguard annual report that "we should not destroy electronic-banking by looking at the negative aspects, we must strive towards perfecting it". James, A. (2009) [20] also says that the volume of data generated by the Government ministry Agencies is much making it a bit difficult for banks to cope, Mathew S. (2009) a worker says in his report to vanguard annual report on banks and cards that government should have done its homework "very well" before introducing the system, "they plugged us into a system they were not prepared for and the result is untold hardship visited on innocent people".
At this juncture, is good to know what e-banking is all about.
According to Anyawaokoro, M. (1999) [5]. Electronic banking is defined as the application of computer technology to banking especially the payment (deposit transfer) aspects of banking.

He also defined electronic banking as a system of banking with an electronic communication network which permits on-line processing of the same day credit and debit transfers of funds between member institutions of a clearing system.

According to Clive, W. (2007) [12] in his Academic dictionary of banking, electronic banking is defined as a form of banking in which funds are transferred through an exchange of electronic signals between financial institutions, rather than an exchange of cash, cheques or other negotiable instruments.

According to Omotayo, G. (2007) [23] defines electronic banking as a system in which funds are moved between different accounts using computerized on line/real time systems without the use of written cheques.

According to Edet, O. (2008) [13] in international Journal of investment and finance, electronic banking is defined as a system by which transactions are settled electronically with the use of electronic gadgets such as ATMs, POS terminals, GSM phones, and V-cards e.t.c. handled by e-holders, bank customers, and stake holders.

The adoption of. Information and Communication Technology in banking sector is generally referred to as electronic banking (E-banking) and application of its concepts, techniques, policies, and implementation strategies to banking services has become a subject of fundamental importance and concerns to all banks and indeed a pre-requisite for local and global competitiveness because, it directly affects the management decisions, plan and products and services to be offered by banks. It has continued to change the way banks and the corporate relationships are organized worldwide and the variety of innovation of service delivery.

Imiefoh (2012) [19] asserts that electronic banking (e-banking) is an umbrella term for the process by which a customer may perform banking transactions electronically without visiting a brick-and-mortar institution. That is, automated delivery of new and traditional banking products and services directly to customers through electronic, interactive communication channels. Thus, the following terms refer to one form or another of electronic banking: personal computer (PC) banking; internet banking; virtual banking; online banking; home banking; remote e-banking and phone banking. Personal Computer (PC) banking and Internet or Online banking are the most frequently used designations. It should be noted, however, that the terms used to describe the various types of electronic banking are often used interchangeably.

Woherem (2000) claims that only banks that overhaul the whole of their payment and delivery systems and apply Information and Telecommunication Technology to their operations are likely to survive and prosper in the new millennium.

He advises that banks should re-examine their service and delivery systems in order to properly position themselves within the framework of Information and Communication Technology. Information and Communication Technology has provided self-service facilities (automated customer service machine) from where prospective customers can complete their account opening direct online. It assists customers to validate their account numbers and receive instruction on when and how to receive their cheque books, credit and debit cards.

2. Type of Electronic Banking

Electronic banking consists of the following, mobile banking, internet banking, telephone banking, electronic card etc.

3. Mobile Banking

Mobile banking involves the use of mobile phone for settlement of financial transactions, it support person to person transfers with immediate availability of funds for the beneficiary, mobile payments use the card infrastructure for movement of payment instructions as well as secure SMS messaging for confirmation of receipt to the beneficiary, mobile banking is meant for low value transactions where speed of completing the transaction is key, mobile payment have a very exciting potential within Nigeria, given the low infrastructure requirements and a rapidly increasing mobile phone penetration. The services covered under this product include account enquiry, funds transfer, recharge phones, changing of passwords and bill payment which are offered by few institution.

According to the research report on the survey of developments in the e-payments and service products of banks and other financial institutions in Nigeria on 2007 carried out by Alhaji Suleiman and staff of banking operation department of Central bank of Nigeria page 6, it was reported that twenty one institutions offered these service with very low patronage by the customers for funds transfer. Furthermore recharge phone service was provided by sixteen (16) fell within low and medium range respectively, thus signifying low patronage.

So the analysis above indicated that mobile banking has not really gained recognition among the banking public and is still a far cry from what is expected in terms of its usage.

4. Internet Banking

Internet banking involves conducting banking transactions such as account enquiry printing of statement of account; funds transfer payments for goods and services, etc on the internet (World Wide Web) using electronic tools such as the computer without visiting the banking hall. E-commerce is greatly facilitated by internet banking and is mostly used to effect payment, internet banking also uses the electronic card infrastructure for executing payment instructions and for final settlement of goods and service over the internet between the merchant and the customer, currently the most common internet payments are for consumer bills and purchase of air ticket through the websites of the merchants.

Report by staff of banking operation department of central bank of Nigeria in the survey of developments in the E-payments and service products of banks and other financial institutions in Nigeria reported that twenty-four institutions provided the service of account enquiry and the patronage was somewhat between low and medium, ten and nine institution had low and medium patronage respectively, while only five recorded high patronage level. Seventeen institutions provided the service of funds transfer in the proportions of Co, 51 and 2, with low, medium and high patronage levels respectively.

In particular, the internet shopping (local) had eight institutions in the proportion of seven in low and one in high patronage levels respectively, the internet shopping (international) comprised of six institutions only and all were I the low patronage level. The recharge phone class was offered by seven institutions, out of which four two and one were in the low patronage level. The recharge phone class was offered by seven institutions, out of which four two and one were all in the low, medium and high patronage levels, respectively. For viewing and/ or printing of statement twenty institutions offered the service and the distribution was nine, eight change pin class, there were twenty – one institutions in the order of eleven, eighty patronage respectively. Another variation of

this category was the bill payments class with eleven institutions with nine and two has low and medium patronage levels.

5. Telephone Banking

These are banking services which a customer of a financial institution can assess using a telephone line as a link to the financial institution's computer centre. Services rendered through telephone banking include account balance funds transfer, change of pin, and recharge phones and bills payment.

Telephone Banking is a service provided by a financial institution which allows its customers to perform transactions over the telephone.

Most telephone banking uses an automated phone answering system with phone keypad response or voice recognition capability. To guarantee security, the customer must first authenticate through a numeric or verbal password or through security questions asked by a live representative. With the obvious exception of cash withdrawals and deposits, it offers virtually all the features of an automated teller machine: account balance information and list of latest transactions, electronic bill payments, funds transfers between a customer's accounts, etc.

Usually, customers can also speak to a live representative located in a call centre or a branch, although this feature is not guaranteed to be offered 24/7. In addition to the self-service transactions listed earlier, telephone banking representatives are usually trained to do what was traditionally available only at the branch: loan applications, investment purchases and redemptions, cheque book orders, debit card replacements, change of address, etc. Banks which operate mostly or exclusively by telephone are known as phone banks.

6. Electronic Card

An electronic card is a physical plastic card that uniquely identifies the holder and can be used for financial transactions on the internet, automated teller machine (ATM) and point-of sales (Pos) terminal, to authorize payment to the merchant (seller). The various types of electronic cards includes debt, credit cards, releasable cards require visiting banks for replenishment, debit cards are linked to local bank accounts and offer immediate confirmation of payment while credit line and can be used for are linked to a credit line and can be used for accessing local and international networks and were widely accepted in most countries, the underlying infrastructure and operational rules are often provided by global trusted schemes (such as visa and master card) in addition to local lines. Debit cards are the dominant card mechanism in Nigeria, they are also known as ATM cards and ATM usage is wider than Pos transactions given the current limited deployment of Pos terminals.

There were five classes of services in this category namely, releasable card, debit card, naira credit card, visa card, master card and other survey carried out by staff of banking operation department of central bank of Nigeria reported that for reload able card, seventeen institutions offered the product, ten of which experienced low patronage while five where within the

Twenty three institutions offered debit card, and the patronage was distributed in the proportions of eight five and ten in the low, medium and high patronage levels.

In the class of naira credit card, sixteen institutions offered the service, four were in the low patronage level, seven fell within medium, while five were in the high patronage class.

Visa card was offered by nine institutions in the proportions of five institutions in the low and four institutions in the high categories.

The master card class was offered by seven institutions, out of which six institutions experienced low patronage and one institution was in the medium patronage level.

7. Origin of Electronic Banking in Nigeria

Conventional banking system started in Nigeria in 1952. Since then, the industry has witnessed a lot of regulatory and institutional advances. The industry was being controlled by at most five out of the 89 banks in existence before the commencement of the ongoing banking industry reformation in the country. Multiple branch systems is also one of the notable features of Nigerian banks, with a total of 89 banks accounting for about 3017 bank branches nationwide as at 2004. As well, the industry is faced with heavy challenges, including the overbearing impact of fraud and corruption, erosion in public confidence, a poor capital base, persistent cases of distress and failure, poor asset quality, and so on. P art of the moves to resolve these lingering problems include the banking reform initiated by the Central Bank of Nigeria in June 2004, which is largely targeted at reducing the number of banks in the country and making the emerging banks much stronger and reliable.

In the bid to catch up with global developments and improve the quality of their service delivery, Nigerian banks have no doubt invested much on technology; and have widely adopted electronic and telecommunication networks for delivering a wide range of value added products and services. They have in the last few years transformed from manual to automated systems. Unlike before when ledger-cards were used, today banking has been connected to computer networks, thereby facilitating the practice of inter-bank/inter-branch banking transactions. Developments at home, such as the introduction of mobile telephone in 2001 and improved access to personal computers and Internet service facilities have also added to the growth of electronic banking in the country. However, whereas local banks most commonly practice real time online intranet banking, the integration of customers into the process is far from been realized. Many of the reasons are attributed to the high prevalence of Internet fraud and lack of an adequate regulatory framework to protect the banks from the volatility of risks associated with Internet banking, especially at the levels of communication and transaction. In the main, Nigeria is globally regarded as the headquarters of Advance Fee Fraud which is perpetrated mostly via the Internet.Electronic banking is not one technology, but an attempt to merge several different technologies. Each of these evolved in different ways, but in recent years different groups and industries have recognized the importance of working together. Bankers now see a kind of revolution going on in their business in part because we have taken a quantum leap in the use of technologies in the last several years.

According to Okechi and Oruan (2013) [21], electronic Banking System is an innovative service delivery mode that offers diversified financial services like cash withdrawal, funds transfer, cash deposits, payment of utility and credit card bills, cheque book requests, and other financial enquiries.

In Nigeria, ATM was conventionally introduced as an electronic delivery channel in 1989, and was first installed by National Cash Registers (NCR) for the defunct Societe Generale Bank of Nigeria (SGBN) in the same year. Since its introduction, many Nigerian banks have installed ATM in response to the changing nature of modern banking

operations. Until 2003, a small number of banks operated their own propriety ATM fleets. The main shared ATM network in Nigeria, Inter Switch, began operations in 2003 with 5 ATMs from United Bank for Africa (UBA) and First Bank of Nigeria (FBN). (Tope: 2010) [30].

Goni (2012) asserts that the precursor for modern Home Online Banking services were the distances banking service over the electronics media from the early 80's. The term online banking became popular in the late 80's and referred to the use of a terminal keyboard and TV monitor to access the banking system using a phone line.

Online services started in New TV monitor to access the banking system using a phone line.

Online services started in New York in 1981 when four of the city's major banks offered home banking services using the video text system. Because of the commercial failure of video text, these banking services never became popular except in France where the use of video text (minitel) was subsidized by the telecom providers and in UK where the Prestel system was used. The precursor for modern Home Online Banking services were the distances banking service over the electronics media from the early 80's. The term online banking became popular in the late 80's and referred to the use of a terminal keyboard and TV monitor to access the banking system using a phone line.

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8. Benefits of E-banking

According to Aleen Greenspan (2007), the expected benefit of e-banking consists of the following, in the following order:

1. Improve customer service: Electronic banking enables banks provide new, faster and better service to its customers, thereby, bringing up the banks to international standards and enhancing competition amongst the banks. These can be in the form of file transfer, signature verification within minutes, etc.
2. Reliability of transaction: Electronic banking helps to ensure accurate and timely transactions unlike when done manually, which is prone to human errors that can cause setbacks.
3. Satisfy: Electronic banking technology ensures the safety of bank dealing with its customers. Unsafe banking practice can cause huge loses to the bank practice can cause huge loses to the bank, especially in the cause of misrepresentation of account owners. This banking technology (electronic banking) prevents this through its signature verification preventing unauthorized access into the computer.
4. Redundancy of Storage Space: Electronic banking technology helps to reduce the use of files which are archaic, thereby, reducing use of storage space.

The use of file could lead to loss of vital information about bank customers either by mutilation or easy and unauthorized access to file and also misplacement of important documents. This can be prevented through storage of information in hard drive, diskettes and compact disc.

8.1. The Emerging Issues in Internet Banking in Nigeria

Earlier articulated reasons why Internet Banking was having a moderate economic impact in the country include: that Nigerian bank customers are not on the average trained on for teller jobs and the workings of Internet banking, a situation which makes transaction processing via Internet banking prone to error; the absence of a clearly defined legal frame-work for internet banking, leaving banks with inadequate legal cover to provide the services; and poor telecommunication infrastructure all over the country. In addition, the fact that Internet usage in the country has been abused by cyber-criminals makes its window unattractive for domestic banking operations and legitimate international operations. The inherent fear associated with patronizing Internet banking services in Nigeria is again re-enforced by the growing evidences that the world over, dubious Nigerians use fake bank websites to scoop funds from unsuspecting victims. In some cases, these crimes are committed using existing bank sites.

8.2. Threats of Cyber-Crimes on the Nigerian Banking Premises

The Advance Fee Scheme or 419, which is one of the most popular of all Internet frauds, has its origin from Nigeria in the 1980s. Its development and spread follows the path of the developments in information technology. At inception, postal letters were used as key media for committing 419 frauds. Later in the early 1990s, it became integrated into telecommunication facilities such as the telephone and fax. From the late 1990s following the introduction of computers and Internet, 419 crimes became prevalently perpetrated through the use of e-mail and other Internet means. The latest dimension taken by the perpetrators of this crime is the use of fake Internet bank sites, and using that to encourage victims to open accounts with them. The country is currently rated as having one of the highest records of Internet frauds in the whole world. According to the National Consumers League (2002), the country is the third highest ranked in Internet 'money offer' frauds. As was reported in one of the national newspapers, frauds and forgeries in Nigerian banks as at June 2005 stood at 329 or N1.15 billion monetary equivalents, against 222 cases or N1.47 billion monetary equivalents in April this same year. There is even global suspicion that a Nigerian crime syndicate that coordinates global crimes such as money laundering, bank fraud and 419 scams exists today. These issues basically defeat the key ingredients of e-banking, which includes confidentiality, integrity and availability.

Several factors are responsible for the above situation. They include inordinate tolerance for corruption among Nigerian public and government agencies; weakness of the existing legislative/judicial institutions to make and enforce relevant laws on cyber-crimes; deteriorating quality of graduates in terms of professional values and ethics; chronic unemployment among graduates, and the widening gap between the few rich and the many poor caused mainly by bad governance. In the main, erosion of good value principles and corruption constitute the greatest cause of rising cyber-crimes among Nigerians. This, according to Transparency International, is worsened by fact that several generations of Nigerians have been raised in this norm. Hence, what is seen as a dangerous global crime is socially acclaimed and glamorized in Nigeria.

The above situation constitutes the environment upon which Internet banking has emerged in Nigeria. Although the level of the adoption and practice of Internet Banking has remained

quite insignificant, global projections still remain that the Internet would continue to play a revolutionary role in the development and delivery of banking products and services all over the world. In effect, it is this projection that has raised pertinent regulatory questions concerning Internet banking, especially in Internet fraud-infested countries like Nigeria. One key issue here borders on how to handle the rising level of frauds and forgery prevalent in the entire banking system; and how to make Internet banking fit well in the banking structure of a country so notoriously identifiable with criminal use of Internet access.

8.3. The Regulatory Challenges

At the national level, the Nigerian government and the relevant regulatory agencies have strived to match the rapidly changing electronic banking environment with necessary regulations and institutional frameworks. Earlier efforts made to this effect included the enactment of the Failed Banks (Recovery of Debts) and Malpractices in Banks Decree No.18 of 1994, and the Money Laundering Decree of 1995. However, as noted above, poor enforcement procedure rendered these instruments very inactive in checking the menace of financial crimes. By the late 1990s, following record growth in Internet and computer usage in the country, almost all the regulations guiding the banking industry, including the *Banks and Other Institutions Act* of 1991, were lacking adequate provisions to accommodate the emerging trend. Not even a mention of electronic banking or any manner of its application was mentioned in any of those prevailing regulatory documents. The situation created a lot of gaps between the levels of CBN regulatory tools and the advances in information technology. This at the same time made the banks vulnerable to all kinds of risks, including transaction, strategic, reputation and foreign exchange risks. This deficiency notwithstanding, it was not until 2003 when the maiden guidelines on electronic banking came into force.

The electronic banking guidelines emerged from the findings of a Technical Committee on Electronic Banking set up by the Central Bank of Nigeria in 2003 to find appropriate modalities for the operation of electronic banking in the country. It was indeed the findings and recommendations of the committee that led to the adoption of a set of guidelines on Electronic Banking in August 2003. Of the key provisions of the Guidelines, only a section deals with issues relating to Internet Banking. Section 1.3 paragraphs 4 of the guidelines, exceptionally stresses that banks should put in place procedures for maintaining the bank's Web site, including the various security features needed for Internet banking services.

Despite its numerous technical specifications, the Guidelines have been widely criticized as not being enough to check the growing popularity of Internet banking against the backdrop of growing sophistication in technology related crimes and frauds. Closer examination of the contents of the Guidelines equally shows that the document fails to meet up with the four key areas where Internet banking may have regulatory impact – changing the traditional lines upon which existing regulatory structures are laid; handling concerns about existing public policy issues; changing the nature and scope of existing risks; and rebalancing regulatory rules and industry discretion. Again, some important recommendations of the Technical Committee that gave rise to the adoption of the guidelines were completely omitted. This is especially so with paragraph 6.1 of the Committee's report, which among others recommended that all banks intending to offer transactional services on the Internet/other e-banking products should obtain an approval-in-principle from CBN prior to commencing these services.

Part of the criticisms is that the recent guidelines that are capable of constraining the practice and development of Internet banking Nigeria. One of such areas, for instance, is the requirement on electronic banking product development. While acknowledging that the existing regulations would apply wholly on electronic banking, section 4.2 of the Guidelines emphasizes that only banks, which are licensed, supervised and with physical presence in Nigeria, are permitted to offer electronic banking services in Nigeria, and that virtual banks are not to be allowed. The Guidelines also gives indications that the products/services can only be offered to residents of Nigeria with a verifiable address within the geographic boundary of Nigeria; any person residing physically in Nigeria as a citizen, under a resident permit or other legal residency designation under the Nigerian Immigration Act; any person known herein as a “classified person" who neither is temporarily in Nigeria. The Guidelines go further to indicate that the e-banking service should be offered in Naira only; and that where such a service is to be provided in foreign currency, it should be to only the holders of ordinary domiciliary accounts, and conform with all other foreign exchange regulations.

On some other aspects, the Guidelines have also been criticized for not addressing adequately the critical issues concerning Internet security. It failed to explicitly recommend a standard that allows banks to examine potential threats that may already be in existence in each individual financial institution's current network.

In addition to this array of criticisms, the workability of proper Internet framework is also queried amidst the poor state of basic information technological infrastructure in the country. This is essentially necessary since e-banking generally relies on the existence of adequate operational infrastructure like telecommunications and power to function effective. Though little success has been recorded, the supply of these requisite facilities is very erratic in the Nigerian case. Where they exist, high cost of acquisition and maintenance tend to deny a greater percentage of the population access to them. The case of Internet access is a glaring one – where majority of the citizens rely solely on the services of commercial cyber cafés to meet their Internet needs. It is expected of the E-Banking Guidelines to provide procedures not only for banks' investment in Internet facilities, but also in promoting customers' access to such. Unfortunately, none of such is contained in the document.

8.4. Other Problems Militating against Electronic Banking in Nigeria

The following problems can be seen to be faced by e-banking according to Ernest and Fadiya (2002). They include:

1. **Power:** The situation of power must be improved to accommodate the smooth operation of financial activities.
2. **Literacy:** As noted, the literate rate in Nigeria is still low especially in the Northern part of the country. Hence, business people prefer to keep this money in their own vault while their banks are scattered all over the country.
3. **Prevalence:** Another major concern would be the risk involved because if the process is rushed and the economy loses confidence in the system due to high level of fraudulent activities, it would be devastating to the economy of the country (Nigeria).
4. **Infrastructure deficit:** The financial infrastructure in Nigeria is not adequate to carry the load of a cashless

society, ATM points of load of sale system, mobile banking and other mediums have to be dramatically expanded to touch, at least, 40% of the whole economy before any meaningful effect can be felt.

8.5. Solution to E-banking

Addressing the problems associated with the e-banking, every bank must take consideration of the following recommendations:

i. Adequate and well-functioning infrastructural facilities must be in place, more especially, the issue of electricity must be tackled by the government to facilitate the usage of e-banking.
ii. To encourage Nigerians to patronize such services; the cost should not be too high.
iii. Collective and individual analysis should be made of the various e-banking channels to determine relative impact on the economy.
iv. Effective regulatory measures must be implemented at the domestic and international level.
v. There must be clear cut intention to purse either inflation targeting goals or economic growth and development goals.
vi. The Central Bank must redesign its monetary policy framework in such a way to recognize the effect of reduced production of currency notes.

9. Conclusion

Internet banking is certainly one of the great things that have happened to the Nigerian financial institution and its services recently. It has brought about ease in banking. Though it seemed, initially, not to be feasible because of both the technological and security challenges, it has come to stay. One may not say all is well with internet banking especially in terms of its exposure to large scale fraud, but efforts are being made to counter the challenges.

10. Recommendations

In view of the finding from the research work, the following ways were recommended through which e-banking can aid commercial banking operations in Nigeria:

1. All banks should utilize information technology to render services that meet the genuine need of customers and if there is a change in the customer's lifestyle, the bank should change along rapidly.
2. Given that e-banking facilities depend largely on electric power supply, it becomes difficult to maintain computer and other information technology equipment used by the bank. Hence, the government and private sector investment should focus on improvement that would complement the current power supply.
3. All banks should ensure that seminars and workshops are carried out regularly to enlighten the staff in the banks on the advantages of being computer literate and as well as training of the staffs on how to make use of the computer.
4. Proper infrastructures should be put in place by the banks to ensure the effectiveness of electronic banking which includes telecommunication and power.
5. Banks should conduct appropriate risk analysis and due diligence prior to selecting an e-banking service provider.
6. Regulatory authorities like the Central Bank of Nigeria (CBN) must stipulate to follow to avoid making Nigerian banks became a dumping ground for outdated technological infrastructures.

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