



## INFORMATION TECHNOLOGY AND ACCOUNTING INFORMATION SYSTEM IN THE NIGERIAN BANKING INDUSTRY

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### ABSTRACT

*Information technology has tremendously stimulated expansion of the banking networks and range of the offered services during recent years. The information technology has become a critical business resource because its absence could result in poor decisions and ultimately business failure. This study intends to find out the information technology influence on accounting information production in the Nigerian banking industry. Both primary and secondary data were used and Analysis of Variance (ANOVA) was used to test the hypothesis. Judgmental sampling method was used to obtain a representative sample of the population. Although for all Nigerian banks the efficiency has increased, the improvement of cost of efficiency is relatively much smaller than in the case of profit efficiency. It is also observed that accounting information technology can improve banks performance by reducing operational cost and by facilitating transactions among customers within the same or different network. It is, therefore, concluded that accounting information technology is relevant in simplifying issues and in the provision of quality information in the Nigerian banking industry. That explains why the banks spend a greater part of their resources on information technology and consider its application as a comparative edge in the competitive banking industry. This paper recommends that the impact of the progress in accounting information technology on banking service should not lead to a very strong increase of cost of their processing, which put in question possibility to achieve economy of scale by Nigerian banks. Also all Nigerian banks should continue to utilize and upgrade their information technology for efficient service delivery and profitability.*

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**Keywords:** Information, Technology, System, Banking, Industry, Accounting

## 1. INTRODUCTION

Every organization private or public, profit making or non-profit making, large scale or small scale, uses accounting information to make decisions, and the information needs vary according to information each user requires (Nickels *et al.*, 2002). Initially the appropriate information was prepared manually by the accountant, and this has a number of drawbacks. With the advent of information technology, the accountant now has at his disposal a number of accounting information tools that help him in simplifying issues and providing quality information for the organization he renders services to. The sector that has been most radically affected by this development is the financial sector (Hassan, 2010).

In the information age, companies are finding success or failure as increasingly dependent on their management and use of information. Therefore, banks need a good information system that enable an efficient and effective use of information to give them more competitive advantage (Moscove *et al.*, 1999). An information system is a set of interrelated subsystems that work together to collect, process, and store, transform, and distribute information for planning, decisions making and control. The use of computer in information systems can improve the efficiency of information collection, processing, storing, transformation and distribution.

The usage of information technology, broadly referring to computers and peripheral equipment has been a tremendous growth in service industries in the recent past. The most obvious example is perhaps the banking industry, where through the introduction of information technology related products in internet banking, electronic payments, security investments and information exchange, banks now provide more diverse services to customers with less manpower (Berger, 2003). Seeing this pattern of growth, it seems obvious that accounting information technology can bring about equivalent contribution to profits, but mismanagement of the accounting information technology due to technical problems, communication problems, training and maintenance are becoming issues in the banking sector (Awe, 2002). Accordingly, the said failure may result into low productivity, loss of the accounting information technology inventory as well as loss of important and confidential data. In spite of these drawbacks, most of the banking sector players in Nigeria are planning to implement again the said accounting information technology.

In general, this study concludes on two positive effects regarding the relation between accounting information technology relevance and production of quality information in the banking industry. First, accounting information technology can reduce banks' operational costs (the cost advantage). Second, accounting information technology can facilitate transactions among customers within the same and different network (the network effect). It cannot be denied that the advancement of information technology was a necessity of the current era. Businesses need to adopt and embrace new technologies to provide excellent business operation and services to their clients. The bank industry is not an exception with regards to this adaptation. With the emergence of computer and internet, communication between businesses and clients are becoming faster than before.

Information, therefore, is data that have been processed into meaningful and usable form, and it contains knowledge that reduces uncertainty in particular situation (Senn, 1999). However, information technology (IT) is a term which, generally, covers the harnessing of electronic technology for the information needs of business at all levels. It is computer based system as well as telecommunication technology for storage, processing and dissemination of information (Primchard and Cole, 2006).

The Nigerian banking industry has to contend with: (i) financial regulatory structures of institutions like the Central Bank of Nigeria, Nigeria Deposit Insurance Corporation and laws like the Banking and Other Financial Institutions Act (BOFIA-1991), and (ii) accounting Standards like Accounting by Banks and Non-Bank Financial Institutions (SAS No.10 and 15) and the International Accounting Standard on Financial Statements of Banks and Similar Financial Institutions (IAS NO.30). Information technology relates to the application of knowledge as well as the computer system to perform tasks, solve problems and create new methods to achieve business objectives and obtain desired outcomes.

The concept of quality in the accounting system in the Nigerian banks is not entirely new, but the problem is that it is not well articulated and demonstrated. In spite of the accounting software availability, the banking industry still cannot meet up with the demands of the users because they may not be accurate and timely. The technology of software needs further research and development in order to accurately and timely meet the needs of the users.

The nature and application of different accounting software are bound to influence the behaviour of banks' financial statement users. When the applications of software are not properly implemented or not timely used by both preparers and auditors of financial reports, they will have negative impact on the behaviour of banks' financial statements users and the economy as a whole. Banks in Nigeria depend on ledger card and branch local network for their operations; these have negative impact on the performance of the banks before the advent of on-line system.

The main objective of this research work is to assess the impact of information technology on accounting information System in the Nigerian banking Industry. Specifically, the study aims at achieving the following objectives: (i) to find out the justification of the different accounting softwares used by Nigeria banks in their records keeping and in the preparation of financial statements; (ii) to find out the extent to which the use of technology will improve the service provided by the banking sector; (iii) to examine the perception of Nigerian banks on the relevance of accounting information technology in simplifying issues and producing quality information; and (iv) to examine whether or not information technology helps to enhance bank's performance in terms of reduced operational cost.

This study is limited to the Nigerian banking industry (the quoted banks only), covering issues on information technology with emphasis on accounting information production in the industry. The study period is limited to ten years (1999-2008).

## **2. THEORETICAL FRAMEWORK AND LITERATURE REVIEW**

### **2.1. Theoretical Underpinning**

#### **2.1.1. Innovation Diffusion Theory**

According to [Shy \(1997\)](#), diffusion theory posits five characteristics of innovations that affect their diffusion: relative advantage (the extent to which a technology offers improvements over currently available tools), compatibility (its consistency with social practices and norms among its users), complexity (its ease of use or learning), trialability (the opportunity to try an innovation before committing to use it), and observability (the extent to which the technology's outputs and its gains are clear to see). Diffusion studies have demonstrated that innovations affording advantages, compatibility with existing practices and beliefs, low complexity, potential trialability, and observability, will be more extensively and rapidly diffused than an innovation with the cluster of opposite characteristics ([Shy, 1997](#)).

#### **2.1.2. The Theory of Reasoned Action and Its Derivatives in User Acceptance**

Theory of Reasoned Action (TRA) defines relationships between beliefs, attitudes norms, intentions, and behavior. According to this theory, an organizational behavior (e.g., use or rejection of technology) is determined by one's intention to perform the behavior, and this intention is influenced jointly by the organizational attitude and subjective norm, defined as "the organization's perception that most businesses/clients who are important to it think it should or should not perform the behavior in question" ([Zozak, 2005](#)).

According to TRA, attitude towards a behavior is determined by beliefs about the consequences of the behavior and the affective evaluation of those consequences. Belief is defined, by [Zozak \(2005\)](#), as the organizational subjective probability that performing a given behavior will result in a given consequence. Affective evaluation is "an implicit evaluative" to the consequence; thus the attitude construct in TRA is general in nature and is not anchored to any given belief set. This approach represents an information processing view of attitude formation and change which states that external stimuli influence only through changes in the organization's belief structure ([Zozak, 2005](#)).

#### **2.1.3. Theory of Planned Operational Control**

According to [Model \(1996\)](#), the Theory of Planned Operational Control (TPOC) is a descendant of the theory of reasoned action (TRA) and adds a third antecedent of intention, perceived operational control, to the TRA model. Perceived operational control is determined by the availability of skills, resources, and opportunities, as well as the perceived importance of those skills, resources, and opportunities to achieve outcomes. The Theory of Planned Operational Control (TPOC) holds that attitudes, subjective norms, and perceived operational control are direct determinants of intentions, which in turn influence accounting operations.

#### **2.1.4. Activity Theory**

Activity theory is an approach to understanding human work and technology which emphasizes the long-term well-being of workers or users. Eschewing “one best way” task design for user-determined task procedures, action theorists seek to design work practices that are enriching and that lead to development of skills and knowledge. Activity theorists argue that acceptance of technology is contingent on the extent to which it meets these goals in the context of the user’s own work. Activity theory largely aligns itself with the broad humanistic aims and the methods of the socio-technical approach. It is at least partially distinguishable by its emphasis on the product of the organizational process which characterizes socio-technical systems thinking (Martin and Leben, 1989).

#### **2.1.5. Socio-Technical Systems Theory of Information Technology Acceptance**

The socio-technical systems perspective has become influential in the analysis of the organizational impact of information technology. The theory views any organization as an open system of interdependent sub-units transforming inputs to desired outputs. The gainful employment of any technology hinges on the ability and willingness of users to employ it for worthwhile tasks (i.e., those deemed central to the organization’s goals). Socio-technical systems theory has given birth to a framework for technology design that emphasizes holistic job satisfaction (rather than just task performance) and user participation throughout the development process.

Thus, socio-technical theorists recommend the analysis of all stakeholders, not just the direct users of a technology, the formation of planning groups to oversee the design, the performance of prototyping exercises, and the analysis of likely impact the technology will have on the organization. In studying technology acceptance, socio-technical theorists conceptualize acceptance in terms of two competing forces: control and enhancement. Control factors are those that impose rules or structures upon the users, thereby removing autonomy (control over their own actions) from them. Among the control issues raised with respect to technology design are: access, reliability, confidentiality, monitoring, pacing, stress, social contact. Low or high presence of certain factors (e.g., low reliability, high pacing) with the introduction of a new technology is likely to reduce the user’s perception of control and thus increase the risk of resistance (Connor, 1997).

Enhancement factors include sense of mastery, growth of knowledge, discretion, ability to act informally, requirement for certain skills, and enabling worker cooperation. A technology that is designed to support such factors is likely to increase user acceptance in an organization.

#### **2.1.6. Contingency Theory**

This theory suggests that an accounting information system should be designed in a flexible manner so as to consider the environment and organizational structure confronting an organization (<http://www.rhsmith.umd.edu/faculty/gordon>). Accounting information systems also need to be adapting to the specific decisions being considered. In other words, accounting information systems

need to be designed within an adaptive framework. Key theories in Management Information System include; Cognitive theory and Task-Technology theory (Hall, 2010).

From the above theories underpinning, the theories that will guide this study are innovation diffusion theory and theory of operational control. In innovation diffusion theory, diffusion studies have demonstrated that innovations affording advantages, compatibility with existing practices and beliefs, low complexity, potential triability, and observability will be more extensively and rapidly diffused as a result of information technology in the banking industry while the theory of planned operational control holds that attitudes, subjective norms, and perceived operational control are direct determinants of intentions which in turn influence accounting operation in the Nigerian banking industry

## 2.2. Conceptual Issues

According to Odunfunwa (2008), information technology is a body of tools, with the convergence of communication and computer. Goldberg (2008) describes information technology as series of machine, which can execute sequences of instructions. The sequence of instructions is a programmed made particularly flexible and not rigid and can be changed depending on the information being processed. Explains that the phrase “information technologies” used to encompass a range of new technologies and their applications, including all aspects of the use of computers, micro-electronic devices, satellite and communication technology. What is news, is that many professions in developing countries like Nigeria do not seem to be ready or prepared to embrace this information technology or revolution and join its superhighway as a means for survival and that many practitioners are among such laggards. Ehindiamen (2008) describes this as quite unfortunate because the world of business and governance in the information age is further complicated by such concepts like democratization, competition, deregulation, privatization, commercialization, liberation, globalization, internalization and computerization. That makes it impossible for an organization or country to survive and develop. Apparently, Laudon and Laudon (1999) states that computer and other technologies have found their way into all areas of business, industry, banking, education and government, increasingly, far-reaching information networks linking computers and databases provide important benefits, including greater staff productivity and a sharper competitive edge.

### 2.2.1. Accounting Information System (AIS)

Accounting Information System (AIS) is the information subsystem within an organization that accumulates information from the entity’s various subsystems and communicates it to the organization’s information processing subsystem (Moscove *et al.*, 1999). The accounting information system (AIS) has traditionally focused on collecting, processing, and communicating financial – oriented information to a company’s external parties (such as investors, creditors and tax agencies) and internal parties (principally management). Today, however, the accounting information system (AIS) is concerned with non-financial as well as financial data and information.

In general, a bank's accounting information system (AIS) has the same role as in other companies that is to provide financial and non-financial information to banks external parties (such as investors, creditors and tax agencies) and internal parties (principal management).

### 2.2.2. Input – Process – Output Model

In the input – process – output model, a process is viewed as a series of boxes (processing elements) connected by inputs and outputs. Information or material objects flow through a series of tasks or activities based on a set of rules or decision points (Awe, 2002). Flow charts and process diagrams are often used to represent the process. What goes in is the input; what causes the change is the process; what comes out is the output.

### 2.3. Qualities of Good Accounting Information

Odufunwa (2008) identified the following as some of the characteristics of good accounting information:

**Effectiveness:** This deals with accounting information being relevant and pertinent to the customers' process as well as being delivered in a timely, correct, consistence and usable manner.

**Efficiency:** It is concerned with the provision of accounting information through the optimal (most productive and economic) use of resources.

**Confidentiality:** This is concerned with the protection of sensitive accounting information from unauthorized disclosure.

**Integrity:** It relates to the accuracy and completeness of accounting information as well as its validity in accordance with customers' value and expectation.

**Availability:** It relates to accounting information being available when required by customers now and in the future.

**Compliance:** It deals with complying with those laws, regulations and contractual arrangements to which users process their subject i.e. externally imposed criteria as well as internal policies.

### 2.4. Various Bank issues on Accounting Information System

Milne (2006) said due to the characteristic of banking business, bank's accounting information system (AIS) have specific important features related to their liquidity management and the management of their customers' account information. According to him, a bank has to manage its liquidity efficiently in order to maximize profit and to fulfill regulation (minimum reserve requirement).

Tam (2007) opined that to perform such duties, the treasury manager need information of consolidated balance of customers' deposits, loan and other placements of bank funds. That information are needed on a daily basis so that the treasury manager can determine how mush reserve is needed and how much money should be placed in or borrowed from the money market to conform to the regulation and to maximize the usefulness of available funds. The use of computer network has made it possible for the treasury manager to get the information needed almost at any

time if all of the bank's branches are online. Therefore the bank's liquidity management could be performed more timely and efficiently based on accurate information (Deakin and Welch, 1999).

Among reasons why people use a bank's services are to obtain convenient access to cash and to obtain interest payments and other return on investment. The banks serve the needs of the customers by providing a system that enables the customers to check their account balance, to deposit and to withdraw cash, and to make payment in a convenient way. The system must also provide up to date and accurate information of customers' account. The introduction of accounting information technology had improved the quality of bank services to their customers.

Various new banks' services, which are made possible by the use of information technology, are usually called electronic banking. Electronic banking has become the norm in corporate treasuries with electronic links between balance reporting systems and generation of treasury management system or spreadsheets and from treasury system to payment system Brynjolfsson and Hitt (2000). It is never uncommon to see electronic banking systems delivering an array of automated services, which according to McGuckin and Doms (2006) include: (i) Cross border and cross currency bank account reporting and cash management; (ii) On-line access to many banking services including payments, Currency dealing, trade finance and account reconciliation, etc.

## 2.5. Uses of Accounting Information Technology by Banks

Banks may currently use accounting information technology (AIT) in a variety of ways and for a variety of purposes. According to Zozak (2005), cash may be dispensed and deposited, accounts debited and credited automatically. Administration may be assisted by accounting information technology, (AIT) based on Management Information System or AIS.

Inter-bank and international money transfers may be affected by use of secure utilities such as society for worldwide inter-bank transfer (SWIFT). However, the central historical problem and still the central technological issue for retail banks concern the capture and organization of account data through branches. The large retail banks have thousands of branches. In each, a variety of account transactions are performed involving cash deposits and withdrawals, transfers cheques and standing order. Although many transactions must still be verified by signature, the main use of account information technology in banking has been to generate and control a database of account information and to effect the transmission of money, which transactions in the account base require. In the past, when customers want to withdraw money from their saving accounts, they have to come to the bank's branch where they opened their account. They filled in certain form, sign on it and present some identification for verification.

Nowadays, the use of online computerized system for customer's account has enabled the customers to check balance, deposit, withdraw, and transfer money at any branch of the bank. The invention of Automatic Teller Machines (ATMs) add more convenience to the customers since it enables to do many usual transactions, cash withdrawals, transfer between accounts and pays bill 24-hours a day. Furthermore, the introduction of internet banking enables the customers to do transaction without leaving their home or office. Before the use of online computer system, when a



customer transfer money from his/her account in other bank or in other branch of the same bank, it usually take one to two days for the fund to be effective in the receiving account. This is because transfers were processed manually through the clearing house, which is still using paper-based system. Nowadays, every transaction done by customers can be directly (debited/credited) into their account no matter in which branch or ATMs that do it.

Transfer of funds are debited from paying account and credited to receiving accounts simultaneously. This is made possible by the existence of automated clearing house (ACH) that connected online with member computer and using the real time gross settlement (RTGS) system. Therefore, customers' accounts are always up to date. On the banks' side, the advancement of banking computer technology has improved the ability of banks to perform their liquidity management more efficiently and profitably. In the past, since there is no online connection between head office and branches, the bank reserve must be maintained in each branch individually.

Therefore, it is possible that in certain branches there is liquidity shortage while in other branches there is excess liquidity. Thus, with online banking system, the bank in certain branches can be compensated with excess liquidity in other branches. Therefore, the amount of unproductive funds that should be kept in reserve can be minimized to the required level, which in turn will reduce the bank's cost of capital. In fact, electronic banking products, the range of banks services, which can be delivered to customer's office or home by electronic technology, has expanded extensively. Banks now use technology to transmit information, receive.

## 2.6 Relevance of Information Technology in the Banking Industry

The following issues were suggested by [Rahman \(2008\)](#) as some of the indications of relevance of information technology in the banking industry:

Technology has opened up new markets, new products, new services and efficient delivery channels for the banking industry. Online electronics banking, mobile banking and internet banking are a few examples.

Information Technology has also provided banking industry with the wherewithal to deal with the challenges the new economy poses. Information technology has been the cornerstone of recent financial sector reforms aimed at increasing the speed and reliability of financial operations and of initiatives to strengthen the banking sector.

The information technology revolution has set the stage for unprecedented increase in financial activity across the globe. The progress of technology and the development of worldwide networks have significantly reduced the cost of global funds transfer.

It is information technology, which enables banks in meeting such high expectations of the customers who are more demanding and are also more techno-savvy compared to their counterparts of the yester years. They demand instant, anytime and anywhere banking facilities.

Information technology has been providing solutions to banks to take care of their accounting and back office requirements. This has, however, now given way to large scales usage in services aimed at the customer of the banks.

Information technology also facilitates the introduction of new delivery channel in the form of Automated Teller Machines, Net Banking, Mobile Banking.

## 2.7. Benefits of Accounting Information Technology in the Banking Industry

The accounting information technology is an integral part of any business. It should provide users with timely information to aid in preparing financial statement, taxes, reconciling bank account and generating report, using computer hardware and software. According to [Rahman \(2008\)](#), the following are the benefits of accounting information technology in the banking industries:

**Timely Information:** The accounting information technologies provide business and other users with timely information. This information helps users and business with strategic planning, budgets and other valuable information for payroll, bank reconciliation and creation of spreadsheet.

**Easy to Use:** Raw data are entered directly into the accounting information technology; the system processes any calculation, manipulations, reports and reconciliation. The output shows the result as information in a meaningful manner.

**Internal Control:** The accounting information technology makes it easier for banks to establish internal control which help to detect fraud, theft and other mismanagement.

**Decision Making:** Data recorded and processed enables accounting information technology to yield reports that aid interested parties in their decision making process. Most accounting information technology can yield statistics that indicate performance of product or service.

**External Financial Reporting:** One of the most important characteristics of accounting information technology is its ability to produce information that helps organizations generate financial statement. From the accounting information technology, one should be able to create companies balance sheet, income statement, shareholder or owners' equity and statement of cash flows.

## 2.8. Information Technologies Used in Accounting Information System

Organizations employ multiple forms of information technology in their accounting information system. [Hurt \(2008\)](#) contend that some of the information technology tools that are often used in accounting information system are:

**Spread Sheets:** The two most popular today are Excel and SPSS Spreadsheets can be for virtually any task that requires computations. A company's end-off period financial statements could be exported to a spreadsheet and presented graphically to the board of directors.

**Relational Databases:** An example of database software is the Microsoft Access. Like spreadsheets, relational database can capture many different kinds of data. They can perform some elementary types of analysis (such as calculating means) and output various reports. Unlike

spreadsheets, however, database users can create powerful queries to extract subsets of data based on certain criteria.

**General Ledger Systems:** General ledger systems are often organized into modules to facilities strong internal control. In a well-designed general ledger system, employees will have access only to the module that pertains directly to their job responsibilities. This helps in guarding against fraud. Peachtree First Accounting package can effectively be used to manage general ledger system.

On the impact of computer technology on accounting, [Nickels \*et al.\* \(2002\)](#) observed that most companies have found that computers greatly simplify the task, enabling managers and other employees to get financial reports exactly when they want them. This to a large extent is responsible for the increasing dependent and deployment of information technology in the banking industry.

### 3. RESEARCH METHODOLOGY

The study employed the use of both primary and secondary data. The primary data were sourced mainly through questionnaire, interview and observations, and the responses are noted for the discussion of results. On the secondary data, relevant information from the published annual reports of banks in Nigeria, as well as from the [Nigerian Stock Exchange Fact Book \(2009\)](#) were examined for the accomplishment of the set objectives. Fifty (50) questionnaire were distributed to the selected banks under study and seventeen (17) responded from Access bank, fifteen (15) from first bank, fourteen (14) from union bank. Judgmental or purposive method of sampling is used in selecting the three banks such as Access bank, first bank, union bank under studied as a representative sample and ANOVA was used in analyzing the data and testing of the hypothesis.

### 4. RESULTS AND DISCUSSION

#### 4.1. Data Presentation, Analysis and Interpretation

To allow for reasonable comparison the sample is made up of only banks that existed before the consolidation exercise and also whose identity is traceable to the post consolidation period. Also, in order to have at least five years pre - consolidation and five years post – consolidation analysis, only those banks whose 2009 financial statements have been published are sampled.

The bank or company results rather than the group results is used for the analysis to allow for meaningful comparison. The pro-consolidation period is from 2000 to 2005 while the post-consolidation period is 2006 to 2009.

The data for testing the hypothesis that: “There is no significant relationship between the use of information technology and the quality of services banks provide” are presented in the tables below:

**Table-1.**Response to question 9, 10, 11 and 12 on the questionnaire

	<b>First Bank</b>	<b>Union Bank</b>	<b>Access Bank</b>	<b>Total</b>
Very Effective	7	5	7	19
Effective	6	8	6	20
Indifferent	4	2	1	7
Not Effective	0	0	0	0
Total	17	15	14	46

**Source:** Administered Questionnaire, 2011

Correction term,  $C = \frac{(46)^2}{12}$

12

= 176.33 Total Sum of Squares)

= 280 - 176.33

= 103.67

Bank (Sum of Squares) =  $(14)^2 + (15)^2 + (17)^2 - 176.33 \times 4$

= 177.5 - 176.33

= 1.17

Error (Sum of Squares) = 103.67 - 1.17

= 102.5

**Table-2.**Summary of ANOVA Result

<b>Source</b>	<b>SS</b>	<b>df</b>	<b>MS</b>	<b>F</b>	<b>F<sub>.05</sub></b>	<b>Remark</b>
Banks	1.17	2	0.585	0.05	3.98	Accept
Error	102.5	9	11.389			
Total	103.67	11				

Where:

SS- Sum of Squares

df-degree of freedom

MS-Mean Squares

F-F-Statistics

**Decision** - Since F tabulated 3.98 is greater than 0.051 calculated we accept the null hypotheses of no significant relationship between the information computer technology and the quality of services by the bank.

This fact is supported by the high percentage increase in the profitability and net assets of Nigerian banks after consolidation compared to the situation before consolidation. The trend in performance (Earnings) which, to a large extent, the banks attributed to information technology in all its ramifications is presented in the table below. It is pertinent to note that 2000 is used as the base year.

**Table-3.**Percentage Increase in Earnings in Pre and Post Consolidation Period

	<b>Access Bank</b>	<b>First Bank</b>	<b>Union Bank</b>
<b>YEAR</b>	<b>%</b>	<b>%</b>	<b>%</b>
2001	32.9	8.4	93.9
2002	117.8	55.3	74.5
2003	265.3	67.8	90.2
2004	361.3	68.0	114.7
2005	526.9	84.2	145.4
2006	1,017.4	128.1	178.0
2007	2232.0	195.3	289.5
2008	4719.9	386.3	409.2
2009	6979.4	589.6	613.4

Source: Nigerian Stock Exchange Fact Book (2009).

From the above table it is a fact that the percentage increase in earnings (using year 2000 as the base) is far higher in the post-consolidation period (2006- 2009) than in the pre- consolidation period (2001- 2005) for the banks studied. It is noteworthy that all the banks present this same trend. The above is in agreement with the view of the banks that the use of Accounting Information Technology was more in post-consolidation period than in pre-consolidation period, the banks also accepted that Accounting Information Technology enhances competitive edge.

#### **4.2. Challenges of Accounting Information Technology in Nigerian Banks**

Accounting Information technology is indispensable in modern banking. However, from observations and responses from respondents, the Nigerian banking industry is noted to have been faced with a number of challenges, among which are the following:

**Data Security:** With the advent of information technology, most especially internet and network generally security of information assumed a greater risk. In this area banks are susceptible to internal and external attacks. This may come in the form of data loss either intentionally or unintentionally. It cost a huge sum of money in trying to keep its data secure.

**Obsolescence:** The Information Technology industry is dynamic such that Information Technology products become obsolete within very short periods. Most of the Information Technology products used up to 1999 had to be upgraded or completely replaced as at the time of undertaking this research.

**Fraud:** This is one area of great headache for bank. The use of accounting and or Information Technology has to some extent reduced the level of internal fraud. However the level of external fraud has increased, most especially through ATM and Internet Fraud. This claimed has run into billion of naira.

**Inadequate infrastructural facilities:** The use of accounting and /or information technology in the Nigeria banking industry has brought to the fore daunting challenges such as erratic power supply, poor communication infrastructures, and inadequate local input in the hardware and software chain, Information Technology and education/awareness.

## 5. CONCLUSIONS AND RECOMMENDATIONS

### 5.1. Conclusions/Findings

On the basis of review of related literature, analysis and interpretation of data and general observations, the following are the major findings/conclusions of the study:

From the analysis, accounting information technology is relevant in simplifying issues and in the provision of quality information in the Nigerian banking industry. That explains why the banks spend a greater part of their resources on information technology and see its application as providing a competitive edge in the competitive banking industry.

The use of accounting information technology in the banking industry has led to the timely and accurate preparations of reports, as customers have limitless access to banking service through the aid of internet banking.

The use of machine counting money allows for the counting of large sum of money within short period which was not the case in the time past, and the use of ATM by customers has reduced queue and long hours waiting at the bank.

The availability of online system makes it easy for inter bank branch communication, without necessarily visiting those branches of the sampled Nigerian banks.

### 5.2. Recommendations

Based on the findings of the study, the following recommendations are hereby made:

1. Banks should ensure a continuous review of their privacy policy in line with changing realities which must be properly communicated to the customers. This will go a long way in reducing data security risk.
2. Bank must put in place controls that will reduce fraud from both internal and external sources. This will include upgrading, for example, the ATM machines used by banks.
3. Government should make concerted effort in the provision of infrastructural facilities such as power and communication network to enhance efficiency and reduce cost of doing business in the Nigerian banking industry and generally in other sectors of the economy.
4. There is the need to harmonize and standardize the deployment of software packages in the banks to engender uniformity and assist the regulatory authorities in their supervisory roles.
5. The impact of the progress in accounting information technology on banking service should not lead to a very strong increase of cost of their processing, which put in question possibility to achieve economy of scale by Nigerian banks.
6. Also all banks must continue to utilize and upgrade their information technology for efficient service delivery and profitability because in competitive banking industry, relationships with customers have to be developed and maintained at all costs, irrespective of the service delivery channel.

7. Technology must be used in the Nigerian banking industry with dissection in order to cater for the information needs of the customers and other stakeholders.
8. Technology can save time and money and eliminate error, thereby addressing certain issues associated with changing cultural and social trends, caution should be taken not to minimize direct customer interaction and any associated service to be gained.
9. Mismanagement of the accounting information technology due to technical problems, communication problems, and poor training and maintenance culture should be avoided in the Nigeria banking sector because the said failures may result into low productivity, loss of the information technology inventory as well as loss of important and confidential data.
10. Banks should also identify whether or not they are required to find a balance between use of technology and personal contact to service delivery and provide customers with some technological training instead of assuming that they will automatically accept and use the technology.

As the use of accounting information technology becomes more relevant, the enforcement of backups and recovery procedures are very essential so as to provide contingency planning for network downtime. More importantly the accounting information technology access controls (passwords) are deemed necessary.

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