

**THE IMPACT OF COMPUTER IN PROCESSING ACCOUNTING
INFORMATION IN NIGERIA COMMERCIAL BANKS**

[A CASE STUDY OF UNION BANK PLC]

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PG/MBA/07/46927****BEING MBA PROJECT SUBMITTED IN PARTIAL FULFILLMENT
OF THE REQUIREMENT FOR THE AWARD OF
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CERTIFICATION

The work embodied in this project report is original and has not been submitted in part or in full for any other Diploma or Degree of this or any other university.

.....
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This is to certify that OBUORA UGOCHUKWU .C., a postgraduate student in the Department of Accountancy and with the Registration Number PG/MBA/07/46927 has satisfactorily completed the requirements for project research in partial fulfillment of the requirements for the awards of Masters of Business Administration [MBA] in Accountancy.

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Date.....

Date.....

DEDICATION

This work is dedicated to God Almighty, who with His infinite mercy saw me through all this academic years. And to my dearest parents Mr. S. N. Obuora and Mrs. M. Obuora and also my uncle NNAMDI Ozoh for their endless love, understanding and support.

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My exquisite but succinct acknowledgement goes to the staff of Union Bank of Nigeria Head office Enugu Branch, for their co-operation during the period of data collection. It is tantamount to irresponsibility and disregard, if I forget my family and their contributions to my stay here. I thank my parents Mr. and Mrs. S. N. Obuora whose opportunity cost for the things of life saw me through in my academic pursuit. In spite of the fact that they erred, their magnanimity, however, refused to be impeded.

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ABSTRACT

The impact of Computer to Nigeria Commercial Banks especially Union Banks Plc cannot be over emphasized.

Many banks have realized the used of the computer as a means of improving their chequeing transaction and of keeping necessary data on customers for loans advances and other services. These obvious advantages notwithstanding, must banks have not imbibe the computer culture.

For the purpose of this study, this research was based on commercial banks in Nigeria and occasionally drew emphasis from the Union Bank of Nigeria Plc, Head office Enugu Branch.

This study therefore showed the actual contribution of computers to the banking industry and the problem faced by banks, which has not gone into computerization. A good number of banks in Nigeria are computerized and consequently time wastage in banks are reduced, there is increase in banks deposit, there is better storage of information and greater efficiency in banks deposit, there is better storage of information and greater efficiency in banks services, there is reduced workload in banks.

The researcher used both primary and secondary data. The primary sources will include the use of questionnaires while the secondary data will include text books, article and other important write-up in various journals.

It is expected that the implementation of the findings and recommendations in this research work will improve the services rendered by banks to their various customers by increasing usage of computerized services personnel training and encouraged computer. ITC programmes to boost the activities and operations of banks aimed at enhancing and optimizing services to the customers.

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CHAPTER ONE

INTRODUCTION

Financial accounting can be defined as the process of collecting, recording, presently and analyzing and interpreting financial information for the users of financial statement [Robert, O. Igben 2007]

Accounting is the language of modern business, a tool for business decision making. It is used by people associated with business, whether they are managers, owners, investors, bankers, lawyers, and accountant. It provides financial information to people inside and outside the organization who need and are authorized to have such information. A system like a computer in the most general sense of the word is a group of interrelated components that processed inputs into outputs to meet some objectives.

An accounting information system is a group of components that processes raw data into financial information to meet the purpose of these internal and external users, however, when we talk of accounting information system we invariably refer to computer assisted techniques in accounting [Warren, 1997].

The objective of financial information is to provide useful information for making economic decision. The process of recording, aggregating and summarizing the effects of historical transactions in financial statements under a specified set of rules constitutes the bulk of financial accounting. Organizations such as commercial banks need the accounting information in carrying out their operations and transaction. Fortunately, the electronic computer as an electronic device for storing and analyzing information fed into it, for calculate or for controlling machinery automatically could be used to perform commercial banking products and operations and also aids managerial decision makers in planning and controlling of various business activities [Warren, Reeve, Fess, 1997].

1.1 BACKGROUND OF THE STUDY

Accounting information poses certain qualities necessary to satisfy user's need. Two basic qualities for general purpose accounting reports supplied to external user are:

- Relevance
- Reliability

It is important to realize that for the information to be of any use to management or external users, it has to be targeted at a specific decision. It is in this sense that the information may said to be relevant or pertinent to the decision. Relevance of accounting information is judged in relation to the user's situation. Also, accounting information signifies faithfulness, constancy and trustworthiness. As stated by Mandadur R. and Maurice H in their book Accounting Information System [1976] page 9, one way of ensuring reliability in accounting information is to ensure adherence to accounting principles. Also R. W. Hilton and S. J. Swearing in perception of initial uncertainty as a detriment of information value [pg. 109-119] stipulated that 'the value of any accounting information depends on its accuracy and its ability to reduce uncertainty'.

Accounting information is useful in all types of organizations especially the banking industry where the survival and growth of such organization depends to a large extent, on supplying effective accounting information to internal and external users. The size of an organization determines the appropriate volume and complexity of accounting information for managerial decisions in such areas as purchasing, protection, hiring, borrowing and investment. The

computer was initially introduced into most corporate organizations to satisfy the efficiency concerns of processing vast amounts of accounting transaction data at the operational control level. It has proved so effective in the role that virtually no sizable organization can survive competitive pressures without using this tool called the computer. Throughout the 1970's computer technology limited the production of accounting information to predetermined formats. The introduction of micro computers in the early 1980's brought about rapid rise in the computer at all levels of management and contributed to the development of a new class of programs aimed specifically at meeting the needs of strategic management. Donald H. Sanders in his book "Computer in Society" asserts that "that scope of today's accounting information system is influenced by the rapid growth of information processing technology and increased complexity of business in general.

Thus, the accounting information of the foreseeable future must establish and maintain the capability for complex manipulation of vast volume of financial and non-financial data with higher speed and greater accuracy.

The enhanced power of data handling in a complex environment has altered the character of accounting system. The accounting system of the past was a little more than book-keeping which relied on electronic devices of limited capability and required a great deal of human involvement as almost every step of the process. Such an accounting information system was not able to cope with the dynamic challenged of business complexities. Its products were unable to satisfy user's needs for planning and controlling information. The primary concern of the accounting information system was to manipulate historical data, satisfy audit needs, produce after that fact financial statement and provide preformatted reports for managerial use.

Today's accounting information system deals with future events as well as historical data. It must produce projected financial statements as well as historical ones. It must support unanticipated managerial needs for financial information for decision making, in addition to satisfying the needs of auditors. It must develop new and efficient controls, reporting techniques and audits trials in response to the trends towards increasing public access to accounting data reports. For instance, consider the monthly statements provided to

bank customers. These must incorporate detailed information about numbers transaction [ranging from cash and cheques deposit, interest charge, tax charges and withdrawal] performed in a variety of ways from a number of locations. A bank cannot survive today without providing this level of services, yet the capability to do so did not exist a few year ago.

However, the advent of the computer has some of its attendant problems. These are training of personnel and finance costs.

In conclusion, the computer contributes to increased output, by increasing efficiency and its ability to perform predetermined tasks, faster and more accurately.

1.2 HISTORICAL BACKGROUND OF UNION BANK OF NIGERIA PLC [R.C. 6262]

Union Bank is not a new name in the Nigerian banking sector as it is one of the “big five” in the Nigeria banking industry. Union Bank of Nigeria Plc as popularly known was formally known as Barclays Bank DCO [Dominon Colonial and Overseas]. The bank which commenced operations in Nigeria in 1917 was incorporated as a private limited liability company in Nigeria in 1969, it was later converted to a public

company in 1970. The bank shares are quoted in the Nigerian Stock Exchange.

The company is engaged in commercial banking, in the year 2000 the bank changed its accounting year end from 30 September to 31 March and consequently the financial statement cover a period of eighteen months ended 31 March 2001. Union Bank of Nigeria Plc stands out as big, strong and reliable bank, according to its [2001] Annual Report and account its mission statement to be the foremost financial institution with the most satisfied customers” is an insight on how important their customers are. As at 31st March 2001, the bank had 2 foreign offices in London and South Africa, and a total of 297 branched as a group and 282 branched as a company. According to its 2007 annual report and the total branches increased to 306 and 293 as group and company respectively.

As per staff and management strength, Union Bank of Nigeria Plc has the average number of persons employed during the year 2007 as a group and company as displayed in the table below.

Table 1.1

The Related staff cost is as follows:

	N'm	N'm	N'm	N'm
Staff salaries and allowances	19,234	14,259	16,959	12,118
Retirement benefits	1,385	1,559	1,139	1,306
Totals	20,619	15,818	18,098	13,424

In the area of employment and employees, it is the policy of the group that there should be no discrimination is considering applications for employment including those from disabled persons. All employees whether or not disabled are given opportunities to develop. As at 31 March 2007, there were 6 disabled persons in the employment of the group. Health, safety at work and welfare of employees are maintained as the group provides to all levels of employees subsidies for medical, transportation, housing, etc. Management, professional and technical expertise are the groups major assets and investment in their further development. A range of training provided to its employees whose opportunities for career development within the group have been enhanced thus has extended the group's expanding skill base. Incentive scheme designed to meet

the circumstances of each individual are implemented wherever appropriate and some of those scheme include bonuses, children education grant, scholarships, etc. The organization remains committed to ensuring that their employees work in the most conducive environment, as they are aware of the value of knowledgeable and well-compensated employees in boosting the productivity of any organization.

The organization believes that with the innovative approach of the bank management, the extensive use of information technology in service delivery and unalloyed loyalty of staff would propel the organization to higher pedestal. Given the magnitude of the business solution gap in the Information Technology [IT] platform and the desire to procure the state of the art software, the bank selected robust banking application software, 'FLEX CUBE". With the sophistication of the bank communication network and using the flex cube software as the backbone, new electronic product such as 'UNION E-LINK" and "Telephone banking" are currently being enjoyed by customers and the bank is a leading investor in the value card consortium of over 30 banks in that regard, the bank is reposting itself for EMV-compliance to

enter the global electronic market, which eventually would include internet banking.

Indeed, this is to highlight that the organization has not only stood out as vibrant and productive in the Nigeria banking industry but have delved into and excelled in stock broking, insurance, mortgage, trusteeship and merchant banking. Hence the organization has the following subsidiaries:

- i. Union Stockbrokers Ltd
- ii. Union Assurance Company
- iii. Union Homes Savings and Loans Ltd
- iv. Union Trustees Ltd
- v. Union Merchant Bank Ltd
- vi. Consolidated Discounts Ltd

The management of Union Bank has long foreseen the inevitability of the universal banking system and this was the primary reason for diversifying into other financial sub-sectors. In retrospect, the decision to establish the various subsidiaries was well justified given their rising profiles and performance. Currently the organization has three full-fledged subsidiaries in Union Merchant Bank Ltd, Union Homes Savings and Loans Ltd, Union Trustees Ltd while

the associated companies where they hold substantial and/or controlling shares include union assurance Ltd, consolidated discounts Ltd, Banque International Du Benin and values card Nigeria Plc. The organization started its renewal a change Agenda code named “stallion 2000” with the submission of its report and recommendations in late 1998. The actual implementation started in 1999 and the stallion 2000 project was poised to make the bank responsive to the dynamics of the market, which as a repositioning agenda. The physical restructuring and process re-engineering of the branches and head office department have been pursued relentlessly. As a result, many of their branches have been restructured and indeed, 38 of the key locations are now operating on line real time. In consonance with the global best practice, they have started addressing the challenges of connectedness and interdependency typically faced by octopus organizations like theirs. Consequently, they have commended the strategy of using their technology-enabled processes to connect their businesses in a way that would create value to all stakeholders in Union Bank of Nigeria Plc.

1.3. STATEMENT OF PROBLEM

The banking industry is one of the major contributors to the economic development of any nation in the world. However, the existing banking facilities in the country at this time cannot effectively cope with the requirements of modern banking”

The above stated problems have further resulted to sub-problems of slow banking operation, slow storage and retrieval system, time wastage and reduced customers patronage. Therefore, it became very apparent and necessary for banks to search for a better method, which would seek to improve and speed up banking operations in the country.

1.4. OBJECTIVES OF THE STUDY

The purpose of this study is to actually identify the impact the computer has exerted on the banking business since it was introduced into the banking industry. It is geared towards identifying how the use of computer could increase the effectiveness of accounting information towards the realization of set goals of our banks.

However, the case study would pay attention on Union Bank of Nigeria Plc in trying to establish the impact and importance of

computer in processing accounting information in the commercial banks. The study is designed to bring into focus an overview of the application of computer to the various accounting information system and the services rendered by our banks. This study would look into desirability of these computers to our banking system and would give in-depth study into simplified activities of computer in the business. It would recognize its important contributions to the exploitation of resources for organizational benefits.

Nevertheless the context of this study tends to be directed actual banking functions. It would also help in laying a foundation for anybody who does not have an experience in the application of computers to processing of accounting information for banking operations.

The history and gradual development of commercial banking in Nigeria and various services rendered by banks would also be investigated. Also the public mis-conception about the application of computers in processing accounting information would be brought to light, this will in turn lead to how to correct these misconceptions.

1.5. HYPOTHESIS OF RESEARCH QUESTIONS

1. Ho: The computerization of the Union Bank of Nigeria Plc has reduced time wasted ion carrying on banking transactions.

Hi: The computerization of the Union Bank of Nigeria Plc has not reduced time wasted ion carrying on banking transactions.

2. Ho: Computerization has led to the increase in the number of depositors at the bank.

Hi: Ho: Computerization has not led to the increase in the number of depositors at the bank.

3. Ho: Computerization of Accounting Information has improved Efficiency in operation and accuracy of performance in banking operation.

3. Ho: Computerization of Accounting Information has improved Efficiency in operation and accuracy of performance in banking operation.

Ho: Computerization of Accounting Information has not improved Efficiency in operation and accuracy of performance in banking operation.

4. Ho: Computerization has contributed to better information storage in the bank

Hi: Computerization has not contributed to better information storage in the bank.

1.6. SIGNIFICANCE OF THE STUDY

The essence of this study cannot be over –emphasized. An accounting system can be designed for manual or computerized operation. In either case, the basic structure remains the same.

Nowadays, the accounting systems in most business organizations are computerized, some organizations also have their information system uses the general ledger as the master file. The general ledger master file is a cluster of ledger account store in internal or external computer storage media. A computerized system uses software programmes to manipulate data entry, editing, updating records and files and periodic closing electronically. It has many advantages such as on-line data entry and inquiry, faster manipulation, timely report preparation and greater analytical ability. The such will be of great significance to many diverse groups such as Directors of companies, corporate shareholders, bankers, employees, customers, corporate shareholders, bankers, customers, government and academic community. A computerized accounting information

system and satisfy a wide range of users' needs, with reference to "Software International Publication" [1978] pg 15 which identifies the following user needs for its accounting system. It states that a good accounting information system should address these needs:

- i. Faster closing of books, subsequently decreasing the closing cycle from weeks to days and sometimes hours
- ii. Flexibility in the chart of accounts structures
- iii. Increased speed and accuracy of reports to all managers
- iv. Imposing no restriction on how users define their numbering system
- v. Financial management information always available for management reporting, clerical efficiency with easy to use input techniques.

1.7. SCOPE AND LIMITATIONS OF STUDY

The scope of the study would be restricted to Union Bank of Nigeria Plc, where computerization of some banking services is already in progress. The work would be confined to the operation of computer in processing accounting information in the bank. This is very necessary because it would give a high level of understanding as

to what computers are and their contributions in enhancing efficiency in our banking system.

Computer applications, in business and banking in recent times have only concentrated on development of computers in our banking system through a case study or a survey. A survey was however found to encompass the whole banking industry in Nigeria but a case study would be a more realistic one for the purpose of this work. Although in carrying out the case study, the researcher also tried to get a general view through a study of two computer firms [computer warehouse limited, ladder top limited] both in Surulere, Lagos State before actually applying his analysis to the bank used as a case study. The work also highlighted the problems which have hindered the general adoption of computer in the banking system.

In the course of this study, the researcher was limited by the non-availability of adequate information and also, some respondents felt that supplying certain information was like revealing their banks secret. The scope of the study is a major limitation which constraint the research to computer application in processing of accounting information in our commercial banking industry.

1.8 DEFINITION OF TERMS

Data: Data refers to any and all of the facts that are collected, stored and processed by an information system.

Accounting: Accounting may be defined as an information system that provides reports to various individuals or groups about economic activities of an organization or other entities.

Computer: IBM defines a computer as a machine that can by following a controlled sequence of instructions perform both logical and arithmetic operations with data [Leedy, 1980, pp. 31] and can also record results for either immediate or future reference.

Hardware: The machine that processes the information stored in the memory.

Information: Information is data that has been organized and processed so that it is meaningful. The value of information is the benefit produced by the information minus the cost of producing it.

Input/Output: These are the devices used in keying in data in a computer or retrieving data from the computer.

System: A system is a set of two or more interrelated component that interacts to achieve a goal.

Software: The programmes used by the computer in carrying out a specific operation.

Terminal: The point at which information can enter or retrieved from a computer communication network.

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CHAPTER TWO

REVIEW OF RELATED LITERATURE

2.1 A BRIEF LOOK AT ACCOUNTING, ITS PAST, PRESENTS AND FUTURE.

Financial Accounting is a process of collecting, recording presenting and analyzing and interpreting financial information for the users of financial statement [IGBEN, 2007].

Accounting was defined by Reynolds [1984] as quoted by Ugwoke [2000] as the set of rules and methods by which financial and economic data are collected, processed and summarized into reports far back into history. George [1972] as quoted by Pickles [1974] asserts that the need to account to holding of wealth prompted the development of form writing referred to as script. Accounting practice was said to have been performed by the temple priests of summer who operated a tax system that brought under their control vast stocks of grain, animals, and estates which key accounted for. This happened about 5000 B.C., when the great Egyptian Civilization took place, which was marked by huge building projects including the pyramids where workers were paid based on the work performed. Such activities

required the building up of records to get the necessary information for decisions, actions and control.

2.1.1 EARLY ACCOUNTING

Just as you may keep a record of the money you spend, people throughout history have maintained records of their business activities. Ugwoke [2000] pp.2 recall that the earliest records in history started with the introduction of cuneiform writing in Babylon around 2123-2981 B.C., which was during the reign of King Hammurabi the Great. During this time in Babylon, some forms of Accounting was going on in the Babylonian textile mills about 600 B.C. where some records were on clay tablets that indicated that payments of wages. Some of the earliest English records were compiled by William the conqueror in the eleventh century. These early accounting records included only some of the financial activities of the entity. A systematic recording of all activities in Republic of Italy. The Italian Merchants who used the Arabic numerals in the recording of business transaction started the double entry system.

2.1.2 DOUBLE ENTRY SYSTEM

How did the early recording of financial activities evolve into a system of accounting? According to Warren, Reeve, Fess [1997], the basic system of accounting which is still in use today was invented by Luca Pacioli, a Franciscan Monk, Luca Pacioli was a Mathematician who taught in various universities in Perugia, Naples, Pisa, Florence and Bologna. He was a close friend of Leonardo da Vinci, with whom Vinci drew the illustration. It was the development of double entry system of recording transaction by Luca Pacioli that gave impetus to Modern accounting. The system was strongly influenced by the financial needs of the Venetian Merchants. Goethe, the German poet, novelist and scientist described the double entry system as “one of the most beautiful inventions of the humans spirit and every good businessman should use it in his economic undertakings”.

What is so special about the double- entry system? Warren [1997] states that it is unique because it records financial activities in such a way that an equilibrium is created within the records. For example, assume that you borrow N2,000 from a bank within the double entry system, the loan is recorded as N1,000 of cash received and at the same time an obligation is recorded for eventual repayment

of the N2,000. In a complex business environment in which an entity may be involved in thousands of transactions, daily, the above balancing is a valuable control that ensures the accuracy of the recording process.

2.1.3 CORPORATE ORGANIZATION

The Industrial Revolution created a demand for large amount of money or capital to build factories and purchase machinery. To meet this need for capital, the corporate form of organization was developed. How does the corporate form of organization raise capital? If you answered, “by issuing stock”, you are correct. Corporate ownership is divided into shares of stock that can be readily transferred. The shareholders of the corporation normally do not exercise direct control over the operations of the corporation. The management runs day-to-day operations and the stockholders only indirectly control the corporation through the elections of a Board of Directors who actually actively management the corporation.

So how did the corporate form of organization affect accounting? According to Warren, Reeve, Fess [1977], the corporate form affected the evolution of accounting because the stockholders needed

information about how well management was running the corporation. Since stockholders are not directly involved in day-to-day operations, they must rely on accounting reports in evaluating management performance. These reports created more additional demands upon accounting. As corporation grew larger, the number of individuals and institutions relying on accounting reports increased. Potential shareholders and creditors needed information, government agencies required information for purposes of taxation and regulation, employees union representatives and customers requested accounting information to judge the stability and profitability of corporations. The corporate organizations also created a need for an independent review or audit reports prepared by the corporation management. The audit gave some assurance to users of the information that the reports were reliable. The audit function, called the “attest function” was responsible for the development and growth of “public Accounting Profession”.

2.1.4 ACCOUNTING FUTURE

As the preceding paragraphs emphasize, accounting touches all our lives in one way or another. Although long-range predictions are risky, these are two areas of financial accounting that are undergoing

intense study and review according to Warren, Reeve, Fess [1997]. These areas, which are likely to change significantly in the future are international accounting and socioeconomic accounting.

Warren, Reeve, Fess [1997] asserts that accounting changes to meet the needs of society, as a result, accounting rules and regulations differ significantly among countries, each of which has unique cultural needs. These differences create major accounting problems when a firm has foreign operations in more than one country. In such cases, the firm must adopt its accounting system to the rules and regulations of each country. This increase the cost of recording accounting data and preparing accounting reports. Also, there is potential for confusing the users of accounting reports. To ascertain this problem, accounting profession is seeking to develop uniform international accounting standards. Socio-economic accounting is the aspects of accounting that suggest that the impact of organizations on society should be recorded and reported. As socioeconomic accounting evolved, three main areas have been identified for study. The first area is recording and reporting the impact of various organizations on matters that affects the overall quality of life in society. The second area is recording and reporting the impact of

government programs on achieving specific social objectives. The third area is recording and reporting the impact of corporation's social performance. Corporate social performance refers to the corporation's responsibilities in such areas as water and air quality, conservation of natural resources and equal employment practices.

2.2 EVOLUTION OF COMPUTER

According to Eze, B. [1999] in his lecture monograph, computer systems evolved as a respond to the problem solving requirement of mankind. The remarkable human characteristics of problems solving ability has not only shaped the evolution of the computer but all of civilization problem solving is an integral part of what we may call the "creative human process". In simple terms, the process can be described as follows:

- i. First and foremost, we are confronted with a problem.
- ii. Out of creative thinking comes a tool to solve this problem.
- iii. Finally, as knowledge and use of the tool become widespread others improve upon the tool and expand its use.

The development of computers has followed a similar path throughout the history of computing, mankind have had the tasks of

performing time consuming tedious and difficult numerical calculations. One of the first mechanical device was the Abacus, developed by the Chinese as early as 5000 B.C. In 1642, Braise Pascal [19 years old] developed Pascal's calculating machine. In 1667, Gottfried Wilhelm Leibniz developed a calculating device that could automatically divide and multiply. Two of the most significant developments in mechanical devices were made of Charles Babbage. He designed the different engine in 1822 and worked on the Analytical engine in the 1830's. Although these devices were not built during his lifetime, the principles he developed could be seen in today's computer system. In 1887, Herman Hollerith developed a tabulating machine that was used to tabulate the 1890 census in USA. Later the company formed International Business Machines [IBM]. The MARK I was the beginning of the computer age. This electromechanical device was developed by Howard Aiken along eight engineers from IBM in 1937, other early computing devices includes the Electronic Numerical Integrator and Calculator [ENIAC] and the Electronic Discrete Variable Automatic Computer [EDVAC] Coffey W.W. [1982].

FIRST GENERATION – The first generation of computers started in 1951 with the introduction of the universal automatic computer 1 [UNIVAC 1]. This computer like all the computers of the first generation, used vacuum tubes and were mostly programmed in machine language. They were large in size, generated a lot of heat, failed frequently, had low capacity internal storage, low processing speed and various models were not located.

SECOND GENERATION – The second generation computers using transistors instead of tubes dominated the period from 1959 to 1965. Transistors were smaller, faster, and more reliable and produced far computer brought about the use of Magnetic tape and disks and the common use of high level language such as FORMULA TRANSLATION [FORTRAN] developed in 1957 and the common Business Oriented Language [COBOL] developed in 1961.

THIRD GENERATION – This brought about the integrated circuit, a complete electronic circuit on a silicon chip which replaced the transitory circuitry. It brought about multiprogramming and time sharing [people using the same computer simultaneously] and also the production of operations systems, a type of system software which increased rapidly by the early 1970's minicomputers were widely used.

FOURTH GENERATION – In 1971, the first electronic computers were introduced that used large scale integrated [LSI] circuits- thousands of integrated circuits on a chip for main memory and logic circuitry. This period brought increase use of input devices that allowed data and instruction to be entered directly through the keyboard.

FIFTH GENERATION –These are microcomputers with faster operating speeds, greater processing capacity and virtually unlimited memory. The fifth generation computers are believed to have circuitry based on gallium arsenide. Gallium arsenide offers a five fold speed increase and only one length of the powered that silicon uses.

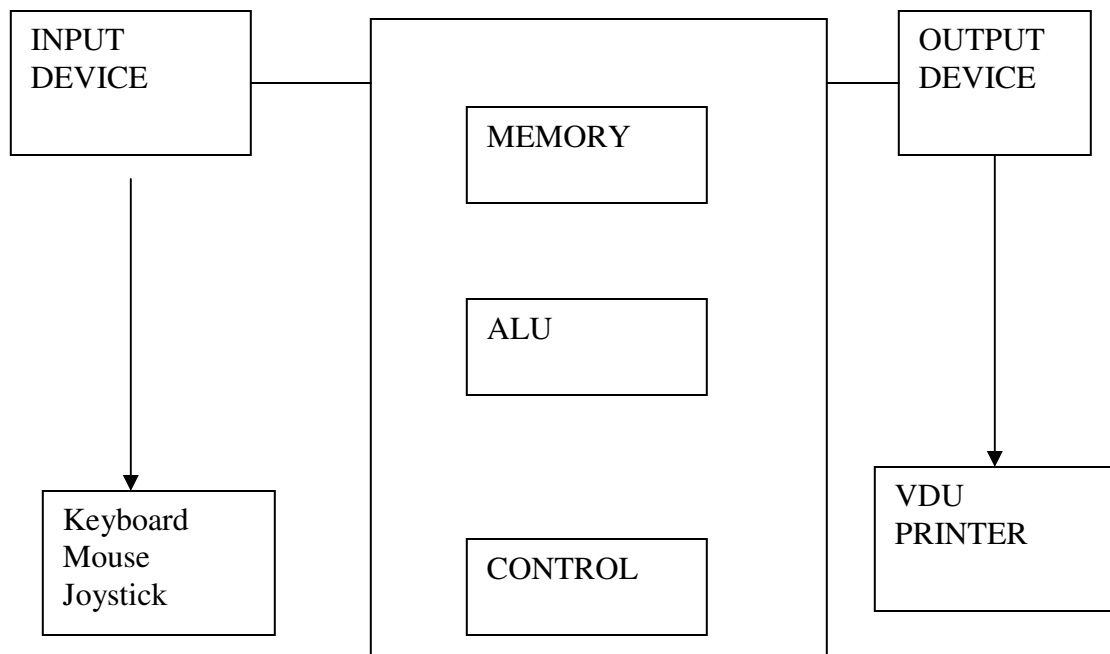
2.3 THE BASIC ELEMENTS OF A COMPUTER SYSTEM

The electronic digital computer system can be divided into Hardware and Software. The Hardware are the physical components and devices which make up the visible computer. It can be divided into two: Central Processing Units [CPU] and the peripherals. The CPU is responsible for the processing functions of the computer while the peripherals are responsible for feeding data into the system and for collection information from the system. The Central Processing Unit

[CPU] consists of the main storage, Arithmetic and Logical Unit [ALU] and Control Unit [CU].

2.3.1 THE CONTROL UNIT

This unit sequences the operation of the computer system and this has been described as “the nerve centre of the computer”. The prime function of this unit is to interpreter instructions stored in memory and give signals to the rest of the computer system, various functions to be performed. The computer system can monitor the various section of the machine through the medium of the console or keyboard.



2.3.2 THE MEMORY

The memory stores data to be processed as well as that upon completion of operation. The memory can be divided into internal and external storage capacities. The internal devices are used by the computer to store data while these data are being operated upon by the system. The external storage refers to those facilities not forming part of the computers immediate access storage but which can be attached to the system. The latter is used to contain information. They include magnetic tapes, thin film. The primary memory is used to store data and instruction [program] needed for immediate processing. Also after a particular job has been processed the resulting information is stored back in the memory before the result is transmitted back to us through another medium at the rate that we can comprehend. Primary memory is also referred to as core memory because earlier computers made use of core materials like ferrite core as their memory. At present semi conductors are used for primary memories like silicon.

There are two types of semi conductor memories, volatile [dynamic] memory which lose its information when power is switched

off and the non volatile or static memory which retain its information when power is switched off.

2.3.3.ARITHMETIC/LOGIC UNITS [ALU]

This device performs arithmetical operations such as additions, multiplications and logical operation. The logical sector of the unit provides the decision making capability of the computer and negative data. The unit has a number of registers, the memory registers, the accumulator registers, the shift registers, adders and compare registers.

2.3.4.THE PERIPHERIALS

The peripheral devices consist of the input/output devices and the auxiliary storage devices. We use them as interface in translating the familiar symbols of language easily readable into binary patterns that can be handled electronically within the central processing unit.

2.3.5.THE INPUT UNIT

Input unit uses punched cards, cards reader, perforated paper tape etc to achieve its objectives. The accuracy of output from a computer system will depend in the first place on the accuracy of the data that was fed into it. Hence the phrase “Garbage in, Garbage out”

is generally used to address the situation. The development of interactive terminal systems facilitates the integration into computer aided accounting information system include voice input and touch input systems. Voice inputs system find application on jobs where the user literally has his or her hands full. Touch-sensitive screens and data pads have also been developed. Current applications include selection and processing options and computer assisted design. As terminal use in support of executive decision making becomes more common, this type of input may be used in connection with the Accounting Information system data-base.

2.3.6. OUTPUT UNIT

Computer output must provide accurate, timely and relevant information to its intended users. It must also be easily understood and readily available if it is to be effectively. Early computer systems had one answer to all output requirements which is the hard copy from an impact printer. More modern systems provide a variety of capabilities that permit users to tailor output to its intended use. We would consider the three approaches commonly use in the Accounting Information System, printers, visual displays and output to micro film.

2.4. THE EVOLUTION OF COMMERCIAL BANKS AND ITS OPERATIONS IN NIGERIA.

Banking is a very old business. A glance at its historical development provides useful background information for our present institutions.

Early Development-Kent [1966], states that banking history dates back to ancient civilizations. The money changers of biblical times were familiar figures to all us. Early Bankers provided a convenient storage place for valuables; these granted protection against fire and theft somewhat similar to a modern safe-deposit box in a bank vault. The banker soon learned that it was good business to pay interest to his client if they gave him permission to use the stored funds so long as they did not need them. Thus, instead of paying a storage fee to the banker, the depositor earned interest while the banker used the deposited funds to make loans at higher rates. The main function of a

banker then was to store money but to lend it. This development marked the beginning of saving –tape banking.

Rudolph [1968] asset that in commercial banking then that Bankers issued receipts to their customers for the amounts left to deposit. People discovered that payments could be made to others by assigning these receipts to them without actually withdrawing the funds. This new techniques was the start of deposit banking. The warehouse receipts eventually became bank notes, which are a banker's promise to pay on demand. When a trustworthy banker issued such notes, they were "as good as gold" unless he went bankrupt banker. Banks in a modern sense can be traced back to Venice and Genoa in the middle ages. Martin's bank in London was founded in 1563 and continued operation until 1966. Commercials banks are private financial institutions authorized to accept demand deposits transferable by cheques. It is their unique function of monetizing debt, which give them their dominant position in a exchange economy [Goldsmith, 1958].

2.4.1.HISTORICAL DEVELOPMENT OF NIGERIA BANKING SYSTEM

Ezigbo [2001] noted that the first commercial bank in Nigeria [the Africa banking corporation] was established in 1882 by Elder Dempster and Co, a shipping firm based in Liverpool, England. The establishment of another bank in Lagos Nigeria called the British bank of West Africa [BBWA] was in 1894. Other branches of [BBWA] were opened in Accra, Freetown and Bathurst all in West African. In 1888, the Royal Niger Company [now UAC] established another bank called Anglo African bank in old Calabar to compete with the British bank of West Africa [BBWA]. Later the bank changed its name to bank to Nigeria and however, due to fierce competition, the bank sold out to [BBWA] in 1912. The Barclays Bank DCO [Dominions Colonial and Overseas] opened its first branch in Lagos Nigeria in 1917, now known as Union Bank. However, in 1949 another expatriate bank called the British and French bank now known as UBA was established.

Ezigbo C.A [2001], also noted in her book that a handful of patriotic Nigerians in 1929 established the industrial and commercial bank, an indigenous bank in an effort to break the foreign monopoly in the banking industry. However, the bank folded up in 1930 due to

aggressive competition from the expatriate banks, under capitalization and poor management.

Thus another indigenous bank called the Nigeria Mercantile bank was established in 1931 with more courage and planning, it became the first successful indigenous bank in Nigeria. Next to this was the Agbonmagbe bank founded by Chief Okupe in 1945. In 1969, the bank was taken over by the Western State government and its name was changed to Wema Bank. The African continental Bank limited which commenced operations in 1948 was the second successful indigenous bank it was founded by Dr. Nnamdi Azikiwe. Bank failures were partly due to absence of regulatory measures for the establishment and control of banks at that time.

Ekezie E.S [1995] asserts that the establishment of the central Bank of Nigeria in 1958 fostered government effort to harness the activities of the commercial bank for development.

The government control over the activities of these banks and economy was strengthened further by the banking [Amendment] Act [cap 19 of 1962. This act attempted to remove loopholes in the formulation of the previous banking acts and also promoted the instrument of monetary control of the central including banks. Thus, it

was made mandatory for all companies including banks operating in Nigeria to be incorporated in Nigeria through the enactment of the companies' decree of 1968. The banking decree of 1969 Supra, further strengthened the control by requiring banks to render to the control bank certain periodic returns. However, the enactment of the Nigerian enterprises promotion decree of 1972 to 1977, Supra, completed the host of banking and other legislation as regards the operations of the banking industry.

2.4.2. BANKING IN NIGERIA

As a result of the increased demand for customers deposits, Nigeria banks especially the new generation banks, have realized the importance of good and prompt customers services. Also due to the fact that some customers lost their deposits in the erstwhile technically-insolvent or distressed banks, customers have now become wiser, more discerning, alert and sophisticated with regards to choosing where it is safe to put their money and where they would be served promptly, preferable in a pleasant courteous and friendly environment. Thus, they have started looking at the level of service and professionalism of the banks before depositing their funds.

Proximity to the banks is no longer the issue, safety and the level of service with regards to quality, speed and efficiency has become the major imperative [Alu, 2002].

Idowu, P. [2000] asserted that on the part of the banks, they have realized that one way in which they can provide quality service is through the use of technology. Hence, there is a growing rate of adopting new technologies in Nigeria banking operations.

Moreover, there is growing evidence that customers have started associating quality of service in a bank with the bank possession of an online, real time system. In fact possession of such a system is now judged to be the sine qua non of a high quality banking service in Nigeria. So far a bank to be perceived as providing high quality service that banks has to have an Information Technology [IT] system, which it uses to deliver services to customers in a more timely, friendly and considerate manner at no extra cost to the customers.

2.5. THE APPLICATION OF COMPUTER TO BANKING OPERATION

The introduction and application of the computer based system in banking operation is a recent development which evolved a system, which gathers analysis and processes information using electronic data processing equipment. The issue of the computer based system cannot be dealt with in isolation without mentioning information technology.

Information Technology [IT] can be defined as the modern handling of information by electronic means which involves its access, storage, processing, and transportation or transfer and delivery. [Ige, 1995].

According to Goddy Nwosu, writing for the Populi bank news letter of African Continental bank Ltd.

“The greatest innovation that many banks have to tackle this centre is the introduction of computer” what could be regarded as the computer revolution in the banking industry. Still talking on the computer revolution in banking industry Ray Vine a senior general manger of Barclays bank of the United kingdom [1984] asserts that with the quiet revolution that by the end of the century, new technology

would have brought to end the branch network system in the United Kingdom as we know it today, this new technology he called the computer”.

So many writers have attributed this quiet revolution to the inefficiency of manual operation, the rising cost of manual operations, the complexity involved in the use of manual information storage of paper work.

Clifford, G. [1984] states that, the rising cost and ever increasing volume of paper work have forced banks in the wealthy countries of the world to mechanize their services and make use of machinery to try and replace the old style.” In many banks, the clerical workload was boring and monotonous in nature and therefore becomes a labour of administrative drudgery. When automation and computer were first introduced into banking. It was seen as a way of helping out but it has gradually developed a momentum of its own and banks are now struggling to meet up with automated banking at the same time making sure that it does not destroy the individual of the banks or their relationship with their customers.

The computer as already defined is an electronic device which stores information. According to “Populi bank news letter of African

Continental Bank Limited [page 28] writing on the impact of computers asset that “computer has the ability to increase transmission, processing and reproduction speeds”.

In analyzing the impact of computer to our banks an economist Akinsanya A. O. a principal computer manager for West African Examination Council on the myths and realities of computer” [page 4] state that “computer has started having a positive impact on the economic development of Nigeria”. It is therefore obvious that computer is relevant to the development of Nigeria economy.

The computer has the ability to reduce the need for manpower in our banks, reduce storage space requirements and automatically handle intermediate steps in data processing with less manual interferences. The major problem of computerization in banking industries is his perception of the idea by the staff the introduction of new system into an organization which brings the prospect of change of any sort, would seldom be received with enthusiasm by the staff.

The reaction of staff will generally be a mixed one in the words of Shola Olukolade [1992] writing on computerization in banks states that: naturally there was much fear among the staff of banks when the

idea of computerizing of that sector of the economy was initially initiated". However, his fear among members of staff might have arisen out of the misconception that the new system will streamline the existing activities and thus present an implied threat to redundancy. What is however not observed is that computer will take over much routine and repetitive work previously performed within the banking industry. The consequences of these would be a reduction in administration costs and staff level.

Efficiency is another aspect of banking, which would be improved by the introduction of computers. It is generally held by specialists what the introduction computers general cost involved in rendering services would reduce considerably. A reduction in cost, leads to increase inefficiency and this also affects the quality of services to bank customers.

Jeffery Collins [1996] asserts that computerization has increased the efficiency of running bank services, costs have been cut down and quality of services improved. Another aspect of banking which has been affected positively by the introduction of computers is the reduction in workload. In this respect, the workload usually handled by staff of banks is greatly reduced, routine and monotonous aspects of

the work are eliminated. It has been argued that this reduction in workload tends to make the staff lazy. The argument is based on the fact that computer introduces a kind of leisure.

O'Brien [2000] says that information of computers should be seen as a necessary tool in our bank because of the positive effect it exerts in our banks.

2.6 SYSTEM DESIGN DEVELOPMENT

The system approach to studying organization has proved to be excellent method of gaining insight into organizational structures and processes. Systems may be viewed as static structures consisting of a number of components that interact in pursuit of some goals or they may be viewed as a dynamic entity that accepts inputs from the environment, process these inputs in some manner, and return the modified product as an output to the environment [O'Brien, 2000].

Therefore, a successful system requires careful preparation and documentation to serve as guideline to ensuring that an organization's investment of time and fund results in a system that meets its business requirement. Clear cuts objectives are as vital to the proper management of an information processing department as they are to the organization.

Macmillan [1996] in his computer handbook for senior management sets the perspective from which these objectives both general and specific should be viewed, towards achieving the set out goals are:-

- What was the reason for the establishment of the organization?
- What service is its intending to render?
- By what means are they produced, in what quantity/quality?
- What financial policies are followed to achieve the economic aims?
- What benefits are planned for, and in what proportion on behalf of shareholders, employees, customers, suppliers and the company at large?

A system should possess the following qualities:-

- a. The system must be practical
- b. The system must be efficient
- c. The system must be cost effective
- d. The system must be elastic
- e. The system must be secure

The system approach deliberately minimizes references to those functional departments. This approach is particularly useful in the

study of information flows, as data and information, especially in the financial field, should be viewed as resources belonging to the organization as a whole.

The internal budgeting process also promotes compartmentalization of data. Most organizations charge back the cost of information systems development and operations to their users. This is an effective means to controlling computer costs, however, it promotes a departmental sense of ownership of data, applications programmes and the resulting information. Robert N. Anthony has proposed a system framework based on the organization level of planning and control activities in large human organizations [planning and control system: A framework for Analysis]. Three levels of activity we identified in Anthony's scheme; strategic planning, management control and operational control. Although there is some overlap between the levels and some activities span the boundaries between them, the levels are sufficiently distinct to merit definition and analyse use.

Strategic planning:- strategic planning is defined by Robert Anthony in his book planning and control system; a framework for analysis: "the process of deciding on objectives of the organization on

changes in these objectives, on the resources used to attain these objectives and on the policies that are to govern the acquisition use and disposition of these resources”.

The strategic planning process used external and internal sources of information, it develops answers to such general questions as; what are the needs of society that an organization can fulfill effectively with the resources at its command? In modern business world, the answer to these types of questions is determined, in large part by market forces. Many of the inputs to the strategic planning process originate in the environment of the system under consideration. Nevertheless, if the strategic plan is to be viable, it must also have inputs based on the history of the organization. The accounting information system plays a significant role in providing these internally generated inputs.

Management control is defined by Robert Anthony as: the process by which managers assure that resources are obtained and used effectively and efficiently in the accomplishment of the organization's objective”. Management control involves the selection and definition of processes, but it does not involve the selection of objectives or the determination of policy. Management control includes

a large planning element; however, this planning determined how fast an objective should be achieved, not what the objectives should be. Almost all the information used in management control is generated internally planning at this level is frequently translated into budget terms, and the budget is usually based on some projection of historical data. All this activity is heavily dependent on the accounting information system.

Operational control is the process of ensuring that specific tasks are carried out efficiently. At this level, goals have been specified and methods of attaining these goals determined. Operational control is concerned primarily with executing task with minimum expenditure of resource. Typically, computers were introduced into organizations support the efficiency concerns of operational control. In most modern organization operational control of financial resources is totally dependent upon automated support. Operational control of other resources has tended to lay behind developments in the financial sector but recent improvement in the automation of human resources management, material resources planning, production planning and computer-assisted design are rapidly narrowing this gap.

Macmillan says that “a good system plan will articulate a vision of computer-worker relationship”. It is required that at whatever level they are established, there should be allowance made for their adjustment as changing conditions in the internal or external environment demand to be considered.

Macmillan also in his Computer Handbook for Senior Manager [pp.14] states that the preliminary planning which a manager should know are; concepts of the data system, concept of data input and output, hardware configuration, software requirement, processing and staffing of the organization. Bank for instance, generates inputs and outputs such as the daily deposits and withdrawals, overdraft facilities issued and credit facilities allowed etc. where accuracy, completeness and speed is basic to achieve this objective functions.

2.6.2 THE CONCEPT OF DATA SYSTEM

The data system is viewed as a subsystem of accounting information system, which meets users' demand for routine and predictable accounting information.

It is designed to meet the existing and defined needs of internal and external users for timely, accurate and relevant information

regarding on organization's financial activities in a cost effective manner. The components of an accounting information system include people, data, software and hardware. In this environment, the main effort in regard to data structure is to compress data to make most efficient use of the limited storage capacities of the machine of that time.

2.6.3 HARWARE CONFIGURATION

The data processing hardware available to an organization sets a physical limit on the ability of the computer aided accounting information system to meet the information needs of the organization. In most organizations, the accounting application share hardware resources with other functional area. In fact, this is essential if there is to be a high degree of integration among applications, condition usually considered desirable in large organizations. The traditional hardware configuration consists of input devices, a central processing unit [CPU], output devices, auxiliary storage system and some element of communication hardware.

2.6.4 SOFTWARE REQUIREMENT

Software is basically a program. Programs consist of sequence of instructions needed to be performed to accomplish a task. It is the needed software that enables the hardware to be put into effective use. The hardware potential cannot be raised without suitable software. It is the software that converts machinery from a collection of digital electronic switches into an information processor. We will consider three categories of software: The Operating System, General-purpose software and Application programs.

The operating system is a series of complex programs that governs access to the central processing unit, monitors actions within the CPU, and controls the use of all system peripherals.

General-purpose software provides a range of processing and support capabilities likely to be useful to a wide spectrum of programming and user personnel [Warren, Reeve, Fess, 1997].

Application program performs one or several related functions in support of a particular business activity in case of computer aided accounting information software. These are programs necessary to support financial, cost and managerial accounting.

Accounting information software provides the backbone of an organization's accounting information system. Data are collected, stored and processed into information primarily to meet the financial accounting requirements of management and external agencies. Financial accounting software may be procured as a package or designed for a particular organization. It could be implemented as a single entity or in a modular fashion. Automation of the entire financial accounting functions will continue in this modular fashion as it becomes cost-effective to purchase or develop programs for the other ledgers. The desirable characteristics of the major components of financial accounting software include:

- The general ledger programs
- The account payable programs
- The account receivable programs
- The payroll programs

2.7 PRINCIPLES OF ACCOUNTING SYSTEM

The methods and procedures for recording and reporting financial information make up a business accounting system [Warren, 1997]. The accounting system for most businesses, however is more

complex than we have illustrated, and one of the reasons for this complexity is that the accounting system is uniquely designed for a business because of difference in management information needs, the type and number of transactions to be recorded, and the information needs of the external users of financial information, accounting system will also very depending on whether a business uses a manual system or a computerized system. However, the basic principle that we discussed in the following paragraphs are applicable to all types of systems.

i. **COST-BENEFIT BALANCE**

An accounting system must be designed to meet the specific information needs of a business. However, providing information is costly. Thus, a major consideration in designing an accounting system is balancing the benefits against the cost of the information. In general, the benefits should be at least equal to the cost of producing the information [Warren, Reeve, Fess, 1997].

ii. **EFFECTIVE REPORTS**

To be effective, the reports generated by an accounting system must be prepared in a timely, clear and concise manner. When these reports are prepared, the needs and knowledge of the user should be

considered. For example, managers may need a variety of detailed reports for planning and controlling operations on a daily or weekly basis. In contrast, regulatory agencies such as the Securities and Exchange Commission and the Internal Revenue Service often require uniform reports at established intervals, such as quarterly or yearly.

iii. **ABILITY ADAPT TO FUTURE NEEDS**

Warren, Reeve, Fess [1997] asserts that business operates in a changing environment. This environment may include changes beyond the control of a business, such as new government regulations, changes in accounting principles or changes in computer technology. An accounting system must be able to adapt to the changing information needs in such an environment. Accounting system must support all level of management and as individuals or lines of authority and responsibility within a businesses change, the accounting system must also adapt and change.

iv. **ADEQUATE INTERNAL CONTROLS**

Accounting system provides information that management reports to owners, creditors and other interested parties. In addition, the system should aid management in planning and controlling operations. The detailed policies and procedures used to direct

operations towards desired goals, ensure accurate and reliable financial reports and ensure compliance with applicable laws and regulations are called internal control [Warren, Reeve, Fess, 1997].

2.8 ACCOUNTING INFORMATION SYSTEM CONCEPT

In statement of financial accounting concept No.2, the FASB defines accounting as an information system. It stated that the primary objective of accounting is to provide information useful to decision makers. Because individuals make decisions based upon the data in accounting reports, accounting has a major impact upon our economic and social system. For example, the management of Union Bank of Nigeria Ltd may decide to lay off 100 staff in Lagos based upon accounting projections and reports. Likewise, congress and state legislations allocate monies to various programs, based at least partially upon accounting reports.

Rahman [1990] asserts that the accounting information system [AIS] is a relatively open system of personnel, data software and hardware which provides internal and external users timely, accurate, and relevant information regarding on organization's financial activities in a cost effective manner. The goal of the accounting information to

internal and external users. The components of an accounting information system include people, data, software, procedure, hardware and information technology infrastructure.

2.8.1 INFORMATION AND ACCOUNTING FUNCTIONS

Changes in technology have altered the role of accountants. Traditionally, functions of an AIS include recording, storing, processing and related non-financial information [for example, purchase dates and depreciation methods for fixed assets].

Traditionally, accounting has focused on periodic, historical and aggregated data, primarily in the form of financial statements. It had been limited largely to financial transaction. Accounting system was self-contained and standardizes. Accounting information was restricted to stewardship and analysis decisions that used the financial accounting model, emphasis was on objectivity and reliability of information.

TRANSITION OF COMPUTERS: The original use of computer in accounting focused on automating the record-keeping function. Manual books were replaced by computer books the automated systems retained the same functions, orientation towards that

accounting cycle and remained an emphasis on financial statements as in the traditional view computers made accounting functions faster, less expensive and more accurate.

DATABASE ACCOUNTING SYSTEMS: Under a database system, accounting is part of the management information system. The system aims to capture all aspect of economic events relevant to decision makers. The orientation is towards decision making, not just financial statements. The emphasis is on relevance and timeliness.

Transactions and financial statements are part of the system products, not the basis for the system. Flexibility and usefulness are keys to assessing the importance of the system. Systems are not standardized.

Rational database are the primary storage and processing engines [Bodner and Hopwood, 2001]. The conceptual model for an information system views the information system as a link between data sources and information users. It is responsible for converting data [facts] into information useful for decisions. Data become useful information once they are processed into a form that can be used by decision makers.

Data collection is a critical step in which data about events are identified and entered into the information system. Data should be accurate, complete, relevant and timely. The system should attempt to identify data errors before they produce bad information. Irrelevant information should be screened out of the system. The system should be efficient in collecting information so that data are entered on once. Data processing depends on the types of data and their intended use. Processing may involve summarizing and analyzing data. The database provides for the storage and retrieval of data as needed for various information needs. Attributes of relevance about various entities are stored as records. A series of related records make a file. A database includes related files. Reports and information is provided in a form and at a time that meets the needs of users. [www.cba.ua.edu/accweb].

2.8.3 IMPORTANT ATTRIBUTES OF INFORMATION SYSTEM

Information systems should be efficient, meeting the needs of users with as little resources expenditure as practical. They should be effective in meeting the needs of users. They should be flexible in adapting to changes in technology and users need. Information

produced should be relevant, timely, accurate and complete. Various needs should be served, including the traditional stewardship function [reporting on managements use of resources to external parties], management decision needs and day-to-day operation of the organization.

RELATION TO COMPUTER SERVICES: Computer services manages computer resources in an organization, accountants use these resources and audit them. They must understand the computer services function both from a user and auditor perspective. Computer service provides several functions, including database administration, data processing and system development and maintenance. In distributed systems in which users throughout an organization share computer and information resources, they are responsible for networks and communications systems. Data processing involves computer operations, data conversion [entering, storing, summarizing] and library [data storage and archiving] activities. Systems analysis and programmers design and construct information systems, create and update programs, and make sure that system functions as designed.

SYSTEM AUDIT: Information systems are critical to the reliability of information, including accounting information. External and internal

auditors are concerned with whether systems function properly and risks associated with the collection and processing data. Auditors must examine the controls associated with information systems and determine whether controls can be relied on in determining whether information is reliable. These audits involve assessing where errors may occur in systems and whether controls exist to prevent, detect and correct errors. An organization's computer system and information systems functions are a major focus of the audit process [www.cba.ua.edu/acceweb/ringram/acctsyst].

As explained earlier by Rahman [1990] that the Accounting Information System [AIS] is a relatively open system of personnel, he referred to Accountants, Accounting technicians, system analysts programmers, and data entry personnel that make up the [human element] people component of the Accounting Information System.

2.7 THE GROWTH OF COMPUTER IN NIGERIAN BANKS

The growth of computer in Nigeria banks have turned out to be a blessing as the new electronic technology stretching from the computer with its constantly increasing capabilities through vastly more powerful system for the storage access, analysis and

dissemination of information around the world in seconds rather than weeks, has brought about a revolution in the banking industry [Adebowale, O., 1988]. The consequence to which are far from complete, yet for bank customers and employee, it remains true that banks is a bank. The customers may sometimes find it exasperating that the computer, which now seems to manage their resources is to reluctant to see reasons or make exceptions. The employee may regret the erosion of individual discretion and the personal touch.

But the reality of revolution even more profound than the change from the personal service to the self-servers hyper mark in seldom fully appreciated. In developed nations, like United States of America, with technology still advancing by leaps and bounds, there is not reason why a bank customer should ever draw or deposit cash or indeed should use cash at all except for very small purchase [Roy, C., 1997]. Home banking, which is practiced today in most banks, has found it inevitable to integrate computer systems into the banking [Union Bank with Union Value Card, First Bank with First Card, UBA and UBA card].

The computer has also introduced the stress free kind of banking with the universal banking system, the flexible banking system which

necessitated the easy deposit and withdrawal of cash as and when needed at any of the bank branch. Union Bank of Nigeria Plc also has the Vigi money transfer facility and the ATM cash point facility, which are enabled by the computer system.

The growth of computer in Nigeria commercial banks has also been characterized by high level of information technology. Information Technology [IT] was defined as the modern handling of information by electronic means, which involved its access, storage, processing, transportation or transfer and delivery [Ige, 1995]. Research shows that IT affects financial institutions by ensuring, saving time and improving service delivery [Alu, 2002]. Some available Telecommunication and Information technologies which are presently used in the banking industry in Nigeria are telephone, facsimile, wireless radiophone, very small aperture terminal satellite [VASAT], telegraphy and computer systems [Ugwu, 1999]. According to Adu [2002], some banks in Nigeria have LANS, [LOCAL AREA NETWORK] in most of their branches but none of the banks have deployed home banking applications. All these are geared at facilitating transactions through creation of credit in the economy.

The Central Bank of Nigeria promulgation make computer inevitable in Nigeria banks. The CBN requires banks to resort to the HICIR, a magnetic ink character recognition which basically, has to do with the print on the face of the cheque. The cheque leaves are marked words and numbers to help the machine distinguish if from fake. Also, all bank cheques are to have a code number which will be known for that particular bank, unlike previous time when it was just the cheque number and the serial cheques slip number written on it. Apparently, the current banking facilities includes the Electronic Funds Transfer [EFT], which is used to remit money from one bank branch to another and also the Universal Banking System.

2.9 THE EFFECT OF INFORMATION TECHNOLOGY ON THE GROWTH OF THE BANKING INDUSTRY IN NIGERIA

The advent of Information Technology [IT] is rapidly changing the banking industry. A powerful force drives the world towards a converging commonality and that force is Technology [Levitt, 1992]. From the beginning of the human era, technology has been one of the most essential and most important factors for development of mankind [Coombs et al, 1987]. During the last two hundred years, technological

changes have been related to economic growth in the forms of new types of goods and services [Smith, 1776] first wrote about technical changes in the form of new machines as one of the three important causes of increasing more than 200 year ago.

Information Technology, thus, is defined as the modern handling of information by electronic means, which involves the access, storage, processing, transportation or transfer and delivery [Ige, 1995]. Research shows that IT affects financial institutions by easing enquiry, saving time and improving service delivery, and that the IT systems that are being used in some selected banks in Nigeria which include Union Bank of Nigeria Plc, First Bank of Nigeria Plc, Zenith Bank Plc, GT Bank Plc, Access Bank Plc, and United Bank for Africa Plc, consist of Telephone, facsimile, Local Area Network, Computer System, MICR [Magnetic Ink Character Recognition], very small Aperture Terminal [VASAT], Electronic Fund Transfer [EFT] and Wireless radiophone [Alu, 2002]. These systems [IT] have greatly improved services in the Nigerian Banking Industry.

Alu [2002] in his research work on the effect of IT on banking growth states that generally, the effect of the IT has a positive effect on the enquiry of the customer's state of account and services enjoyed by

the customers, that the use of a LAN and computer systems have ensured quick and improved services delivery to customers by the banks, that IT has increased prompt and efficient services to bank customers and encourages customers patronage to banks, that the rate at which cashiers in the banks attend to the customers has improved due to the use of electronic devices like computer, telephone, facsimile, etc that the use of IT increases bank productivity in that with the use of IT, the bank can attend to a lot of customers since IT speeds up cashier's work.

In conclusion, it is revealed that IT has appreciable positive affects on the bank productivity, cashier's work, banking transaction, bank patronage, bank services delivery, customers' service and bank services. These affect the growth of the banking industry in Nigeria positively because customers can now collect money from any branches of their bank. Also, customers do not need to move about with large sums of money and customers are being attended to within a short period of time.

2.11 HINDRANCE TO COMPUTER / IT APPLICATION IN NIGERIAN COMMERCIAL BANKS

It is apparent that like every new development in a country, the introduction of Computer / IT into our banking system has lot of hindrances and problems. The major hindrance to the use of computer / IT in the Nigerian Banking Industry is:

Inadequate Electric Power Supply: Electricity supply is not regular because of the limitation of the machine that supplies electricity to Nigeria. Furthermore, the Nigerian Government is finding it difficult to equip the Power Holding Company of Nigeria [PHCN] while the demand of electricity increases daily. Thus, the situation will continue to worsen until the Nigerian government funds PHCN appropriately or provides other alternatives.

Most of banks therefore, use the computers primarily on alternative source of energy [generating plants] to ensure uninterrupted processing and prevent damage to their computer systems in some cases of breakdown to avoid loss of information. Hence, the introduction of uninterrupted power supply should be initiated and installed by banks to interface between electrical supply from PHCN and the computer with the aim that on power failure, the uninterrupted system keeps the computer running until power generating alternative is activated.

Another major problem of computerization by banks is the fact that electrical parts are subjected to breakdown in spite of the routine maintenance and further aggravated by non-availability of after sale service and warranty. There is also the problem of inadequate expertise of maintenance staff of these service companies. Nigeria also lacks the necessary telecommunication infrastructure and information culture [IT]. The inadequate knowledge and use of data bank initiated reduces the productive use of computers. The result is often to embark on physical transfer of data from one branch to another, since the remote processing facilities of the computer cannot be put into use. This would enable the branches to automatically transmit their data remotely to the computer where it is processed and the result.

Transmitted back to the branch [Shola O, 1992] since the communication system is not available, the option is to embark on the expensive distribution of data processing system.

Despite the fact that many of the new generation banks base their marketing strategy on the possession of supposedly online, real-time systems, they find that their systems' links are down for about fifty percent of the time. In other words, there is no collaboration between

the banks in sourcing this very expensive technology and thereby providing a cost effective technology and thereby providing a cost effective solution to the problem. It would be fair to say that Nigerian banks are generally imbued with an overly competitive mind-set, which tend to foreclose the benefits of synergy or collaboration in solving most of their common problems [Alu, 2002].

2.12 COMPUTERISED BUDGETING SYSTEM AND USE OF COMPUTER IN ANALYSIS

In developing budgets, many firms use computerized budgeting systems especially financial institutions. Such systems can not only speed up the budgeting process, but they also reduce the cost of budget preparation. This is especially true when large quantities of data need to be processed. Computers are particularly useful in continuous budgeting. Reports that compare actual results with amounts budgeted can also be prepared on a timely basis through the use of computerized systems. Managers can mathematically represent the operating and budget relationship on a computer spreadsheet or simulation model. By using computer models, the impact of various operating alternatives on the budget can be assessed [Warren, Reeve, Fess, 1997].

For example, the impact of a proposed change in operational activities can be assessed and the budget revised to reflect the new rates. Likewise, the effects on the budget of a proposal to add a new product line can be quickly determined. A common objective of using computer based budgeting is to link all the budgets of the organization together.

Warren, Reeve, Fess, [1997] states that the use of computer in analysis via the graphic approach as well as mathematical approach to cost-volume-profit analysis are becoming increasingly easy to use, since most managers have access to computer terminals or microcomputers. With the aid of computer software, managers can vary assumptions regarding selling prices, costs and volume and can immediately see the effects of each change on the breakdown point and profit. Such an analysis is called a “What if” or “Sensitivity Analysis”.

2.13 ACCOUNTING SOFTWARE

Accounting system is vital to all types of organization as the main internal source of information. Their importance and the fact that they are made up of a set of formal rules and procedures led to the early development and growth of computer-based accounting systems

usually running on large [mainframe and limit] computers. Nowadays, there are many popular accounting packages available for the small business, which run on a micro computer.

There are accounting packages written for general use and for specific industries. Fig 8.1 shows that components of a basic accounting software package. Essentially, they are electronic equivalents of the standard ledger systems.

Accounting packages were originally written for each ledger—sales, purchases and nominal – separately.

Integrated ledger systems were then developed which combined all these ledgers. These were gradually enhanced by including other modules [such as payroll] as well as extending existing facilities such as the automatic production of sales invoices in the sales ledger module so that there are now available fully fledged computer-based accounting systems. Financial modeling and spreadsheet packages have also been developed to aid planning and budgeting.

As its simplest level, an Integrated Accounting System [IAS] is where a transaction posted to one ledger – say an invoice entered into the purchase ledger – is automatically transferred into another, say the nominal ledger, under computer program control and without any

further entry of data relating to that transaction. The appropriate ledger controls for both ledgers are updated automatically. Integration can involve the automatic updating of several files. e.g. raising a dispatch note and entering details in the computer in the stores area may also;

- Generate the sales invoice
- Update the stock records
- Post and invoice to the sales ledger
- Post to the nominal ledger

Any computer-based book-keeping system which is not integrated should be examined to see whether it is worth the trouble and expense of setting it up. The benefits of computer reliability and accuracy can be lost if errors occur through having to transcribe manually invoice codes and amounts.

2.14 COMPUTERIZED ACCOUNTING SYSTEMS

Accounting systems embody the procedures, techniques and methods put in place to facilitate the processing of Accounting Information in organizations. Accounting information is sine qua run for effective decision making. Accounting information includes:

1. Information on profits or low profits

2. information on assets and liabilities position
3. information on cash flow position
4. information of source and application of funds
5. information on value added by organizations

Accordingly, systems may be either manually generated or computer generated. There are several accounting packages that have been developed to enhance Accounting Information processing.

Among these are:

1. Peach tree Accounting
2. Dac Easy Accounting

A detailed explanation of these accounting packages are given in the following lines.

2.15 PEACH TREE ACCOUNTING

Peach Tree complete version 'General ledger' was developed by Peachtree software organization. With the aid of this package, all that is normally done manually to generate accounting information outlines above [nos 1-2]. The manual process can be diagrammatically represented as shown below.

2.16 INTERNET BANKING

Internet Banking, also known as cyber banking, virtual banking, and online banking includes various banking activities conducted from home, a business or on the road instead of at a physical bank location.

Cyber banking has capabilities ranging from paying bills to securing a loan online. It started with the use of proprietary software and private networks, but was not particularly popular until the emergence of the internet. Cyber banking saves time and money for users. It also saves the cost of paper transactions.

In addition to regular banks that are adding online services, we see the emergence of virtual banks solely dedicated to Internet transaction. The Security First Network Bank [SFNB] in USA was the first such bank offering secure banking transactions on the web [www.sfnb.com]. The home page looks like the lobby of a bank. The bank offers savings and checking accounts, certificates of deposit, money market accounts, joint accounts, check imaging and other services. SFNB allows access from various locations. You can transfer money between accounts, review past statements and credit

transactions, pay bills, check balances in all your accounts and credit card, and calculate the interest to be paid on loans credit cards.

Some banks in Nigeria, like First Atlantic Bank Plc, Union Bank Plc, First Bank of Nigeria Plc and some others have already started implementing Internet Banking.

2.17 ELECTRONIC PAYMENT SYSTEMS: THE ROLE OF BANKS IN ELECTRONIC COMMERCE

For electronic commerce applications to succeed, it is necessary to provide them with all the needed support.

First, the infrastructure must be in place. Electronic commerce transactions must be executable worldwide without any delays or mistakes. Secondly, the electronic payment issues must be addressed. With the exception of bartering, on trade takes place without payment. Payments need to be secure, convenient, fast and inexpensive to process. In electronic commerce, payments between buyers and sellers can take place electronically or can be done off-line. Secure electronic payment is a critical success factor for electronic commerce.

By 1998, there were only a few place where electronic payments were made because of the following reasons:

- i. Lack of security: securing payments are complicated and expensive. There is no single established standard for providing security for transactions on the Internet. Multiple competing standards create confusion for customers and merchants.
- ii. Handling micro payments: many electronic commerce transactions are valued at only a few Dollars or Cents. The cost of processing such micro payments needs to be very low, you would not want to pay \$5.00 to process a purchase valued at only a few Dollars, and many payments are even less than \$1.00.
- iii. Inconvenience: the buyer must find the transaction convenient. Buyers like to select a payment method, such as issuing credit that gives them free use of money for up to 60 days. However, credit card processing is too costly for micro payments.
- iv. Incompatibility: there must be compatibility between the buyer and seller with respect to the methods and standard of payment. If you like to pay with electronic cash, for example, the vendor must be able to accept it.

For these reasons, many electronic commerce transactions include non-electronic or semi-electronic payments. For example, when you place an order electronically, you give your credit card number over the telephone, or mail a cheque. However, paying with such traditional, non-electronic methods have several limitations.

2.17.1 LIMITATIONS OF TRADITIONAL PAYMENT INSTRUMENTS

Using non-electronic payment methods such as writing a cheque, sending a money order, or payment by giving credit card number has the following limitations in electronic commerce.

1. There must be a delay in the payment process to allow verification and authorization of the instrument used [credit card, cheque, etc] and the amount of money.
2. there is a risk that the money will be stole or lost
3. The cost of processing is too high for micro-payments
4. It is less convenient for the buyer to use the telephone or mail to arrange or send payments than to finish the transaction on the computer

5. When paying by cash, the buyer must meet the seller or risk sending the cash in the mail.
6. Providing credit number on the Internet or over the telephone entails a security risk.
7. Not everyone accepts credit cards or cheques
8. Some buyers do not have credit cards or checking accounts.

For these reasons, it is logical to use electronic payments in electronic commerce. The following instruments are considered.

- Electronic cash
- Electronic credit cards
- Electronic cheques
- Smart cards
- Electronic funds transfer system, and
- Electronic banking

2.17.2 ELECTRONIC CASH [e-cash]

Despite the use of cheques, credit cards, and other methods of payments, cash is still the most prevalent consumers' payment instrument. Merchants prefer cash since they do not have commissions to credit card companies and they can put the money to

use as soon as it is received. Also some people pay with cash because they do not have cheque or credit cards or they want to preserve their anonymity. It is logical, therefore, that sellers, and buyer may prefer electronic cash [e-cash].

Electronic cash appears in several forms and is processed as follows:

1. Customers open an account with a bank and either buy or receive free special software for their PCs.
2. The customers buy electronic money by using the software. The regular bank accounts are debited accordingly.
3. The bank send an electronic money note to this customer, endorsing it with digital signature [made with the bank's private key]. The customers then inquire whether the money is available by using the bank's public key.
4. The money is stored on the buyer's PC and can then be spent in any store that accepts e-cash.
5. The software is used to transfer the cash to the seller's computer. The seller uses the bank's and customers' public keys to verify that the money belongs to the specific buyer and is indeed at hand.

6. The seller can deposit the e-cash in the bank, crediting his or her regular or electronic account, or use the e-cash to make a purchase.

By 1998, the major vendors implementing such an e-cash payment system were DigiCash, Inc, CyberCash, and First Virtual Holdings. To ensure that purchasers do not overpay and that the money is real, e-cash requires considerable verification, making it uneconomical for micro-payments. An alternative for such cases is a smart card with money on it.

2.17.3 ELECTRONIC CREDIT CARDS

Electronic credit card can be used in any of the following ways:

1. Payments using unencrypted credit card. In this method, the buyer sends his or her credit card number to the sellers on the internet. The risk here is that hackers can read the credit card number. Sender authentication is also difficult. However, the method is simple and inexpensive.

2. Encrypted payments: using public key encryption, credit card details can be encrypted for better security. This is how it is done using CyberCash [www.cybercash.com] software.

The CyberCash Secured Internet credit card payment system can be summarized in the following steps.

1. After the consumers enters the payment and shipping information at the merchant's web site, the merchant reviews the purchase request and returns a summary of the order. The summary includes credit number description of item, price, shipping address, and order number.
2. The customer verifies the information and then clicks on the "pay" button to send the information back to the merchant.
3. The merchant receives the information [but cannot see the credit card number], retrieves the order information, and forwards the encrypted payment information digitally signed to CyberCash's server.
4. The CyberCash server received the information, moves the transaction behind it's firewall and off the Internet, decodes the information, reformat the transaction, and forwards it to the merchant's bank over dedicated lines.

5. The merchant's bank forwards the authorization to the issuing bank and the approval or denial is sent back to CyberCash.
5. CyberCash returns the approval or denial response to the merchant. The merchant, in turn, passes the information to the consumer.

2.17.4 ELECTRONIC CHEQUES [E-CHEQUES]

Electronic cheques [e-cheques] are similar to regular cheques. They are secured by public-key cryptography and are even suitable for some micro-payments. Here is how they work:

1. The customer establishes a checking account with a bank or other financial institution.
2. The customer contacts a seller, buys a product or service, and e-mails an encrypted electronic cheque.
3. The merchant deposits the cheque in his or her account; money is debited in the buyer's account and credited to the seller's account.

Like regular cheques, e-cheques carry an encrypted signature that can be verified. The payer can attach additional information to the cheque. Properly signed and endorsed e-cheques are exchanged between financial institutions through electronic clearing houses. An

e-cheque can also be used as a payment instrument in EDI applications.

ELECTRONIC PAYMENT CARDS

Electronic payment cards have been in use for several decades. The best known is credit which use magnetic strips that contain limited information, such as the cards' number. Some of the cards store a fixed amount of prepared money; each time you use the card, the amount is reduced. A more enhanced card, also referred to as smart card, is a card that contains a microprocessor. This type of card can store considerable amount of information. It also allows money to be stored in quantities that can be decreased as well as increased. The cards contain diversified information about the cardholder and can be used for several purposes.

2.17.6. SMARTCARDS IN FINANCIAL SERVICES

There is a need for an alternative to cash, which would enjoy the same degree of acceptability across a broad spectrum of units with the economy. Such an alternative must be secure, convenient, operationally efficient, cost effective and valuable. There is a global

trend towards process automation and electronic information is now readily available on a variety of resources from a piece of chip, to the massive internet. The “smartcard” is a plastic card fabricated to house a processor and a memory. Thus it is capable of storing and processing information. The commonest financial service product implemented on the smartcard today is known as “Electronic purse” or e-purse. The e-purse allows a customer to enjoy services at merchant outlets without risk and inconveniences associated with physical cash.

Smartcard, which were pioneered in the mid-1970s in France, are designed to be carried like credit cards but like tiny transaction computers. The smartcard has a computer chip that provides processing power and an electronic memory that does not lose its data when the power is turned off. To use it, the cardholder insets the card into a special card-reading point-of-sale terminal and then enters a password on the keyboard. The cards have microchips that can keep permanent records, which are updated each time the card is used. The transaction data stored on the card can later be read time the card is used. The transaction data stored on the card can later be read into the computer for the user’s bank –perhaps via in ATAM-to update the user’s bank records. In France and Britain, smart cards are

used to pay bills [while keeping current bank balances on file on the card], but postal money orders, get exam results from the university, store emergency medical information, and perform other common activities. Electronic card readers have been installed in stores, restaurants, post offices, phone booths, banks and so on.

Some manufacturers are already talking about a super smart card' that will incorporate a keypad and a display unit along with the memory and processing capabilities. Other manufacturers are developing smartcards to use as "key" that users must employ to gain access to certain types of computer systems.

2.17.7 SMARTCARD AND SECURITY

Frauds are better organized through electronic means than using manual methods. For instance, a smart computer operator can log in to a system and start juggling figures to inflate and account for the purpose of transferring such funds to another account. It is only the Smart Computer Operators and his collaborators, mostly insiders who knows what is at stake.

Conscious of this, many users of SmartCard have adopted what is commonly called encryption methods to safeguard the cards from

either being used for illegal transactions of unauthorized access to stored data.

Each user will be given Personal Identification Number [PIN] of security number. With these security number known to each clients and the officials, of the servicing industry [e.g. Bank, hospitals, hotels], it has been possible to checkmate electronic fraud to a very large extent.

The cryptographic security systems of the Smartcard use some software components like Ams, GBT, POS because it has relationship with them. Technically, the algorithm system of the card will be used in priming it to codify its basic information like the holders name, account number, its own number generated by the system when it is being primed and the Personal Identification Number [PEN] of the holder.

Amount its unique security features is the Personal Identification Number [PIN] of the holder which is the coded number known only to its holder that guarantees enough security for holder's fund or information even if it is lost or tempered with by miscreants.

It is tamper resistant. If stolen, the card cannot be manipulated by the even if he gets to any of the transaction terminals. The system

will either lock up the card or destroy it if it is inserted by the wrong person. When a lock up or destruction occurs, the card can be unlocked only at the issuing place [bank] and when it is destroyed, it can be reissued at the issuing place [bank] too.

Also, there is the scanning of the holders photograph in the card which is another security device that can forestall any illegal transactions.

2.17.8 SMARTCARD ADVANTAGE OF NIGERIAN ECONOMY

Quite apart from the peripheral advantage mentioned so far, the followings are the other beauties of the system:

- [i] In this crime-invested environment, cash is not necessarily being handled thereby reducing to a minimal level the type of customers staff related fraud.
- [ii] The Smartcard Technology is expected to provide the vital links between the physical world and electric commerce including virtual industries.
- [iii] Smartcard Technology if implemented on a stand alone approach would enjoy the benefits of by-passing our weak power and

telecommunication, infrastructure and allow many terminals to be set up quickly without worrying about telecommunication linkages.

[c] It is good for high security-based applications because it uses tamper-proof electronic device that allows the Smartcard memory to be zoned into different security levels. The higher the security levels, the more restrictive the access method.

2.17.9 BENEFITS OF ELECTRONIC COMMERCE TO ORGANIZATIONS

Electronic commerce and internet banking expands the market place to national and international markets. With minimal capital outlay, a company can easily and quickly locate more customers, the best suppliers, and the most suitable business partners' world wide.

Electronic commerce decreases the cost of creating processing, distributing, storing and retrieving paper-based information. For example, by introducing an electronic procurement system, companies can cut the purchasing administrative costs by as much as 80 percent. Another example is benefit payment.

- ❖ Internet Banking supports BPR efforts. When processes are changes, productivity of salespeople, knowledge workers, and administrators can increase by 100 percent or more.
- ❖ Internet Banking lowers telecommunications cost, the Internet is much cheaper than value-added networks [VANs].
- ❖ Internal Banking helps small businesses to compete against large companies. In February 1998, Egghead software closed all its stores because of its inability to compete with large software distributors, such as CompUSA, and moved completely to the Web.
- ❖ Internet Banking enables organization to reach customers outside their immediate area at a minimum cost.
- ❖ Internet Banking facilitates global trade, allowing companies to penetrate foreign markets.

2.17.10 BENEFITS TO CONSUMERS

- Internet banking provides customers with more choices, they can select from many vendors and from more products.
- Internet banking frequently provides customers with less expensive products and services by allowing them to bank/shop in many places and conduct quick comparisons

- Internet banking enables customers to bank/shop or do other transactions 24 hours a day, years round, from almost any location.
- Customers can receive relevant and detailed information in seconds, rather than in days or weeks.

2.17.11 BENEFITS TO SOCIETY

- Lack of system security, reliability, standards and communication protocols.
- Insufficient telecommunication bandwidth
- Difficulties in integrating the Internet and electronic commerce software with some existing applications and database.
- The need for special Web servers in addition to network server [addition cost]. Possible problems of inter operability, meaning that some operating system or other components.
- Accessibility to the Internet is still expensive and/or inconvenient for many potential customers.

As time passes, these limitations will lessen or be overcome, appropriate planning can minimize their impact [see Genesis 199].

2.18 THE ROLE OF ACCOUNTANTS IN OUR BANKING INDUSTRY'S DECISION MAKING PROCESS

James, Stice, Albrecht, Fred, Swan [1999] describes the purpose and role of accounting in business and society as a service activity designed to assist individuals and organizations in deciding how to allocate scarce resources and reach their financial objectives. It is used to accumulate, measure and communicate economic data about organization and to assist in the decision making process. Management accountants play a key role within many organizations. The nature of their work continues to expand as computer technology grows in importance in the gathering and use of information by decision makers. Given their critical role as information stewards in the organization, the management accountants function in the organization is to support competitive decision making by collecting, processing and communication information that helps management plan, control and evaluate business processes and company strategy.

2.18.1 ROLE OF ACCOUNTANTS

The accountant manages and supervises accounting systems in organizations. They are responsible for the conceptual design of accounting systems. They serve as information analyst and consultant. They work as systems operational and financial auditors. Accountants have a direct responsibility for the design, operation, control and audit of accounting information system. Accountants are primarily responsible for the AIS, which should function independently of other functions, particularly those that have custody of physical resources. The most important activities performed by Accountant include: accounting systems and financial reporting, long-term strategic planning, managing the accounting and finance functions, internal consulting, short term budgeting, financial and economic analysis, process improvement, computer system and operations, performance evaluation, customer and product profitability analysis as sourced from the web [www.cba.ua.edu/accweb/ringram].

2.18.2 CHALLENGES FOR ACCOUNTING

Challenges associated with the change in technology and focus includes maintaining traditional functions in light of changing technology. Aspects of systems that make them flexible and useable

make them harder to control and audit, information reliability and integrity are major problems. Accountants must work as part of a large system, not separate from it. Technical competence extends beyond traditional accounting expertise to understanding to information systems and information technology. Accountants work with a diversity of systems that change frequently. [www.cba.ua/accwab/ringram].

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CHAPTER THREE

RESEARCH METHODOLOGY

The purpose of this research work is to expose the impact of computer in processing accounting information in Nigeria commercial banks, thus this chapter deals purely on how the researcher carried out the research work and the instruments used.

3.1. RESEARCH DESIGN

Research Design is concerned with the fundamental question of how the subject matter of the study will be brought into scope of when and how they will be applied within the limits of the researcher. Research according to Osuala, [1987] is simply the process of aiming at dependable solution to problems through the planned and systematic collection, analysis and interpretation of data. Design on its own is used in statistical sense to refer to the property of statistical analysis necessary to prepare data for interpretation [Ikeagwu, 1998].

This research work is designed to interpret and report on the impact of computerization of accounting information processes in commercial banks with the view to stress the significance and effect of

the computer in bank operations. The work is based on recent findings in the survey conducted and those of historical research from several documents.

3.2 AREA OF STUDY

The area of study was Union Bank of Nigeria Plc 131 Broad Street and Lagos branch. A study was also carried out at the Enugu branch at 3 Garden Avenue. This was in the bid to acquire regional view of respondents as to the issue of computerization of the bank.

3.3 POPULATION

Population could be defined in terms of elements, sampling units, extent and time. For this research work, the target population for the investigation was carried on mostly staffs of Union Bank of Nigeria Plc, who are in one way or the other directly connected with the use of computers in two major branches used for the study at 3 Garden Avenue, Enugu and 131 Broad Street Lagos. They are 60 in number.

3.4 SAMPLING METHOD

A non-probability sampling method was used. A non-probability sample is one in which chance selection procedures are not used and the probability of selection is not known. In this type of sampling, there is no way of estimating the probability that each element has the same probability of being included in the sample and no assurance that every element has the same chance of being included [Ikeagwu, 1998].

Thus, the researcher used non-probability method on the grounds of convenience and economy geared towards obtaining ideas, good insights and critical appraisals of the study. Under this non-probability sample, purposive sampling where the researcher uses his own judgement about which respondents to choose, and picks only those who best meet the purpose of the study was adopted. The sampling unit is the basic unit containing the elements of the population to be sampled which are the staffs of Union Bank Plc. The sample size of 60 staff was considered and adopted for the study.

3.5 SOURCE OF DATA

The major source of data for this research is grouped into primary and secondary sources of data collection. Both sources are extensively used for the purpose of drawing empirical conclusion or analysis of the study so as to come up with fairly objective findings.

3.5.1 PRIMARY SOURCE OF DATA

The primary source of data for this research was obtained through the distribution of questionnaire that was designed for the staff of Union Bank of Nigeria Plc. In addition to this, oral interviews were conducted mainly to supplement the information derived from the questionnaire, the aim was to reduce the rigidity associated with the designed questionnaire and also to give the respondent the opportunity of supplying those information that may not be given in the structured questionnaire.

3.5.2 SECONDARY SOURCE OF DATA

A good percentage of the information required for this empirical investigation was obtained from textbooks, research reports, journals and review of previous research work. This sources of data was used to give this research work both theoretical and practical backing.

3.6 METHOD OF GATHERING DATA

The following research methods were used to gather data for the study: [1] Desk research method.

[2] Survey method

1. Desk research method involved researching into the secondary source of data in order to extract relevant and reliable data for the study.
2. Survey method involves conducting interview with bank staff, administering of questionnaires to the staff and personally observing computerized transactions. Some of the bank staff the researcher conducted interview on includes:
 - a. Senior manager [Domestic operation]
 - b. Manager [Banking operation]
 - c. Manager [Data processing]
 - d. Manager [Credit and Marketing]

3.7 QUESTIONNAIRE DESIGN

in designing the questionnaire, conscious efforts were made to structure the questions into dichotomized multiple choice questions which gives the respondent the opportunity of answering “Yes” or “No” or “Do not Know” or choosing from a range of answers. Spaces were left in the form for and open-ended question for respondents to express views about the computer and its application to banking which they might not have been able to express in the close-ended questions.

The emphasis on the analysis was placed on the question which have direct bearing or relevance on the formulated objectives of the study. This was so, in order to achieve the objectives of this research. Consequently, the questionnaires that serve as a follow up to this was in the same regard and serves to know the views of the respondents chosen. All those were in a bid to know the impact of the computer in the processing of accounting information in the banks.

3.8 TOOLS FOR STATISTICAL ANALYSIS

In the analysis of this research data collected would be classified, tabulated and later analyzed. The data collected will be

represented by percentages and a particular percentage represents the number of respondents who opted for a particular view.

For the purpose of hypothesis testing, the researcher would make use of the chi-square test. This is a non-parametric inferential statistical method used in the analysis of frequency or nominal data [Ikeagwu,1998]. The researcher would make use of tables and pictorial representations. The formula for chi-square [X^2] distribution is:

$$X_0^2 = \frac{\sum [o_i - e_i]^2}{e_i}$$

Where o_i = observed frequency
 e_i = expected frequency
 X^2 = calculated chi – square value
 Σ = sum

DECISION CRITERIA

The null hypothesis [h_0] will be accepted if the computer value falls within the critical value of χ^2 distribution table for whichever degree of freedom that will be computer with 5% [0.05] level of

significance. Otherwise reject the null hypothesis and accept the alternative hypothesis $[H_1]$.

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CHAPTER FOUR

DATA PRESENTATION AND ANALYSIS

This chapter deals with the presentation and analysis of data collected from the respondents by way of questionnaire administered by the researcher. The analysis would be carried out in a manner as to allow comparison and to enhance recommendations. Based on the result from the test, useful conclusion will be drawn.

From the presented data below, it is deduced that thirty-five [35] respondents representing 58% of the 60 respondents that filled and returned the questionnaire were male, while the remaining 25 [twenty-five] were females. 97% [ninety-seven] of the total respondents were staff while the remaining 3% were non-staff of the bank.

According to the statistic of the questionnaire gathered, about 26 [twenty-six] of the respondents representing 44% were single as in marital status and 32 of the total representing 53% were among the married group, 3% represented the widowed group, 33 respondent representing 55% of the total respondent had a working experience of between six and twelve years, 16 of the total respondent representing 27% has a working experience of between 3 and 6 years. 8 [eight] of

the total respondents representing 13% has a working experience of 12 years and above and the remaining 5% of the total respondents has the working experience of between one [1] and three [3] years.

The educational qualification of the 60 [sixty] respondents ranged from school certificate holders to professional education qualifications. School certificate holders with a percentage of 25, Diploma holders has 34% out of the 60 respondents, Degree holders were 17 representing 28%, Professional exam holder were 6 representing 10%, while others were 3% out of the total 60 respondents. However, emphasis on the analysis will be placed on those questions that have direct bearing or relevance on the formulated hypothesis and objective of study.

ANALYSIS OF RESPONDENTS ACCORDING TO BIOSTATISTICAL INFORMATION

TABLE 4.1 RESPONDENTS REPONSES TO BIOSTATISTICAL QUESTION 1-5

Sex	No	%	Positions held	No	%	Marital Status	No	%	Years of exper.	No	%	Level of Edu.
Male	35	58	Staff	58	97		26	4	1-3	3	5	Sch Cert
Female	25	42	Non staff	2	3		32	53	3-6	27	27	Dip.

	-	-		-	-		0	0	6-12	55	55	Degree
	-	-		-	-		2	3	12 & above	13	13	Prof. Qual.
	-	-		-	-		-	-		-	-	Others
	60	100		60	100		60	100		100	100	

Source: Raw data from questionnaire [SECTION A]

TABLE 4.2 PRESENTATION OF DATA FROM RESEARCH QUESTIONS

QUESTION 6: HOW COMPUTERISED IS THE SERVICE OF THE BANK?

TABLE 4.2 RESPONSE ON HOW COMPUTERISED THE BANK SERVICE ARE.

Response	Number	%
Fully computerized	34	56.67
Partially computerized	24	40
Not computerized	-	-
Do not know	2	3.33
total	60	100%

From the table 4.2 above, it could be deducted that out of the 60 respondent, 34 of them representing about 56.67% agree that the

bank is fully computerized, 24 representing 40% asserts that the bank is partially computerized, while 2 respondents representing 3.33% do not know whether the bank is computerized or not, no respondent believed that the bank is not computerized.

From these, it could be deduced that the bank used for this research work is at least computerized to a certain level and that the level of computerization within the bank is high as most of the respondent are knowledgeable of computerized banking service in the bank compared to the number that are not aware.

QUESTION 7: HAS THE COMPUTERIZATION OF THE BANK AFFECTED THE SERVICES RENDERED BY THE BANK?

TABLE 4.3 RESPONSES TO IF COMPUTERIZED OF THE BANK HAS AFFECTED THE SERVICES RENDERED BY THE BANK.

Responses	Number	%
Yes	45	75
No	6	10
Do not know	9	15
Total	60	100

From the above table, it is clearly indicated that 75% of the total respondents asserts that the computerization of the banking service

has an impact to the services being rendered by the banks to their customers. Then 10% of the respondents asserts that computerization of the banking services has not improved, the bank services while 15% of the respondents do not know whether computerization has impact on the services being rendered by the bank.

The explicit interpretation of this is that computerization of banking services has greatly affected the services rendered by the bank to a very high degree.

QUESTION 8: HAS THE COMPUTERIZATION OF ACCOUNTING INFORMATION PROCESSED AFFECTED THE EFFICIENCY OF THE BANK SERVICES POSITIVELY?

TABLE 4.4 RESPONSES TO WHETHER COMPUTERIZATION OF ACCOUNTING INFORMATION PROCESSED HAS AFFECTED THE EFFICIENCY OF THE BANK SERVICES POSITIVELY.

Responses	Number	%
Yes	45	76.67
No	8	13.33
Do not know	6	10
Total	60	100

From the above table, we can deduce that 46 [forty-six] respondent representing 76.67% agree that computerization in bank

has reduced time wastage leading to more efficiency services in the bank, while 8 respondents representing 13.33% believe that computerization has not reduced time wastage for customers in the bank and 6 respondents do not know whether computerization actually reduced time wasted in processing accounting information. Hence, it could be interpreted that computerization of accounting information processes has affected the efficiency of the bank service by means of faster processing and time reduction or wastage.

QUESTION 9: HAS COMPUTERISATION OF THE BANK REDUCED TIME WASTED IN CARRYING OUT BANKING TRANSACTIONS?

TABLE 4.5. RESPONSE TO IF COMPUTERIZATION HAS REDUCED TIME WASTED IN CARRYING ON BANKING TRANSACTIONS.

Responses	Number	%
Yes	43	71.67
No	8	13.33
Do not know	9	15
Total	60	100

From table 4.5. above, 43 [forty-three] of the total respondent affirms that computerization of the bank has reduced time wasted in carrying banking transaction, 8 of the respondents asserts that computerization has not reduced time wasted and 9 of the respondents representing 15% of the total respondents do not know if computerization of the bank has actually reduced the time wasted in carrying out banking transactions.

QUESTION 10: HAS THERE BEEN AN INCREASE IN THE BANKS' DEPOSIT SINCE IT WAS COMPUTERISED?

TABLE 4.6. RESPONDES TO WHETHER THERE HAS BEEN AN INCREASE IN THE BANKS DEPOSIT SINCE IT WAS COMPUTERIZED.

Responses	Number	%
Yes	48	80
No	6	10
Do not know	6	10
Total	60	100

The table above shows that 80% of the total respondents agree that there has been an increase in the banks deposit since it was computerized, 10% of the respondents do not know whether there has been an increase in the banks deposit since it was computerized and

10% of the respondent representing 6 out of the total respondents asset that there has not been an increase in the bank deposit since it was computerized.

QUESTION 11: WOULD THE INCREASE IN TEHBANK DEPOSIT IS ATTRIBUTED TO THE INTRODUCTION OF COMPUTER

TABLE 4.7. RESPONSE TO WHERETHER THE INICREASE IN THE BANK DEPOSIT IS ATTRIBUTED TO THE INTRODUCTION OF COMPUTER.

Responses	Number	%
Yes	44	73.33
No	6	10
Do not know	10	16.67
Total	60	100

From the table 4.7 above we could deduce that 73.33% of the respondents attribute the increase in the bank deposit to the introduction of computers. 10% of the respondents assets that the computerization has no contribution to the increase in the banks deposit while 16.67% of the total 60 respondents representing 10 respondent do not actually know whether to attribute this increase in the banks deposit to the introduction of computers.

QUESTION 14: HAS COMUTERIZATION LED TO MORE EFFICIENT INFORMATION STORAGE IN THE BANKS?

TABLE 4.8. RESPONSE TO WHETHER COMUTERIZATION HAS LED TO MORE EFFICIENT INFORMATION STORAGE IN THE BANK.

Responses	Number	%
Yes	45	75
No	9	15
Do not know	6	10
Total	60	100

From table 4.8 above, it can be deduced that 45 respondents out of the 60 representing 75% of the total respondent agree that computerization of banking has led to more efficient storage of information in the bank while 15% of the total respondent assets that computerization has not led to efficient storage of information. 6 respondent don't know whether computerization of the banking facilities has led to more efficient storage of information in the bank.

QUESTION 15: HAS COMPUTERIZATION MADE INFORMATION STORAGE MORE EFFICIENT IN TERMS OF RETRIEVAL AND USAGE IN THE BANK?

TABLE 4.9 RESPONSES TO WHETHER COMPUTERIZATION HAS REDUCED TO QUICK RETRIEVAL AND USAGE OF INFORMATION IN THE BANK?

Responses	Number	%
Yes	41	68.33
No	9	15
Do not know	10	16.6
Total	60	100

Table 4.9 above shows that 41 respondents representing 68.33% of the 60 respondents agree the computerization has resulted to quick retrieval and usage of information in the bank. 9 of the respondent representing 15% assert that computerization has not resulted to quick retrieval and usage of information and 10 of the respondent representing 16.67% of the total respondents do not know if computerization has made easier through quick retrieval and usage of information.

4.3. HYPOTHESIS TESTING

In this section, the hypothesis associated with the study will be tested. The data presented earlier and analyzed in the beginning of the chapter would be subjected to hypothesis test. It is important to find out whether the difference in opinion is significant enough to draw a conclusion.

4.3.1. TEST OF HYPOTHESIS 1

Data presented in table 4.5 would be grouped into the two branches used for the testing. The chi-square [X^2] distribution would be used to test for significance and the null hypothesis [H_0] would be accepted or rejected based on the finding of the test.

STATEMENT OF HYPOTHESIS 1

H_0 : The computerization of the Union Bank of Nigeria Plc has not reduced time wasted in carrying on banking transaction.

H_1 : The computerization of the Union Bank of Nigeria Plc has reduced time wasted in carrying on banking transaction.

TABLE 4.5 RESPONSES TO WHETHER COMUTERIZATION HAS REDUCED TIEM WASTED IN CARRYING OUT BANKING TRANSACTION

Option	Group A	Group B	Total
Yes	[21.5] 18	[21.5] 25	43
No	[4] 3	[4] 3	8
Do not know	[4.5] 9	[4.5] 0	9
Total	30	30	60

Group A and B represent the two branches of Union Bank of Nigeria Plc. That the researcher administered his questionnaire as against the responses obtained.

However, in the figures above, those that are not in brackets are observed figures obtained from the questionnaire while those in the brackets are the expected figures, which has computer using the formula:

$$\text{Expected frequency} = \frac{\text{Row total} \times \text{Column total}}{\text{Grande total}}$$

$$\frac{43 \times 30}{60} = [21.5] \text{ for the Yes option}$$

$$\frac{8 \times 30}{60} = [4] \text{ for the No option}$$

$$\frac{9 \times 30}{60} = [4.5] \text{ for the Do not know option}$$

$$\text{The degree of freedom [df]} = [\text{Row} - 1] [\text{Column} - 1]$$

$$[3-1][2-1]$$

$$\text{Therefore, df } [2] \times [1] = 2$$

$$\text{Level of significance is 5\%} = 0.05$$

$$\text{The test statistic used } X_o^2 = \frac{\sum [oi-ei]^2}{ei}$$

$$\text{Table value of 5\% level of significance at 2 d.f} = X_o^2 = 5.991$$

Decision Rule: if $\frac{\sum [oi-ei]^2}{ei} > 5.991$, reject H_o , otherwise accept H_o .

CHI-SQUARE CALCULATION TABLE

	Options	Oi	Ei	Oi-ei	$[oi-ei]^2$	$\frac{[oi-ei]^2}{ei}$
Group A	Yes	18	21.5	-3.5	12.25	0.57
	No	3	4	-1	1	0.25
	Don't know	9	4.5	4.5	20.25	4.5
Group B	Yes	25	21.5	3.5	12.25	0.57
	No	5	4	1	1	0.25
	Don't know	0	4.5	-4.5	20.25	4.5
	Total	60				10.64

$$\text{Where } X_o^2 = 10.64 \text{ and } X_o^2 = 5.991$$

Since $10.64 > 5.991$, we reject the null hypothesis and accept the alternative that asserts that computerization has reduced time wastage in the Union Bank of Nigeria Plc.

4.3.2 TESTING OF HYPOTHESIS II

Data presented in table 4.6. is relevant to this hypothesis. So, it would be used to test for significance in the increase in the bank deposit since it was computerized.

STATEMENT OF HYPOTHESIS II

Ho: Computerization has increased the number on depositors at the bank.

TABLE 4.6. RESPONSE TO WHETHER THERE HAS BEEN AN INCREASE IN THE BANKS DEPOSIT SINCE IT WAS COMPUTERISED?

Option	Group A	Group B	Total
Yes	23 [24]	25 [24]	48
No	6 [3]	0 [3]	6
Do not know	1 [3]	5 [3]	6
Total	30	30	60

$$\text{Expected frequency} = \frac{\text{Row total} \times \text{Column total}}{\text{Grande total}}$$

$$\frac{48 \times 30}{60} = [24] \text{ for the Yes option}$$

$$\frac{6 \times 30}{60} = [3] \text{ for the No option}$$

$$\frac{6 \times 30}{60} = [3] \text{ for the Do not know option}$$

$$\begin{aligned} \text{The degree of freedom [df]} &= [\text{Row} - 1] [\text{Column} - 1] \\ &= [3-1][2-1] \end{aligned}$$

$$\text{Therefore, df } [2] \times [1] = 2$$

$$\text{Level of significance is 5\%} = 0.05$$

$$\text{The test statistic used } X_o^2 = \sum_{ei} \frac{[oi-ei]^2}{ei}$$

$$\text{Table value of 5\% level of significance at 2 d.f} = X_o^2 = 5.991$$

Decision Rule: if $\sum_{ei} \frac{[oi-ei]^2}{ei} > 5.991$, reject H_o , otherwise accept H_o .

CHI-SQUARE CALCULATION TABLE

	Options	O _i	E _i	O _i -e _i	[o _i -e _i] ²	$\frac{[o_i - e_i]^2}{e_i}$
Group A	Yes	23	24	-1	1	0.4167
	No	6	3	3	9	3.0
	Don't know	1	3	-2	4	1.3333
Group B	Yes	25	24	1	1	0.4167
	No	5	3	-3	9	3.0
	Don't know	0	3	2	4	1.3333
	Total	60				9.5

Where $X_o^2 = 9.5$ and $X_o^2 = 5.991$

Since $9.5 > 5.991$, which translates that the calculated chi-square value which is 9.5 is greater than the table value 5.991, we reject the null hypothesis [Ho] and accept the alternative hypothesis [Hi] that assets that computerization has led to increased in the number of depositor in the bank.

4.3.2. TESTING OF HYPOTHESIS III

STATEMENT OF HYPOTHESIS

Ho: Computerization of Accounting Information has not improved efficiency in operation and accuracy of performance in the bank.

Hi: Computerization of Accounting Information has improved efficiency in operation and accuracy of performance in the bank.

Data provided in table 4.4. as gathered from the questionnaire would be used to test the above hypothesis, as the question postured is relevant to the hypothesis.

TABLE 4.4. RESPONSES TO WHETHER COMPUETERIZATION OF ACCOUATNIGN INFORMATIN PROCESSES HAS AFFECTED THE EFFICENCY OF THE BANK SERVICES POSITIVELY.

Options	Group A	Group B	Total
Yes	17 [23]	29 [23]	46
No	7 [4]	1 [4]	8
Don't know	6 [3]	0 [3]	6
Total	30	30	60

The figures not in the brackets are the observed figures obtained from the questionnaire while those in the brackets are the expected figures which are computed thus:

$$\text{Expected frequency} = \frac{\text{Row total} \times \text{Column total}}{\text{Grande total}}$$

$$\frac{46 \times 30}{60} = [23] \text{ for the Yes option}$$

$$\frac{8 \times 30}{60} = [4] \text{ for the No option}$$

$$\frac{6 \times 30}{60} = [3] \text{ for the Do not know option}$$

$$\text{The degree of freedom [df]} = [\text{Row} - 1] [\text{Column} - 1]$$

$$[3-1][2-1]$$

Therefore, $df [2] \times [1] = 2$

Level of significance is 5% = 0.05

The test statistic used $X_o^2 = \sum_{ei} \frac{[oi-ei]^2}{ei}$

Table value of 5% level of significance at 2 d.f = $X_o^2 = 5.991$

Decision Rule: if $\sum_{ei} \frac{[oi-ei]^2}{ei} > 5.991$, reject H_o , otherwise accept H_o .

CHI-SQUARE CALCULATION TABLE

	Options	Oi	Ei	Oi-ei	$[oi-ei]^2$	$\frac{[oi-ei]^2}{ei}$
Group A	Yes	17	23	-6	36	1.56
	No	7	4	3	9	2.25
	Don't know	6	3	3	9	3
Group B	Yes	29	23	6	36	1.56
	No	1	4	-3	9	2.25
	Don't know	0	3	-3	9	3
	Total	60				13.62

Where $X_o^2 = 9.5$ and $X_o^2 = 5.991$

As the calculated chi-square value which is 13.62 is greater than the table value 5.991. we could reject the null hypothesis [H_o] and accept the alternative hypothesis [H_i]. Thus from this we can conclude

that computerization of accounting information has improved efficiency operation and accuracy of performance of the bank.

4.3.3. TESTING OF HYPOTHESIS IV

STATEMENT OF HYPOTHESIS

Ho: Computerization has not contributed to better information storage in the bank

Ho: Computerization has contributed to better information storage in the bank

The data presented in table 4.8 would be used to test the above hypothesis, as the responses is relevant to the hypothesis and would be a tol to affirm or reject the assertion.

TABLE 4.8. RESPONSES TO WHETHER COMUTERIZATION HAS LED OT MORE EFFICIENT INFORMATIN STORAGE IN THE BANK

Options	Group A	Group B	Total
Yes	21 [22.5]	24 [22.5]	45
No	9 [4.5]	0. [4.5]	9
Don't know	0.[3]	6 [3]	6
Total	30	30	60

Group A and B represent the two branches of Union Bank of Nigeria Plc used for this research with the corresponding responses obtained. Furthermore, in the figure above, those that are not in

brackets are the observed figures obtained from the questionnaire while those in the brackets are the expected figures, which was computed using the formula:

$$\text{Expected frequency} = \frac{\text{Row total} \times \text{Column total}}{\text{Grande total}}$$

$$\frac{45 \times 30}{60} = [22.5] \text{ for the Yes option}$$

$$\frac{9 \times 30}{60} = [4.5] \text{ for the No option}$$

$$\frac{6 \times 30}{60} = [3] \text{ for the Do not know option}$$

$$\begin{aligned} \text{The degree of freedom [df]} &= [\text{Row} - 1] [\text{Column} - 1] \\ &= [3-1][2-1] \end{aligned}$$

$$\text{Therefore, df } [2] \times [1] = 2$$

$$\text{Level of significance is 5\%} = 0.05$$

$$\text{The test statistic used } X_o^2 = \sum_{ei} \frac{[oi-ei]^2}{ei}$$

$$\text{Table value of 5\% level of significance at 2 d.f} = X_o^2 = 5.991$$

Critical value at 5% confidence level is 5.991

Decision Rule: if $\sum_{ei} \frac{[oi-ei]^2}{ei} > 5.991$, reject H_o , otherwise accept H_o .

CHI-SQUARE CALCULATION TABLE

	Options	O _i	E _i	O _i -e _i	[o _i -e _i] ²	$\frac{[o_i-e_i]^2}{e_i}$
Group A	Yes	21	22.5	-1.5	2.25	0.1
	No	9	4.5	4.5	20.25	4.5
	Don't know	0	3	-3	9	3.0
Group B	Yes	24	22.5	1.5	2.25	0.1
	No	0	4.5	-4.5	20.25	4.5
	Don't know	6	3	3	9	3
	Total	60				15.2

Where $X_o^2 = 9.5$ and $X_o^2 = 5.991$

From the above table, we can deduce that the calculated chi-square value, which is 15.2 is greater than the table value 5.991, we would reject the null hypothesis [H₀] and accept the alternative hypothesis [H₁] that assets that computerization has contributed to better information storage in the bank.

4.4. CONCLUSION OF DATA ANALYSIS

The hypothesis postured was tested using the chi-square statistical technique and from the result of the hypothesis, there is great evidence to suggest that the computer has to a great extent had an impact on the processing of accounting information thereby conducting time transactions, led to efficient information storage and retrieval increased the number of depositors.

CHAPTER FIVE

SUMMARY OF FINDINGS, RECOMMENDATION AND CONCLUSION

This chapter will discuss and highlight the findings of the research work and their implications. It will not discuss the issue of computers in processing of accounting information in the banking sectors as one might want to do considering how far the developed nations have gone in that aspect. That is not the object of this research work. This research work was carried out to find and determine just how far computerization has carried the banking sector in Nigeria using Union Bank of Nigeria Plc as a case study.

Its major objective being to find out what effects computers have had on our banking system especially the accounting information and if any, to what extent. It is hoped that the work will also serve as a source of materials for further research in this area of investigation.

5.1 SUMMARY OF FINDINGS

Findings on this research work were based on the analysis of information gathered from the type of questionnaire administered,

analysis of various hypothesis and revelations by respondents interviewed.

Emphasis, however was placed on those questions that are relevant to the topic under consideration. The authenticity of this research is validated by the fact that the bank used for this research is well computerized as an analysis of table 4.2 show, it is generally agreed that computerized has usually had effects on banks operations. In table 4.4 and 4.5, it could be seen that computers have increased efficiency by reducing the amount of time cost in daily transactions. Again, table 4.6 shows a distinct increase in bank deposit was attributed to the introduction of computers it follows, therefore to conclude that the positive trends associated with computerized services has reinstated customers trust in banking operations which as a result increases customers deposit.

At this point, it is important to mention that the result of the rest hypothesis revealed that the introduction of computers has not reduced the operational cost of running a bank. This is largely due to the cost of repair and maintenance of these equipment.

In spite of this short coming, computers have given rise to better of storage of information and a greater efficiency in the rendering to

services to customers in the banking sector of the nation. Computers have reduced the daily workload in banks a great deal. What this implies is that with the introduction of computer in banking, it is expected to increase effectiveness, efficiency and reduction in the running cost of operation/staff welfarism in the long run as all this are possible with the minimum amount of work put in by each individual staff.

As mentioned earlier, there are short comings found in Nigerian Bank operations with computers such as:

- i. Inadequate trained personnel to handle the computer equipment.
- ii. Lack of locally made parts and incompetent engineer to undertake the machine repairs and maintenance.
- iii. Due to lack of pre-installation planning, computers installed in some banks have been found inadequate for the numerous operations of banks.
- iv. Most banks fail to extend computer services to their branches, they computerize only their main branches. This is not productive, as the impact of the branches of the bank cannot be ignored in assessing the overall bank performance.

- v. Frequent breakdown in transmitting area network program, occasioned by epileptic supply of electricity.
- vi. On line and off line problems and subsequent systems failure.
- vii. Slow processing speed of computers and lack of commitment by computer operators.

5.2 RECOMMENDATIONS

From the analysis of the annual report of various banks, there is a clear indication that banks which have imbibed the computer culture are making greater returns in their transactions. Thus, it would be a worthy cause for banks which are yet to tap the benefits of computerization to learn from the financial reports of these other banks. Take the Union Bank of Nigeria Plc which is among the most capitalized bank in Nigeria as stipulated by the Nigeria Stock Exchange weekly report [Dec. 1998] edition. This is as a result of its total paid up capital, its persistent increase in returns due to proficiency in computerized services and efficiency bank management. Based on the researcher's findings, the following are recommended:

- i. Computer Information: there is need for attention to be paid to computer literacy by bank staff. Courses on modern computer

and information technology should be encouraged. Also staff needs to be informed on computer processes and just how it affects the “conventional” banking. This will lead to greater appreciation by the customers.

- ii. Personnel Training: as has already mentioned in this research work that lack of trained personnel is one of the banes of the computerization of the banking sector in Nigeria. Bank should therefore engage in personnel training so as to turn out staff that are more efficient and trained with experience to handle these equipment.
- iii. Increased Computer Services: it would pay banks to subject a lot more banking functions to computer application. Some of these computer services include modern telecommunication and information technologies which includes: telephones, ATM, facsimile, local area network, computer system, MLCR [Magnetic Link Character Recognition], Very Small Aperture Terminal [VSAT], Electronic Fund Transfer and Wireless radiophone, etc. These new banking innovations should be introduced and encouraged to facilitate better banking operations.

- iv. Branch Computerization: Banks going to computerization should endeavour to go all the way, their branches should not be left out of the exercise. They should do this within the shortest possible time. Computer in the branches will in the long run yield returns for the banks.
- v. Information Technology Compliance: banks should endeavour to be abreast of the modern handling of information by electronic means, which involves its access, storage, processing, transportation or transfer and delivery. Information Technology affects financial institutions by easing enquiry, saving time and improving service delivery.

RECOMMENDATIONS FOR FURTHER RESEARCH

The original use of computers in accounting focused on automating the record keeping functions, manual books were replaced by computer “books” thus, computer made accounting functions faster, less expensive and more accurate.

However, this research work could not exhaustively discuss all the problems militating against the full usage of computers in

processing Accounting Information. The researchers do suggest that further research should be carried out in this area.

5.3 CONCLUSION

The study was carried out to determine to what extent computers have affected the processing of accounting information in the Nigerian banking business; with the Union Bank of Nigeria Plc as a case study. The main aim being to find out whether the computer has had any effects on the banking sector and if so, to what extent it has gone and to give recommendations which have been made based on the findings of the research carried out.

Based on the research work, I hereby conclude that;

- i. Computerization has made bank workless burdensome and has improved the efficiency of bank services.
- ii. Computerization of accounting information has led to efficiency information storage.
- iii. Computers have led to an increase in the bank deposit base.
- iv. Computers have not contributed to a reduction in the cost of running bank services.
- v. Computerization of accounting information has improved the speed of services to customers.

- vi. Banks should append their computer personnel to highly reputable computer engineering firms for proper training to reduce the cost of maintenance and repairs.
- vii. Information on the effects of the computer in banking ought to be intensified.

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RESEARCH QUESTIONNAIRE

Department of Accountancy
Faculty of Business Administration
University of Nigeria
Enugu Campus

Dear Sir/Madam,

I am an MBA student of the above named institution, carrying out a research work on the topic: **THE IMPACT OF COMPUTER IN PROCESSING ACCOUNTING INFORMATION IN NIGERIAN COMMERCIAL BANKS [A case study of Union Bank of Nigeria Plc]**. The research work is purely for academic purpose and is written in partial fulfillment of the requirement for the award of MBA in Accounting. The questionnaire will be used for the study. All the information supplied will be treated in absolute confidence and used only for the purpose of the study.

Thank you for your anticipated assistance.

Yours faithfully

OBUORA UGOCHUKWU C.

SECTION A BIOSTATISTICAL INFORMATION

Tick [x] where appropriate

- | | | | | |
|-----|--|---|---|---|
| 1. | Sex: | | | |
| [a] | Male | [| |] |
| [b] | Female | [| |] |
| 2. | Position Held: | | | |
| [a] | Staff | [| |] |
| [b] | Non staff | [| |] |
| 3. | Marital Status: | | | |
| [a] | Single | [| |] |
| [b] | Married | [| |] |
| 4. | Working Experience | | | |
| [a] | 1-3 years | [| |] |
| [b] | 3-6 years | [| |] |
| [c] | 6-12 " | [| |] |
| [d] | 12 years and above | | [|] |
| 5. | Educational qualification | | | |
| [a] | School of certificate | | [|] |
| [b] | Diploma | [| |] |
| [c] | Degree | [| |] |
| [d] | Professional qualification | | [|] |
| [e] | Others [please specify] | [| |] |
| 6. | How computerized is the service of the bank? | | | |
| [a] | Fully computerized | | [|] |
| [b] | Partially computerized | [| |] |
| [c] | Not computerized | | [|] |
| [d] | Do not know | | [|] |

7. Has the computerization of the bank affected the services rendered by the bank?

- [a] Yes []
 [b] No []
 [c] Do not know []

8. Has the computerization of Accounting Information processes affected the efficiency of the bank services positively?

- [a] Yes []
 [b] No []
 [c] Do not know []

9. Has computerization of the Bank reduced time wasted in carrying out banking transactions?

- [a] Yes []
 [b] No []
 [c] Do not know []

10. Has there been an increase in the bank's deposit since it was computerized?

- [a] Yes []
 [b] No []
 [c] Do not know []

11. Would this increase in the banks' deposit be attributed to the introduction of computers?

- [a] Yes []
 [b] No []
 [c] Do not know []

12. Has computerized Accounting Information enhanced Management in prompt decisions?

- [a] Yes []
 [b] No []
 [c] Do not know []

13. Has computerization reduced the cost of Bank services thereby affecting the general efficiency of the services of the bank renders?

- [a] Very highly []
 [b] Very lowly []

- | | | | |
|-----|------------|---|---|
| [c] | Highly | [|] |
| [d] | Lowly | [|] |
| [e] | Not at all | [|] |

14. Has computerization led ot more efficiency information storage in the bank?

- | | | | |
|----|-------------|---|---|
| a. | Yes | [|] |
| b. | No | [|] |
| c. | Do not know | [|] |

15. Has computerization made information storage more efficient in terms of retrieval and usage in the bank?

- | | | | |
|----|-------------|---|---|
| a. | Yes | [|] |
| b. | No | [|] |
| c. | Do not know | [|] |

16. Has computerization made work at the bank less burdensome?

- | | | | |
|----|-------------|---|---|
| a. | Yes | [|] |
| b. | no | [|] |
| c. | Do not know | [|] |

17. Enumerate the problems militating against the full usage of computer in processing accounting information in your bank?

.....

.....

.....

18. What are the prospects of computerization of banking services?

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