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Research Article

# The Impact of Modern Technology on the Economic Development of Nigeria

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**Abstract**

**This paper examine the impact of technology on the economic development of Nigeria taking a critical look into information communication technology by looking at some of the modern gadgets in achieving developmental goals of the economy. It treated the importance of information technology from the perspective of the use of modern technological machines such as Computer system, Telephone, Internet, website communication, Photocopier, Network system, Fax machine etc. And summarily deduce from the opinion of respondents to ascertain the impact of technology on the economic development of Nigeria.**

**Keywords:** technology, economy, Nigeria

## INTRODUCTION

The concept of technology in the enhancement of corporate performance has elicited plethora definition and explanations in the interest of various authors and as such enormous literature on the subject has been written.

Similarly, technology is a manner of accomplishing a task especially using technical process, methods, or knowledge. It can also be seen as the specialized aspects of a particular field of endeavor. According to Oxford Advance learner dictionary, technology is defined as the scientific study and of applied sciences, for example, engineering etc.

In recent years, a major technological breakthrough, technological changes/advances have being taking place in all over the world including Nigeria. The word technology cut across all aspect of human professional field. There have being recent advances in medical technology, new computer technologies, communication technology, architectural technology, construction technology Automobile technology and manufacturing technology. All the mentioned area of profession specialization, technology is increasingly growing and as such, advent of modern technology is generally affecting lives and the economy of Nigeria as a whole.

Considering the ambiguity of the word technology and area it covers, the researcher shall limit the scope of the study to information and communication technology.

Adjunct to the above, information is a message received and understood. It is the result of processing, manipulating and organizing data in a way that adds to the knowledge of the person receiving it.

Therefore, information technology is the technology involved in acquiring, storing, processing and distributing information by electronic means (including radio, television, telephone, computers e.t.c.). Information communication technology is therefore the product of the marriage between computer technology (essentially for information acquisition, storage and processing) and telecommunication technology, which is for information distribution.

The advert of modern information and communication technology into the, office has raised various questions as to whether such technology such technological tools have come over the duties formally done manually or whether they have come to aid the duties of the office worker.

The developed and developing countries are relying strongly on these office machines to do the jobs once done by office workers. Workers of different categories are either directly or indirectly affected. These new technological tools may involve training and retraining the workers responsible for handling these office machines and information technological tools.

For variety of reasons, the workload of business in offices has increased rapidly during the 20$^{th}$ century and because much of the work is repetitive and routine, many kinds of office machines and technological tools have been developed to handle it efficiently and accurately.

The manufacturers of such technological tools have become major world industries in which new product are under development. Some of these information technology tools are computers, telephone, fax machine, photocopier, server, network system, Webster, internet, printer, scanner etc, and it is necessary to private and public organization workers should acquaint themselves with the use of technological tools.

It is a known fact that the institutions of higher learning in the country do not have facilities to train students on the use of information technology. One of the purposes of introducing the new information technological tools is to ensure that they have some impact on the performance of workers. This can be achieved by:

1.Ensuring that workers are started on with these information technological tools.
2.Training the workers on the use of the machine.

**If** an organization must function effectively especially in this 21st century, the organization must apply some information technological changes in its basic operations. However, the introduction of technology in the office is posing a great problem to some workers who think that technology has to displace and render them redundant. As a result, workers need to be trained to know the basic operation and background of the concept of the new equipment. These tools cannot function on their own without the operation of the human being i.e. the personnel.

Workers are thus encouraged to embrace all these information technological tools, which can aid in the efficiency and effectiveness of their jobs, and not to displace them or make them redundant. The only challenge open to workers is acquiring the required and adequate training and understanding of basic manipulation of these machines to get the desired result.

## STATEMENT OF PROBLEM

The study is basically focused on the impact of modern technological development on the economy of Nigeria.

At inception, the activities and operations in the Nigeria economy was strictly manual. With time new technological tools were introduced. The people of Nigeria started developing interest and focus, as far as to whether the technological tools have come to cause unemployment in the society. So there is uncertainty and insecurity of the workers concerning their jobs. Others wonder whether the technological tools in the modern society will increase the rate of crime and fraudulent act in both private and public sector.

Also the cost of producing and maintaining these technological tools is a source of concern to management in private and public sector of the economy of Nigeria. The cost of purchasing these tools is high in each year's budget compared to the previous year. Both private and public sector are concerned about the effect it will have on the public and efficiency at the end of the financial year.

Alternatively, in spite of the natural resource in Nigeria, there is need to embrace the emerging information and communication technology with the attendant benefits, so as to exploit and extract to the maximum efficiency the human and minerals resources available to boost the economy development. As developing country, technology has not been fully exploited, but the" technology has being felt in recent years. However, the inefficiency exploitation of technology has being caused by many reasons. These reasons could be due to lack of adequate management commitment to investing in information and communications technology and availability of the required funds. According to Peppard {1993: 49} as we moved into mid-1990s, information technology is going to continue to become important strategically and spending is unlikely to decline". ICT has therefore become very important to the survival and competitiveness of private and public organizations for this to change. Lack of a well articulated information and communication technology

Plan/strategy often leads to economy not being able to realize significantly higher level of productivity and quality from their ICT investment which in turn could have led to higher productivity.

However, most of these problems no longer apply now-a-days. We are therefore motivated to study the changing trend in information and communications technology development in Nigeria, as well as ascertain the effect on the economy operations. Also, to assess the impact of information technology on the productivity services delivery and growth in the deposit base of Nigeria economy development.

## OBJECTIVES OF THE STUDY

The study is focus on the impact of technology to the economic development of Nigeria as such the study in aimed at information and, communication technology and to find out the ways gadgets as machines that are use when we talk of modern technology.

The objective of the study also includes the effectiveness and efficiency that could be derived in the use of most of technologies more so to determine how organizations, enterprises, financial industries, schools etc have a benefit from the use of information technology in term of performances.

To determine how information technology can reduced time consumption in the process of business transportation.

## PURPOSE AND RELEVANCE OF THE STUDY

Though at inception, the use of information technology in Nigeria was minimal, with time and increase in activities, there was need for the introduction of information technological tools.

1.The purpose of this study is to drive away the speculation and fear that new information technological tools might displace workers. Workers should be able to see the machines as friends rather than enemies.

2.Also another purpose and relevance of the study is to ascertain the possibility of the cost of procurement of these machines being commensurate with the output.

3.This study is the pre-requisite for the award of National Certificate of Education.

## STATEMENT OF HYPOTHESIS

The following hypothesis will be tested in the light of data collected.

**HYPOTHESIS I**

**Ho:** NULL HYPOTHESIS: Information technology does not increase productivity.

**H1:** ALTERNATIVE HYP: Information technology has increased productivity.

**HYPOTHESIS II**

**Ho:** Information technology does not leads to job insecurity. HI: Information technology leads to job insecurity.

**HYPOTHESIS III**

**Ho:** Information technology does not discourage individual initiative in an organization.

**HI:** Information technology discourages individual's initiative in an organization.

## SCOPE OF THE STUDY

This research study as the topic implies: The Impact of Modern Technological Development on the Economy of Nigeria. Considering the ambiguity of the root word of the subject matter (technology), the researcher has decided to narrow it down to information technology in Nigeria. This shall include the use of modern gadgets **/** machines such as Computer, Telephone, Internet, Website, Photocopier Machine, Fax Machine etc. The scope of this study therefore is aimed at ascertaining the advantages and disadvantages of technology to the economy development.

## LIMITATION OF THE STUDY

In the course of carrying out of this study, the researcher encountered some constraints and challenges.

Getting respondents to return the questionnaires administered was a problem. The researcher had to make frequent calls on respondents before the questionnaires were returned. The researcher does not have the opportunity to actually observe the respondent's behavior nor can he read their minds with respect to their attitude, rather he depends on their verbal responses to make inferences, which in some cases might be insincere. Others may be unwilling to give vital information, where they do; it may take time responding and sending the questionnaire back.

Another limitation has to do with the poor economic conditions of the society. Since the societies are hungry, everything they do is tied to monetary gains. Thus, some of them would want you to induce them financially before responding meanwhile, the resources are equally scarce on the part of the researcher.

Some of the prospective respondents may not be as keen as the researcher in seeing the research through. Others may be skeptical about the purpose of the research even when it has been clearly stated in the introduction letter accompanying the questionnaire. This reduces the response rate.

## DEFINITION OF TERMS

Definition of terms, sometimes called Operationalisation of terms, concept or variables will be used to take care of technical or ambiguous terms used in the study. The terms are defined within the purview of this thesis and not necessarily dictionary meanings.

I. **Technology:** It is the manner of accomplishing a task especially using technical processes, methods or knowledge.
II. **IT:** Information Technology
III. **Information Technological Tools:** Equipment that fall under IT.

## LITERATURE REVIEW

Here, the researcher shall examine the impact of technology on the economy of Nigeria taking a critical look into Information / Communication Technology by looking at some of the modern gadgets in achieving development goal of the economy. We shall therefore look into Information technology from the perspective of the use of modern technological machines. Such as Computer system, Telephone, Internet, Website communication, photocopier, network system, fax machine etc.

### What is an Economy

In the words of Olukunle (1978), define economy as the relationship between production, trade and the supply of money in a particular country or region: the economy of Nigeria. According to Oxford Advance Learners Dictionary, "economy is the use of available resources in a way that saves money, time, etc or avoids waste. In regards to the definition given above, we can as well say that an economy is the business activity taking place in a country, either in the private or public sector that makes use of the human and natural resource available.

In this vein, it is an observed fact that business organizations are closely and generally identified as economic institutions, a collective of human and material resources for the purpose of economic production at a profit. In a more general sense, the word economy is used to mean trade or commerce - the art of buying and selling. These conceptions of economy were adequate in the early 19$^{th}$ century, before the industrial revolution. With technological innovations and the consequent emergence of big industrial and commercial establishments, the impact of businesses transcends the economic. Society became more and more dependent on the business institutions as employer, innovator, neighbour and catalyst for social change and advancement of culture. The economy activities become a social institution, interrelating with other elements of the social environment, that is, religious, political, economic, legal and cultural.

As scientific and technological knowledge grew, new interests developed and new institutions emerged to protect such interests. With technology, the economy became bigger and more remote from their customers. The need for a countervailing power to economy, led to the proliferation of new institutions, that is, community activists, consumer unions, government regulatory agencies, labour unions and researchers, etc was highly witness. In Nigeria, perhaps the most succinct way of describing the Nigerian economic is its characterization as a developing economy. A developing economy generally has a low income per capital, a generally low level of literacy and technological knowledge, inadequate social infrastructure, that is, road, electricity, health, post and telecommunications and a heavily commercial economic structured goods heavily demanded in the country.

In conclusion, in regards to our subject matter, the researcher shall be examining the impact of technological development on the Nigeria economy and proffer vital solutions and recommendations on how the economy can be rapidly developed through technological means.

### Introduction to information Technology

According to Blockhus (1974) modern technological development means performing a given task in an office at an incredible speed with the aid of modern office gadgets. In the light of this, technological development is also the introduction of modern technological equipment to the office. Thereby rendered the former outdated useless. Examples of the office automations are: Computers, Electrical / Electronic typewriters, fax machines, talking and recording machines etc. shall be critically examined. In recognition of the fact that information technology is gaining grounds in Nigeria, in this chapter we shall take a detailed look at what information technology is all about and some information technological tools as mentioned above.

Information technology is used to describe technologies that help produce, manipulate, store, communicate and disseminate information. It includes both hardware and software. This term is used when information technology is the underlying driver of the "interesting" features or of the organisation's profitability or productivity. This term can include computer modeling, simulation, innovative, automated knowledge discovery, data mining, data warehousing etc.

Information technology popularly known as IT is a term that encompasses all forms of technology used to create, store, exchange, and use information in its various forms (business data, voice conversations, still images, motion pictures, multimedia presentations) and other forms including those not yet conceived. It is a convenient term for including both telephony and computer technology in the same word. IT is the technology that is driving what has been called "the information revolution". It includes matters that are concerned with furthering computer science and technology, design, development, installation, and implementation of information systems and applications.

Recently, information technology has been referred to as let (Information and Communication Technology) and C & IT (Communication and Information Technology). This is the broad subject concerned with managing and processing

information, on databases or libraries, especially within large organizations.

Information technology (IT) can also be seen as the application of science to the processing of data according to programmed instructions in order to derive results. Finally, IT can be seen as any equipment or inter connected system or subsystem or equipment, that is used in the automatic acquisition, storage, manipulation, management, movement, control, display, switching, interchange transmission, or reception of data or information. The term information technology includes computers, ancillary equipment, software, firmware and similar procedures, services (including support services), and related resources.

**Information Technology commitment to Economy building**

Information technology is one of the most potent forces in sharpening the 21st century. Its revolutionary impact affects the way people live, learn and work. IT is in fact becoming a vital engine of growth for the world economy. It is also enabling many enterprising individuals, firms in all part of the globe to address economic and social opportunities seized these opportunities and shared by everyone involved or interested in Technology.

The essence of the IT driven economic and social transformation is its power to help individuals and societies to use knowledge and ideas. The vision for information technology is one that better enables people to fulfill their potentials and realize their aspirations. To these end everyone involved in IT must ensure that it serves the mutually supportive goals of creating sustainable economic growth, enhancing public welfare, and fostering social cohesion, and work to fully realize its potential to strengthen democracy, increase transparency and accountability In governance, promote human rights, enhance cultural diversity and foster international peace and stability. Meeting these goals and emerging challenges will require national and international strategies.

Africans Nations Cup and World Cup taking place through the satellite.

As opined by Shcuttle (1988), "Of all the technical changes that have f1uenced our lives in recent years, it is those in information technology, which have had the greatest impact. They are expected to continue to do so until the new millennium when other major technological breakthroughs in other areas of science may bring about new ways of doing things".

The development of information technology has been spectacular, first in he output of new components, computers, communication and systems hat have been brought onto the market, and in the realm of users who are finding an increasing number of applications for these new technologies. The world may therefore have only seen the beginning of the information technology revolution. In other to appreciate the roles information technology has played, is playing, and will continue to play in the future, we would briefly examine in this chapter major developments that took place in information technology in the past.

**Evolutionary development of I.T**

The history of information technology is as old as mankind. In the past, counting and other simple arithmetic operations were performed by the use of different parts of the human body such as the brain, fingers and toes. Also, objects like stones, sticks and the drawing of lines to mark surfaces were used.

As man became more sophisticated, with the resultant increase in the volume of data to be processed, and also with the need for faster processing and more accurate reports, it became important the aids and tools are used for computing.

Radlow (1986:3-17) traced the remote origin of the modern computer to the ABACUS, an ancient digital calculating device. It is said to have originated in China in the 21st Century B. C. through similar devices were probably invented independently in several different places throughout the world. The Abacus consists of beads strewn on iron rods. Five beads below a wooden bar represent units. Each bead above the bar represents five. The rods represent columns with positional values. I.e. the rightmost column represents units, the next is far tens etc. By some manipulations, the Abacus was used to perform addition and subtraction.

The first attempt to design a computer is distinct from a hand calculator was made by Charles Babbage. He developed his so-called Difference Engine for the purpose of devising some methods for rapidly and accurately computing standard astronomical and navigational tables.

The multi-dimensional, distance-insensitive communication satellites which are fast turning the whole world into one small global village are integral parts of information technology. Courtesy of developments in information technology well over 2 billion viewers worldwide watched the However, the machine, which as stared in 1823, was never completed because it developed beyond its original concept. His next invention called the Analytical Engine was quite close in concept to a modern day computer. It differed from the Differential Engine in that it could be programmed - that is it could be presented with a prescribed set of operations, which it would proceed to carry out. The programs were held on

punched cards similar to those that had been developed by the French Eaver Joseph Marie Jacquared to control intricate patterns in a silk loom. Jacquard's punched cards were first used for automatic control weaving loom in 1801.

Harman Hollerith, an American statistician however devised punched card-based machines and in 1890 and 1900, the machines were actually put to use for collating the national census of USA, which was achieved in less time than it has taken for the previous census in 1880. He later formed a company called Tabulating Machine Company in 1896, which was eventually changed to the International Business Machine Corporation (IBM), which is the largest computer manufacturer in the world today.

The considerable sophistication that had been achieved in punched card machinery in 1937 led Hoard Aiken of Harvard to conceive the building of a fully automatic calculator in 1999. The machine is commonly referred to now as Mark-1 and was succeeded by a Mark -2 and a Mark-3 built on similar lines. Its principle of operation was electromechanical.

In 1939, two engineers at the University of Pennsylvania John Mauchly and Presper Eckert developed a machine for calculating trajectories. The machine was later enhanced to a general-purpose calculator that could compute other things besides trajectories. Their machine was later called ELECTRONIC NUMBERICAL INTEGRATION AND CALCULATOR (ENIAC) which consisted of switches and interconnecting wires. Data input and output was by punched cards and it used about 18000 electronic values and 1500 relays.

Between 1945 and 1950, John Von Neumann, Herman Goldstine and Arthur Burks laid down a design plan that incorporated most of the essential features found in present today computers. The reports emphasized the idea of a stored programme in contrast to a programme supplied by an input device. The programme was to be stored programme in contrast to a programme supplied by an input device. The programme was to be stored within the machined in the same form as the data except by the context in which it could be encountered. Following this report, a number of computers were designed the first of which was the 1948 prototype machine at Manchester.

Since this period of time, every types of computer have being manufactured by various inventors, which has given ways to computer generations.

**Some tools in Information Technology**

AVARA (18\980) stressed that information technology standing on its own is vague. There are some tools that can be classified under information technology. Avara (1980) pinpointed some of these tools that can be seen to enhance information technology. In furtherance, he stated and explained some of the tools mentioned below in connection with the subject matter.

**The Typewriter**

The typewriter is the most common and widely used office machine by secretaries. This is because typing is a routine work that is carried out in all offices or business organizations, both small and large. There are different types of modern typewriters seen in different offices. They include:

a. **Noiseless Typewriters:** These are the typewriters where the throw of the type bars is checked before they hit the plates noiseless typewriters, according to Boating (1982) are used mostly in rooms where many typists work together, or where telephones are used extensively.

b. **Electric Typewriters:** The characters of an electric typewriter are moulded on to a spherical "golf-ball" head. When the typist depresses a key, the machines select the shortest path for the head to rotate and tilt, so that the correct character strikes the ribbon.

c. **Automatic Typewriters:** Lastly, the Automatic typewriters are operated by electricity. They type prepared information in a predetermined display style, without a typist striking the keys, returning the carriage or operating any of the standard machine controls.

**The Computer**

Ask business leaders if computers improve the way their company functions and they will every likely yes. Indeed most managers, professionals and information workers intuitively recognize the importance of computers for organizing, streaming and simplifying their daily tasks. Computers have stimulated economic growth and productively in business and this trend are likely to continue.

A complete history of computing would include a multitude of diverse devices such as the ancient Chinese Abacus, the Jacquard Loom (1805) and Charles Babbage's "analytical engine" (1934). It would also include mechanical, analogue and digital computing architectures.

Computers can be classified into two:

1. The analogue computer, which is used principally for scientific purposes. It calculates intricate mathematical problems.
2. The digital computer, which is used in the office. It produces results in figures and moreover works to a very high degree of accuracy.

As late as the 1960s, mechanical devices such as the merchant calculator, still found widespread application in science and engineering. As late as the 1960s, analogue computers were routinely used to solve systems of finite difference equations arising in oil reservoir, modelling. In the end, digital computing devices proved to have the power, economics and stability necessary to deal with large-scale computations. Digital computers now dominate the whole world ranging from the hand calculator to the super-computer.

The computer is an elaborate counting machine, and counting machine has been in existence since the Chinese developed the Abacus 300 years ago. Slide Rules and even hour-glasses are considered computers in a rudimentary sense. The French mathematician-philosopher, Blaise Pascal, around 1642, invented the first mechanical calculator and adding machine. Later that century, the German Gottfired Liebnitz devised a machine that was able to multiply and divide as well. But the draw back to these calculators was that every operation has to be performed by someone punching a key or moving a register.

It was not until the mid nineteenth century that Charles Babbage, an English inventor, thought of a way of “programming” a machine to do a series of task automatically. Babbage's Difference Engine could take a problem, calculate results, store instructions and intermediate results, and print out final answers. Although it was too costly to be manufactured in quality, only one small' model was ever built - the Difference Engine supplied the basis for the Automatic Sequence Controlled Calculator built by Dr. Howard Aiken in 1944. It was a combination of electrical and mechanical parts, and changes in writing made possible its use on many kinds of problems.

John Machley and J. P. Eckert completed work on the first completely electronic computer, call ENIAC. Since then, succeeding Ugenerations" of computers have been introduced; each more sophisticated electrically then the last.

The usefulness and adaptability was quickly recognized, and in 1951, the Federal Government of United State of America put a computer into use in the bureau of Census for the 1950 population census. In 1954, the first computer to be used in business firm was installed, by 1958, both business and government were making use of great numbers of large and small computers.

Computers have been described as the “heart” of the electronic data processing field. Basically, computers are calculating machines that are capable of operating in a tremendous high rate of speed. They can, when programmed (instructed) add, subtract, multiply, divide and compute square roots. Mathematically, computing which would require hours of man’s brain and hard work can be performed by an electronic digital computer in minutes and sometimes in seconds. Computers can perform other operations such as choosing between alternatives when different sets of data are brought together, storing information until it is needed, making data compilations, and acting upon data to the limit of a hundred commands.

Computers, however, along with other peripheral equipment in data processing cannot think (even though they are frequently referred to as “electronics”). Operators and programmers are needed to tell these machines what to do and to run their operations. These individuals perform new jobs in a new occupational world of automation and technology are the electronic computer operating personnel.

**Components of a Computer**

A computer comprises the under listed components:

(a) Input Unit: This is the unit that receives the data fed into the computer in a language the computer can understand.

(b) Storage Unit This is the computer “memory” the data into the input are converted pulses and retained in the "Memory".

(c) The Control Unit: This is the control parcel that part of the computer to automatically brought to use as directed by the programmed data.

(d) Arithmetic Unit: This performs the arithmetical calculation at very high speed.

(e) Output Unit: This produces the end result of the calculations in readable version.

Under the computer, the following topics are very important to mention.

**Word Processor**

One of the most significant developments in the technologically dynamic world and perhaps the most sophisticated for duties is the invention of a “Word Processor”. They are known as peripheral of the Computer, which is made up of the following:

i. Key Board
This is like the keyboard of the normal typewriter, but it has other operational keys.
ii. The Visual Display Unit (VDU - Monitor). This is a monitor screen which enables the characters entered into the keyboard to be displayed.
iii. The Magnetic Storage Unit. This holds the typed text or information, unit it's required for use.
iv. The Printer. This automatically reproduces the stored information on paper when required to do so, which is refer to as Hard copy producer.

**Development in Communication**

The final core aspect of IT as defined in the opening section is communication. This area has witnessed considerable change and the future promise even more drastic changes. Communication means transmitting of data and information electronically from one point to another using carrier like telephone, radio, and microwave transmission devices. It marries the technologies of computers and communications to provide information - processing services throughout the office or around the world. Early use of data communication in the early 1960s basically dealt with on-line and time sharing system. Since early 1970s, interest in both public and private inter-company data networks has also blossomed.

Telecommunication has therefore opened up new uses of' information technology.

Development of communications and networks has equally raised some social and political issues such as protecting the privacy of personal data, junk mails, trans-border data flows and multinational data processing.

It is therefore more news to mention that computers have been *successfully* employed in all facets of life (processing *and* manufacturing industries, education and research, engineering designs and construction. Banking and insurance, etc). The introduction of mini and microcomputers has altered significantly the structure of computing, information storage and retrieval as well as customer service delivery in bank in Nigeria. Information technology is now seen as an enabler of business processes.

**Network System**

There are various network systems. But for the purpose of this study, the network to be looked into here is computer network.

A network is a group of computers and associated peripherals connected by a communications channel capable of sharing files and other resources between several users. A network can range from a peer-to-peer network connecting many users over permanently installed cables and dial-up lines, or to a wide area network connecting users on several different networks spread over a wide geographical area.

Network can also be known as a communication system made up of computers, which are connected. This arrangement allows information transfer from one computer to another in "real time". A network can also be seen as a group of computer working together, sharing resources. Network may be connected directly by cable connection, or indirectly by telephone lines or satellites, and can be part of a small office system or global web of numerous other networks.

Computer networking will not only be a competitive advantage in future, it will be necessity especially for an organization that has plans to grow. The ability to link computers and data has created new business opportunities especially in projects where large amounts of data must be processed. This simply means that if you have lots of information and you have information problems, you should look first to your network.

For organizations that have two or more computers and putting into consideration the importance of information storage, network is not only a competitive advantage but a necessity.

The benefits of a network system in an organization cannot be over emphasized. Some of the benefits are enumerated below:

1. Network enables multiple real time usage, which allows more than one person to work in the system at a time.
- Consider Skill Level: Rule of them is that one supervisor per every 8 - 12 employees is needed. That means out of 100 employees a company would need 10 managers. Through automation, it may be possible for two (2) managers to manage 100 employees. The savings would be significant. Combined with increase in· productivity, computer networking is becoming a regular business budget item because it works.
- The whole function of computer networking is to deliver better value to the customer. Though the cost may be high, but sometimes the return on investment is questionable. But the cost of not doing computer networking for a business can be even more expensive.
- Computer network play a dominant impact in transmitting information within firms. A network is simply a set of computers (or terminals) interconnected by transmission paths. These paths usually take the form of telephone lines,

however, other media such as wireless and infrared transmission, radio waves, and satellite computers and terminals.

2. Organizations may be geographically dispersed, with offices located all over the world. Computers at each site need to transfer and exchange data, frequently on a daily basis and sometimes even in real-time. A network provides the means to exchange such data. Even if the organization is not geographically dispersed and only has one office, networks can serve usual functions. Networks permit efficient sharing of resources. For example, if there is too much work at one site, the network allows the work to be transferred to another computer in the network. Such load sharing enhances productivity by allowing a more even and better utilization of an organization's resources.

Back-up capability is an especially important feature of networks. For instance, if one computer fails, another computer in the network can take over the load. This might be critical in certain industries such as financial institutions.

**Data Flow**

Data flows between computers in a network using one of three methods. Simple transmission in radio or television transmission. Simplex transmission is rare in computer network due to the one-way nature of data transmission. In half-duplex transmission information can flow in both directions, this is found in many simultaneously. In other words, once a query is transmitted from one device, it must wait for a response to come back. A full duplex system can transmit information in both directions simultaneously. It does not have the intervening stop-and-wait aspect of half-duplex systems. For high throughout and fast response time, full-duplex transmission is essential.

**Dictating Machine**

According to Abraham Aigbe et al. (1992), electric recording machines have now been brought to use in the office for a great deal of routine dictation, instruction and even minutes of meetings and recorded in these machine, thus saving the secretary or the user the time which otherwise have been spent on taking notes.

**Adding and calculating Machine**

i. Adding Machines: Adding machines are simple accounting machines used in calculating figures. They are basically of two types, non-listing and listing machines. The non-listing machines are used to record the total of the figures added on the machine only, while the listing machine is used to print line as the keys are pressed and the total is printed on a paper slip called "Tally Roll"

ii. Calculating Machines: Calculating machine performs all the four process of arithmetic, that is addition; subtraction, division, and multiplication. The actual calculating machines include the following:

- Key Driven Calculators: These machines have no tally rolls to list the results of their operations. Answers are shown on a sight dial. When another key is depressed, its value is immediately added to the first one on registered on the sight dial (display)
- Printing Calculators: This machine combines the sight dial with the printed tally roll, addition, it is capable of a number of calculation such as subtraction, division, multiplication, decimals, these.
- Electronic Calculators: The electronic calculator has no moving parts. Jt is silent and fast and has an illuminated display register. The lighting speed of an electronic circuit makes these machines by far faster and most simple of calculators (S. T. Stanwell, Office practice) (1976).

iii. Telephone: The word telephone is one of the classes of technological and scientific words that are made up of combining forms, in this cases tele and phone. These two forms are derived from classical languages: Tele is from the Greek combining form meaning "afar off' while phone is from Greek phone "sound voice".

Telephone is a device that translates speech at a distance. It can also be seen as electronic equipment that converts sound ' into electrical signals that can be transmitted over distances and then converts received signals back into sounds. Telephone can also be described as an instrument or system used for voice communication, the process or act of communicating via such a system.

On March 10, 1876, in Botson Massachusetts, Alexander Graham Bell invented the telephone. Thomas Watson fashioned the device itself; a crude thing made of a wooden stand, a funnel, a cup of acid and some copper wire. But there simple parts and the equally simple first telephone call "Mr. Watson, come here, I want you." Bell a speech teacher who had made the study of electricity a hobby wanted to develop a harmonic telegraph so that two or more telegraphic message could be sent over a single wire at the same time. The telephone gained popular attention when it was demonstrated at the Philadelphia Centennial in 1876. By 1992,Chicago to make a telephone call New York and San Francisco. Although the dial telephone was introduced during the 1930s, the basic patent for it was granted in 1879. The

development of the coaxial cable in 1935 greatly improved long distance telephone transmission.

Since the end of Word War II, there have been a number of improvements in the telephone communication process. The use of TASI (Time Assignment Speech Interpretation) makes it possible to shift conversations along a transmission line automatically. The "data phone" has made it possible for computers in different cities to link one another. The most outstanding recent development has been the use of satellites for overseas telephone calls.

A telephone call from the home of one person to another usually goes through a telephone office that houses automatic switching equipment. In hotels, apartment, buildings and business concerns, a PBX (Private Branch Exchange) takes operator an incoming call, operator before it is placed with the appropriate person. In other for this telephone conversation to take place, a proper combination of wires, cables, electricity, switches, transformers and other equipment must be erected and installed.

Modern telephones do not use carbon in their handsets. They use electric microphones for the transmitter and piezoelectric transducers for receivers but the principle described in the image linked above is the same. Sound wave picked up by an electric microphone causes a thin, metal-coated plastic diaphragm to vibrate, producing variations in an electric filed across a tiny air gap between the diaphragm and electrode.

There has been tremendous improvement of telephone that was invented by Bell Graham and the telephone that is in use now. One of such improvements is found in the mobile telephone. As the name implies, it is a telephone that can be moved from one place to the other.

The important" of the telephone in the economy of Nigeria as whole cannot be over-emphasized. It not only serves as a means of communication between an organizations, community etc. when the Federal Government of the Republic of Nigeria approved the G8M operation in Nigeria, many Nigerians became owners of mobile phones. Business transactions are carried out through telephone conversation. This will reduce cost that would have been incurred on transportation and risk of lives. Information is passed across from one staff to another through telephone especially for business organizations that are geographically dispersed.

**Internet**

Numerous networks exist in the world, often with different hardware and software connected to one network often what to communicate with people attached to a different one. This desire requires linking together different and, frequently incompatible networks, sometimes by using machines called Gateways to make the connection and provide the necessary translation, both in terms of hardware and software.

A collection of Interconnected Network is called Internet. Computer networks, especially the Internet, is indeed remarkable technological breakthrough which has improved the quality of life worldwide taking into consideration of the benefits derived from the user of the internet. Internet is a sharable resource, (via Distributed Computing Technology). It provides quick and easy access to boundaries. It. does not recognize custom, rules or government. It is a vehicle for knowledge sharing.

The Internet has flourished because it offers people services different from and better than anything available by other means. It combines the computer's extraordinary power to process and store a lot of information at low cost with the telephone networks' ability to reach millions of people around the globe. The Internet offers some important services as listed below:

1. **Telnet**: The terminal emulation protocol allows users to connect to a remote host and run programs on it.
2. **FTP/FSP**: File transfer protocols used to transfer files between any pair of machines connected to the Internet.
3. **Electronic Mail**: Allow the exchange of text message, between users throughout the world.
4. **Talk**: It is an interactive communication services that allows two users to engage in an on-line conversation, screen from different computers.
5. **News**: There are 2 ways to participate in discussion groups over the Internet.
6. The World Wide Web: This is a network of servers that use hypertext to establish a link and to access files often with lavish graphics.
7. **Gopher**: It is a search tool. It is a service offered in the Internet that allows the user to search and retrieve information in a user-friendly way.
8. **Archie**: it is used to locate these that are stored \n FTP servers. It is a database with information on servers that offer anonymous FTP services.
9. **Veronica**: (Very Rodent-Oriented Network Index to computerize achieves) a search tools similar to Archie with the different VERONICA books for text found in Gopher menu.
10. **Wais**: (Wide Area Information Server). This software is used to index long text files found on servers. It is also a search too. Internet's two main uses have been electronic mail and finding information.

11. **Internet Telephony**: Internet telephony means the transport calls over the Internet instead of public switched telephone networks. Presently, Internet telephony offers cheaper call prices with less quality of service than public switched networks. This technology came into lime light early in 1995.
12. **E-commerce**: It is attractive because it reduces cost of doing business. Sending a few bytes of data over the internet is cheaper, faster and more convenient than sending a massager or even or even making a phone call. The constraint in e-commerce is that there are no readily available secure means ordered for. Furthermore, there is a lot of trust involved in buying goods and services in the world of ecommerce.
13. **Distance Learning**: Distance learning and new forms of instructional technology are serving as catalysts in the creation of new learning opportunities all over the world. Digital technology continues to blur the distinction between on - campus and off-campus learning. The British Open University has for decades depended heavily on technology - first SSC. Television and Radio and now on the Internet and CD-ROM to help deliver classes. With computer-computer communication, learning units need to be distributed worldwide, using the least expensive delivery methods. Current distribution methods such as CD-ROM and DVD-ROM will be useful. The internet will be of increasing use also as we become skilful in designing and implementing units using local interaction. But, few of the poor, especially in the developing countries have access to the Internet. Wireless communication is likely; either through an individual location reaching a nearby server or through satellites will enable access to the Internet. Learning can be available everywhere, at reasonable costs, with large members of students. Interaction will take place mostly at local computers.
14. **Visual Library**: Visual library is the inter connection of some regional libraries together via the Internet. If a user requests for a particular book and it is not in their library, the user then searches through other regional libraries to see if the book can be found. If found, the user can made arrangements on how to get it. The idea of making knowledge available on the Network of creating a comprehensive, organized, universally accessible virtual library that is free for all is the best idea ever thought of.

These exciting development offer great opportunities for improving scholarship, research, and earning, they will offer little relief in the near term for the chronic budgetary problems facing academic libraries.

**Photocopier Machine**

According to Mathew Flenley (2000), stated that the photocopier started its development in the early 1800s. Common projection copiers include the copy camera and the Photostat machine. A copy camera takes a photograph of the original. The film is then developed producing a negative to make a positive copy. Copy cameras, like all projection cameras, can enlarge or reduce the size of the copy made from the original. This feature makes them valuable in commercial or other fields. Necessity is often called the "Mother of Invention". But sometimes, there are other reasons that people become innovative. For example, the driving force behind an invention can simply be a desire to eliminate tedious tasks by replacing them with more efficient, automated options. Such was the case of Chester F. Carison (1906 - 1968), inventor of the photocopier. As a young man, Carison worked as a patent analyzer for an electrical component maker, a job that required him to spend hours going over documents and drawing. It was his job to prepare the paper work, which was submitted to the patent office to register his company's inventions and ideas. However, the patent office required multiple copies, which he had to duplicate by hand. Redrawing the copiers took hours. What's more, Carison was near sighed and had arthritis, which made his job even more difficult. He knew there had to be a better way. Carison went to work in the kitchen of his home to find a smart alternative. He had an idea for a reproduction technique based on photo-conductivity, in which some materials change their electrical properties when exposed to light. Years of this research led to a patent in 1942 for this process called electric photography.

However, it took Carison another 20 years to find a business interested in his technology. He approached companies like IBM, GE and RCA, but was turned away. Finally, in October 6, 1944, an agreement was signed between Carision and Battelle Development Corporation who sponsors new inventions. In 1946, the Harold Company (now Xerox Corporation) got in touch with Carision indirectly; this led to the attainment of a paten license and the subsequent development of the first commercial Xerographic equipment in 1948.

Since Xerox's first copier, technology has advanced at a progressively fast rate. Photocopiers became more users friendly and more adaptable to varied uses. The next major development, the thriving industry of image reproduction was the s introduction of laser optics to drive a printer.

**Fax Machine**

Fax machine is the short form for facsimile machine. It is a device that can send or receive pictures and text over a telephone line. Fax machine work by digitizing an image, dividing it into a grid of dots. Each dot is either in or off, depending on whether it is black or white. Electronically, each dot is represented by a bit that has a value of either 0 (off) or I (on). In this way the fax machine translates a picture into a series of zeros and once (called a bit map) that can be

transmitted like normal computer data. On the receiving side, a fax machine reads the incoming data, translates the zeros and once back into dots and reprints the pictures.

The idea of fax machines has been around since 1892, when Alexander Bain invented a machine capable of receiving signals from a telegraph wire and translating them into images on paper. In 1850, a London inventor named F. C. Blackwell received a patent for a similar machine, which he called a copying telegraph.

But while the idea of fax machine has existed since the 1800s, fax machines did not become popular until the mid 1980s. The spark igniting the fax revolution was the adoption in 1983 of a standard protocol for sending faxes at rate 9,600 bps. The standard was created by CCITT standard organization and it is known as the Group 3. now Faxes are common place in offices of all sizes. They provide an inexpensive, fast, and reliable method for translating correspondence, contracts, resumes, handwritten notes and illustrations.

A fax machine consists of an optical scanner for digitizing images on paper, a printer for printing fax messages, and a telephone for making the connection. The optical scanner generally does not offer the same quality of resolution as stand-a) one scanners. Some printers on fax machines are thermal, which means they require a special kind of paper.

Some of features that differentiate one fax machine from another include Speed, Printer type, Paper size, paper cutter, paper feed and auto-dialling.

**Website**

According to Mathew Lauder (2001) defines Website as a group of web pages that collectively represent a company or individual on the World Wide Web. A group of Web pages that have been developed together to present information on specific subject is also called a website. A website can also be seen as a collection of web pages linked together on a single topic or for a single business accessible form the World Wide Web. A website is also seen as a collection of files supported by the World Wide Web. Usually, these files consist of, but are not limited to HTML files, ASP files. The two most popular browsers today are Microsoft Internet Explorer and Netscape Navigator. (Mathew Lauder (2001). With the new technology of the website, many advantages comes to an organization or the users.

The websites are recognized as an incredible tool because it is inexpensive.

The website is accessible to a large audience (in relation to traditional means of reaching the public through flyers, handbills etc.

The website is cheap and easily produced and do not have to complete for shelf-space or viewers.

The website brings an organization close to its target market:

Don Black (1998 pg 2) noted this when he said: "The net has provided us with the opportunity to bring out point of view to hundreds of thousands of people who would never have otherwise subscribed to one of our publications or otherwise been in touch with any of our organizations."

The website is beneficial not only to organizations but also individuals. This is due to the fact that individuals can own website. For instance, David Duke (1998 pg. 10) has this to say about website.

"Millions of people are going online in America. Now, if they want to find out about me and my ideas all they have to do is go to a search engine and search for David Duke. Hundreds of sources will show up. They can access my site and read my writings and reference materials, and even hear my radio program which is broadcast 24 hours a day to the four corners of the earth. Websites create initial interest that prompts further exploration by offering ideological justification for greater involvement.

**State of Information Technologies in Nigeria**

Computers were first introduced into the country in the mid 1960s by UAC (United Africa Company). At that time, UAC became the electronic data processing centre services to financial and insurance business outfit.

Early in 1970s, some universities in Nigeria started to establish Computer Science Department. University of Lagos is one of such universities. In 1878, Computer Association of Nigeria (COAN), a professional association was formed.

Successive military regimes did not really develop the education sector. This adversely affected the development of science and technology in the country until recently; there was no national IT policy. In early 1990s, additional professional associations were formed. Amongst them are Information Technology (Industry) Association of Nigeria (ITAN), the Computer Professional Registration Council (CPN) and the Institute of Software Practitioners of Nigeria (ISPON). All these associations assisted in sensitizing the Federal Government to approve the National Policy on Information Technology.

Below is the following interesting development in the IT sector.

1.The establishment of a Computer Assembly Plant for the production of internationally certified branded computer systems. The company Zinox Technologies has created an IT identity for Nigeria.

2.Nigeria has about 3 major *mobile* operators on the GSM wavelength. Since August 2000, when GSM services were launched, there already exist over 2,000,000 lines. As more lines become available and prices of GSM services reduce, mobile banking and some other services will be an absolutely practicable option. As a matter of fact, First Atlantic Bank recently introduced Mobil Banking into Nigeria. It is now possible to send and receive email messages on our handsets.
3.Thuraya, a satellite telecommunication company commenced operation In Nigeria in October 2001 and offers urban and rural services to its customers. Thuraya satellite mobile handset operates like a normal GSM hand phone. But this failed because of lack of base station, the satellite phone connects automatically with the satellite. Thus, it is indispensable tool in a country such as Nigeria, where as much as 60% of the landmass remains inaccessible communication wise.
4.The privatization of NITEL: This action has greatly made the company more efficient and responsive to the needs of the public.
5.Recent/y, the President of the Federal Republic of Nigeria, Chief Olusegun Obasanjo ordered the transfer of the management of the Nigerian Frequency Spectrum from the Communication Ministry to Nigeria Communication Commission (NCC).
6.Recent adoption of an IT policy by the Federal Government, changes occur rapidly in Information Technology within the past few years, there were policy changes that affected the way communication services are now rendered in Nigeria. Various companies have been licensed and are being licensed to provide various services including VSA T Satellite Services (with international Hub-services), and full Internet gateway services.

There have emerged other forms of radio communications services. Some Internet Services Provider (ISP) has been licensed to operate. One of the most significant developments is that NITEL will provide its five Internet Points of Presence (POP at Lagos, Kaduna, Bauchi, Abuja and Port Harcourt. All these will be connected to form a national backbone.

## FINDINGS

Below is the summary of the findings

1. Information technology can not lead to increase in productivity in the Nigeria Economic, because many organization are not yet involved in technology.
2. The use of IT boosts worker's morale.
3. Information technology improves workers' performance.
4. Information technology makes work less cumbersome thereby increase productivity.
5. The use of IT can lead to increase cost of production.
6. Information technology will not lead to job insecurity.
7. Whenever any information technological tool is introduced, workers are trained on the use. As a result they will not be laid off.
8. Despite the fact that the dependency on technology in carrying out task is high, workers still use their initiative in carrying out their given task in the office.
9. IT does not lead to unemployment.

Amongst the three hypotheses tested, resulted to the acceptance of 2 hypotheses and non-acceptance of 2 hypotheses. The acceptable hypotheses are:

1.Information technology does not increase productivity.
2.Information technology does not lead to job insecurity.
3.Information technology does not discourage individual initiative in an organization.

It is generally acceptable therefore that IT has a positive impact on the performance of workers of the Nigeria economy.

## CONCLUSION

The general revelation of this study is that technology has gained ground in Nigeria, particularly in the major organization but virtually medium and small enterprise organization are still not yet involved in information technology.

The workforce of any country or company is her major strength for growth and development. A satisfied and motivated workforce will have positive impact on the economy or company.

Globalization via Internet will reduce the world to a global village where everyone on this planet could consider himself to be a citizen of a village. Technological development has kept on accelerating, especially in the last 25 years. Now, through satellite, radio and cables, almost any part of the world is reachable by telephone. If one has a computer

Modem, he can access information stored in any computer around the globe. Modern global communications have made our world a centre of intelligence. Distance is no longer relevant to our way of life. We can obtain, process, store, transmit and utilize information at the speed of light. With modern communications, will enhance our competitiveness, will accelerate our national development, will modernize and integrate our economy and our society, will improve our national efficiency and productivity, we strive for equitable distribution of our development, we eliminate isolation of remote and rural areas, will attract capital inflow for infrastructure development.

The world is going through a period of information revolution. The global knowledge exchange of knowledge and information is rapidly becoming the foundation of business society. The ability to transfer and process information quickly, conveniently and inexpensively has become a key contributor to economic growth.

The message that IT is an essential infrastructure for economic development of any country has been universally accepted. We have no control over the space of innovation. Everyday, we see new ideas, new products, new applications and new services. Digital equipment are getting smaller, faster and cheaper, higher bandwidth connectivity is becoming available. A situation is foreseen in the nearest future, when mobile phones will incorporate digital cameras and displays so that real-time duplexs transmission of audio and video signals will be possible. It will then be possible to see clearly the person you are talking with on the phone anywhere in the world.

## RECOMMENDATIONS

Having had the opportunity to go into the study of information technology and its impact on the economic, the researcher would like to make some recommendation as stated below.

1. Employers should cultivate the culture of training their workers on the use of any new technological tool introduced into the country and their respective office. It will give the worker a feeling of security.
2. Government should make it a standard that technology is taught in schools and all students acquaint themselves with the use of IT.
3. Individual works should not rely only on their employers to train them on the use of IT; they should also train themselves on the use of IT. Reason being that no knowledge, which they have acquired today, can be taken from them and there is no knowledge, wasted. So even if their employers do not train them, and they train themselves, they would have had the competence that would keep them on the job and that would make them marketable in the future.
4. Organizations should move with the trend of information technology. This will lead to job satisfaction on their workers, which can motivate workers, this leading to increase in productivity.

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