

The Role of Information Technology for Institutional Resources Management

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Abstract: *This paper defines and explores information technology (use of these technologies: computing, microelectronics and telecommunication) on how it has gained ground worldwide. It examines the role(s) information technology (IT) can play in institutional resources management. It defines different aspects of IT and what constitutes the institutional resources management. It examines the role of computers in instruction (CAI) and the need to utilize the IT in resources management. It also deals with the quality of good information as well as the current issues in information and communication technology. The paper included electronic communication as an integral component of information technology and concluded with its benefits in resource management, which includes use of storage facilities, effective and accurate resources maintenance system, records and accountability checks, among others.*

Keywords: *Information Technology, Institution, Resource Management, Computer Library, Integrated, Productivity*

1. INTRODUCTION

Information Technology, as defined by the Information Technology Association of America (ITAA), is “the study, design, development, implementation, support or management of computer-based information systems, particularly software applications and computer hardware.” Encompassing the computer and information systems industries, information technology is the capability to electronically input, process, store, output, transmit, and receive data and information, including text, graphics, sound, and video, as well as the ability to control machines of all kinds electronically.

Information technology is comprised of computers, networks, satellite communications, robotics, videotext, cable television, electronic mail ("e-mail"), electronic games, and automated office equipment. The information industry consists of all computer, communications, and electronics-related organizations, including hardware, software, and services. Completing tasks using information technology results in rapid processing and information mobility, as well as improved reliability and integrity of processed information

In the past decades, there has been an explosion in the information technology industry. This has resulted in the widespread use of computers all over the world as well as in Nigeria in the private sector, in Government, industries, education, commerce, entertainment and homes, to mention a few.

According to Gaynor and Ian (1989), information technology includes the use of three technologies: computing, microelectronics and telecommunications and how these technologies are used to collect, store, process and distribute any form of information by electronic means. Information technology has gained global prominence through tools that had existed in the past in isolation here and there. It has always been known that information needed to be moved from one

point to the other in order to achieve set objectives in organization, institutions and nations in general. The quest for quality and easy information dissemination led to telex machines, which gave way to facsimile machines which are gradually giving way to the computers and the development in the communications industry.

The main objective of Information Technology (IT) for Institutional Resources Management therefore embraces the various ways in which IT can be used to allocate resources in our institutions in such a way as to obtain the maximum possible output from a given combination of resources. In an educational institution, for instance, the resources that poses a challenge to astute management and which it could be explored for optional gains include the staff (both teaching and non-teaching and their various structural units/organisations), the academic facilities such as lecture halls, theatres, laboratories, workshops, fields, courts and pitches, undeveloped pieces of land, residential houses and halls, financial resources, library, medical centres, computer centre, and vehicular facilities. A resource of outstanding significance in an academic institution is time, and its management could make or mar the utility value of the other resources.

2. HISTORY OF INFORMATION TECHNOLOGY

The term "information technology" evolved in the 1970s. Its basic concept, however, can be traced to the World War II alliance of the military and industry in the development of electronics, computers, and information theory. After the 1940s, the military remained the major source of research and development funding for the expansion of automation to replace manpower with, machine power.

Since the 1950s, four generations of computers have evolved. Each generation reflected a change to hardware of decreased size but increased capabilities to control computer operations. The first generation used vacuum tubes, the second used transistors, the third used integrated circuits, and the fourth used integrated circuits on a single computer chip. Advances in artificial intelligence that will minimize the need for complex programming characterize the fifth generation of computers, still in the experimental stage.

The first commercial computer was the UNIVAC I, developed by John Eckert and John W. Mauchly in 1951. It was used by the Census Bureau to predict the outcome of the 1952 presidential election. For the next twenty-five years mainframe computers were used in large corporations to do calculations and manipulate large amounts of information stored in databases. Supercomputers were used in science and engineering, for designing aircraft and nuclear reactors, and for predicting worldwide weather patterns. Minicomputers came on to the scene in the early 1980s in the small businesses, manufacturing plants and factories.

In 1975, the Massachusetts Institute of Technology developed microcomputers. In 1976, Tandy Corporation's first Radio Shack microcomputer followed; the Apple microcomputer was introduced in 1977. The market for microcomputers increased dramatically when IBM introduced the first personal computer in the fall of 1981. Because of dramatic improvements in computer components and manufacturing, personal computers today do more than the largest computers of the mid-1960s at about a thousandth of the cost.

Computers today are divided into four categories by size, cost, and processing ability. They are supercomputer, mainframe, minicomputer, and microcomputer, more commonly known as a personal computer. Personal computer categories include desktop, network, laptop and handheld (Saettler, 1990).

3. DEFINITION OF TERMS

Management: This is a process which exists to get result by making the best use of human, financial and material resources available to the organisation and to individual managers. It is very much concerned with adding values to these resources, and this added value depends on the expertise and the commitment of the people managing the organization (Onmonya, 2008)

Information: This is data that has been processed in such a way as to be meaningful to the person who receives it.

Communication: This is the interaction of two or more parties and consists of all the processes by which information is transmitted and received. The overall purpose of communication is to make

the receiver of the message understand what is in the mind of the sender. Hence, we can emphatically say that communication is incomplete until it is received and understood as intended.

Management Information System: MIS can be broadly defined as “A system to convert data from internal or external sources into information and to communicate that information, in an appropriate form, to managers at all levels in all functions to enable for planning, directing and controlling activities for which they are responsible.” It is a computer based system that consists of hardware, software, people, procedure and data and its requirement is wide and varied. Therefore, it includes information required for planning, control information, and functional information.

Its main aim is to enable decision making and control action to be taken in the best way possible to achieve the objectives of the organization as a whole.

4. INFORMATION AND RESOURCE MANAGEMENT

This generation has been noted belonging to the information age in which the prosperity of a nation would greatly depend on how much information is available to it. It is also the era of power through information. That is, information they say is power. The whole world is now being referred to as global village because of the speed at which information is being collected, processed, stored, and disseminated (Odugbesan, 1997).

Data processing was manually carried out until the advent of computers. A number of information managers especially in developing nations did not automate their systems until the 1960s when IBM mainframes gained prominence in computing.

Even then, computing did not have pride of place until recent times when the micro-computers, often called personal computers, got built to perform functions that would have required gigantic systems at incredible speed. Progressive developments in technology have continued to produce very large scale integrated circuits in form of tiny chips leading to miniaturized systems such as laptops, notebooks and palmtops. As these developments continue, scientists are still actively exploring further areas of improvement such that information can be made available to everyone at little or no cost.

Institutional resource management (be it in universities, colleges of education, or polytechnics) is a prime means by which policy is implemented. In general, institutional policies are not laid down formally by the head (Vice Chancellor, Provost or Rector), however, it is well known fact that an astute institutional head encourages some practices and wishes to discourage others, and that, this is promoted through the ordering of institutional resources - libraries, works, consultant, agricultural, projects, science laboratories, computer centers, etc.

There are many areas of institutional administration in which the need for it has long been recognized and for which the barrier has been the availability at the right price of the appropriate hardware and software. These include computer assisted time table, computer assisted learning, computer assisted instruction, and administration applications to mention but a few.

4.1. Information Technology for Institutional Resources Management

Higher institution in Nigeria comprise universities, polytechnics, schools of agriculture, medical schools, colleges of education, federal technical colleges, and few other professional centres. Managing institutional resources through information technology generate high ovation among end-users and information technology professionals.

Information Technology (IT) has taken a new turn in the present decade as professional witnessed a movement from single unit computer user to the creation of local area networks, wide area network and now, the internet. An underlying factor in the consideration of networks is the fact that information technology has advanced to a stage where many people need to share information almost as immediately as they would have waited to do if they stood face to face. In real life situation, sharers of such information are so physically represented that some means of getting them to internet through the computer in some prescribed manner had to evolve. This development gave rise to issues of connecting information infrastructure, such as telephone network, dedicated links, satellite high-speed data communication, etc.

4.2. Information Technology and Resources Management

The application of Information Technology in institutions include; its uses as administrative tool, a teaching tool for skill development, of support learning, drafting, and materials production and presentation, for games and motivation of students, expert tool and for programme. With the innovation of information technology, it is possible for higher institutions to have internet. It is now possible to link all Nigerian universities, all colleges of education, all polytechnics, etc through a computer network. For the network to work, computing, telecommunication and power supply facilities will have to be provided. This will

- i. Improve on the information interchange/communication with the higher institutions.
- ii. Provide access to computing facilities and research materials for variety of locations (national and international) for research, instructional and administrative purposes. Apart from the telecommunication infrastructures and computers, various categories of personnel will be available for effective management and maintenance of the network.

4.3. Computing Services

With modern information technology, computerized workstations may not be able to handle every computing job, especially scientific computing and applications. It is possibly to have access to larger computers and other advanced computational systems for special or more advanced scientific work. Once a person links with one that has the facility, his/her job will be done and the result sent to him/her.

4.4. Library Resource Management

The library is one of the resources in our institutions. This can be effectively managed with information technology. It is possible and easy for a lecturer or a student to check right from his departmental computer whether a particular text or document is in the institution's library with the internet. After locating the document, the lecturer or student can get it immediately through the computer, modern information technology facilities, online library services, and searching nationally and internationally. This increases library resources available to both lecturers and students, as they are no longer limited to their institution's library.

4.5. Research Resource Management

The internet can provide researchers with on-going research and current publication in any topic or related topics or disciplines as well as expert in these areas within the institution or worldwide through Arhie and Gopher services. Thus, any institution that is hooked to the internet can have national-international collaboration in research since it is easy to identity experts or those working on the same problem. The internet has become an essential and indispensable tool for information professionals, researchers, doctors etc. The internet has great impact on libraries and information services and hence has increased the scope of all libraries as it provides line to various library sites, specializing in almost every topic and can be accessed from every part of the world.

Some of the major library services offered through internet are: Acquisition, classification and cataloguing, circulation, serial publications, reference services, internet loan system, CAS and SDI services (Current Awareness Services and Selective Dissemination of Information), document delivery system, electronic publishing etc (Meghna in D. K. Swain, 2012: pp. 177-181).

4.6. Computer Assisted Instruction

Ahmed (1989) broadly defines Computer Assisted Instruction (CAI) as "the way to use the computer as multipurpose tool in both formal and informal training environment."

It is well established that CAI can:

- i. Improve student motivations;
- ii. Enhance rates of learning;
- iii. Provide assistance for teachers shortage;
- iv. Increase the efficiency of teachers' work; and
- v. Be used as a tool for self-directed learning.

Through internet connection, institutions will be able to reap the fruits of CAI products (courseware) on tutorial, drill and practice, simulation, game etc. There are CAI coursewares that can speed up or enhance student understanding of certain scientific concepts/topics like sphere, vector (Euclidean spaces and dimension greater than 2, genetic evolution, the study of course and effect in 'mathematical models, Riemann surface and the operation of complex equipment or other topics which are difficult to teach using traditional method (Olayi, 1997). With the exposure of CAI through internet, institutions lecturers will become interested in CAI and develop their own coursewares or modify the available ones to take into consideration our students' background and environment. However, to develop a good courseware requires time, energy and money.

4.7. Other Resources Management

Other resources that can be effectively managed as mentioned earlier include: fixed asset management, databanks for our institutions, students record, results, account payable, budgeting, project management and control, personnel

5. PROBLEMS AND OPERATIONAL CONSTRAINT

The use of information technology for institutional resources management has its associated problems and operational constraint. These include:

- i. The availability of the needed infrastructures to engender a conducive environment for information technology telecommunication services and electricity;
- ii. The availability of funds to acquire the hardware and software;
- iii. The willingness of user departments to embrace the use of information technology;
- iv. The needed manpower to train professionals to man IT in our various institutions; and
- v. Policy implications of introducing computer in a country with a high percentage of illiterate people and pedagogical issues (Abimbade, 1996).

6. QUALITY OF GOOD INFORMATION

In any organization, information is produced from raw data to enable management to plan and control. What is information to one level of management may be raw data (needed to be processed) to another.

Data are facts, events, transactions which have been collected, recorded but are yet to be processed. They consist of numbers, letters and symbols.

An organisation's information requirements can be analysed into five categories:

- a. For planning
- b. For controlling
- c. For recording of transactions
- d. For measuring performance
- e. For decision making

Other purposes of information are

1. To provide historical records
2. To compare actual results against plans
3. To learn what control action is needed

7. INFORMATION TECHNOLOGY'S ROLE TODAY

Every day, people use computers in new ways. Computers are increasingly affordable, they continue to be more powerful as information-processing tools as well as easier to use.

Computers in Business: One of the first and largest applications of computers is keeping and managing business and financial records. Most large companies keep the employment records of

all their workers in large databases that are managed by computer programs. Similar programs and databases are used in such business functions as billing customers; tracking payments received and payments to be made; and tracking supplies needed and items produced, stored, shipped and sold. In fact, practically, all the information companies need to do business involving the use of computers and information technology.

On a smaller scale, many businesses have replaced cash registers with point-of-sale (POS) terminals. These POS terminals not only print a sales receipt for the customer but also send information to a computer database when each item is sold to maintain an inventory of items on hand and items to be ordered. Computers have also become very important in modern factories. Computer-controlled robots now do tasks that are hot, heavy, or hazardous. Robots are also used to do routine, repetitive tasks in which boredom or fatigue can lead to poor quality work.

Computers in Medicine: Information technology plays an important role in medicine. For example, a scanner takes a series of pictures of the body by means of computerized axial tomography (CAT) or magnetic resonance imaging (MRI). A computer then combines the pictures to produce detailed three-dimensional images of the body's organs. In addition, the MRI produces images that show changes in body chemistry and blood flow.

Computers in Science and Engineering: Using supercomputers, meteorologists predict future weather by using a combination of observations of weather conditions from many sources, a mathematical representation of the behaviour of the atmosphere, and geographic data.

Computer-aided design and computer aided manufacturing programs, often called CAD/CAM, have led to improved products in many fields, especially where designs tend to be very detailed. Computer programs make it possible for to analyze designs of complex structures such as power plants and space stations.

Integrated Information Systems: With today's sophisticated hardware, software, and communications technologies, it is often difficult to classify a system as belonging uniquely to one specific application program. Organizations increasingly are consolidating their information needs into a single, integrated information system. One example is SAP, a German software package that runs on mainframe computers and provides an enterprise-wide solution for information technologies. It is a powerful database that enables companies to organize all their data into a single database, then choose only the program modules or tables they want. The freestanding modules are customized to fit each customer's needs.

8. SOFTWARE

Computer software consists of the programs, or lists of instructions, that control the operation of a computer. Application software can be used for the following purposes:

- As a productivity/business tool
- To assist with graphics and multimedia projects
- To support household activities, for personal business, or for education
- To facilitate communications

Productivity Software: Productivity software is designed to make people more effective and efficient when performing daily activities. It includes applications such as Word processing, spreadsheets, databases, presentation graphics, personal information management, graphics and multimedia, communications, and other related types of software. **Word-processing software** is used to create documents such as letters, memos, reports, mailing labels, and newsletters. This software is used to create attractive and professional-looking documents that are stored electronically, allowing them to be retrieved and revised. The software provides tools to correct spelling and grammatical mistakes, permits copying and moving text without rekeying, and provides tools to enhance the format of documents. **Electronic spreadsheet software** is used in business environments to perform numeric calculations rapidly and accurately. Data are keyed into rows and columns on a worksheet, and formulas and functions are used to make fast and accurate calculations. **Spreadsheets are used for "what-if" analyses** and for creating charts based on information in a worksheet. A **database** is a collection of data organized in a manner that

allows access, retrieval, and use of that data. A database management system (DBMS) is used to create a computerized database; add, change, and delete data; sort and retrieve data from the database; and create forms and reports using the data in the database.

Presentation graphics software is used to create presentations, which can include clip-art images, pictures, video clips, and audio clips as well as text. A **personal information manager** is an application that includes an appointment calendar, address book, and notepad to help organize personal information such as appointments and task lists. Engineers, architects, desktop publishers, and graphic artists often use **graphics and multimedia software** such as computer-aided design, desktop publishing, video and audio entertainment, and web page authoring. Software for communications includes groupware, e-mail, and web browsers.

9. HARDWARE

Information processing involves four phases: input, process, output, and storage. Each of these phases and the associated devices are discussed below.

Input Devices: Input devices include the keyboard, pointing devices, scanners and reading devices, digital cameras, audio and video input devices, and input devices for physically challenged users. Input devices are used to capture data at the earliest possible point in the workflow, so that the data are accurate and readily available for processing.

Processing: After data are captured, they are processed. When data are processed, they are transformed from raw facts into meaningful information. A variety of processes may be performed on the data, such as adding, subtracting, dividing, multiplying, sorting, organizing, formatting, comparing and graphing. After processing, information is output, as a printed report, for example, or stored as files.

Output Devices: Four common types of output are text, graphics, audio, and video. Once information has been processed, it can be listened to through speakers or a headset, printed onto paper, or displayed on a monitor. An output device is any computer component capable of conveying information to a user. Commonly used output devices include display devices, printers, speakers, headsets, data projectors, fax machines, and multifunction devices. A multifunction device is a single piece of equipment that looks like a copy machine but provides functionality of a printer, scanner, copy machine, and perhaps a fax machine.

Storage Devices: Storage devices retain items such as data, instructions, and information for retrieval and future use. They include floppy disks or diskettes, hard disks, compact discs (both read-only and disc-recordable), tapes, PC cards, Smart cards, microfilm, and microfiche. Swanson et al, (1997).

10. INFORMATION AND DATA PROCESSING

Data processing is the input, verification, organization, storage, retrieval, transformation, and extraction of information from data. The term is usually associated with commercial applications such as inventory control or payroll.

An information system refers to business applications of computers and consists of the databases, application programs, and manual machine procedures and computer systems that process data. Databases store the master files of the business and its transaction files. Application programs provide the data entry, updating, and query and report processing. Manual procedures document the workflow, showing how the data are obtained for input and how the system's output is distributed.

Machine procedures instruct the computers how to perform batch-processing activities, in which the output of one program is automatically fed into another program. Daily processing is the interactive, real-time processing of transactions. Batch-processing programs are run at the end of the day (or some other period) to update the master files that have not been updated since the last cycle. Reports are printed for the cycle's activities. Periodic processing of an information system involves updating of the master files - adding, deleting, and changing the information about customers, employees, vendors, and products. Webster et al, (1986).

11. CURRENT ISSUES IN INFORMATION AND COMMUNICATION TECHNOLOGY

Developments in hardware devices have always been complemented with developments in software or vice versa. The increasing demand and need for business to fashion systems that are flexible and quick to build have motivated new approaches to software development with object-oriented programming tools and new programming languages called Java and Visual languages.

11.1. Java and the Software Revolution

Java is a programming language recently developed with potential to revolutionize both computer software and hardware. Traditional application software packages address a single, general function and include all of its sub-functions in one package. For example, a popular word processing software includes not only the functions we all would use such as setting margins, indenting, line spacing, and bolding, but also the ability to use automatic bullets and numbering, to use footnotes, endnotes, to insert graphics, to merge documents with mailing lists, to check grammar and spelling, and many more special features. Few people use any more than a small subset of the many functions contained in each of these packages, and none uses more than a few functions at a time. Such software requires a computer with large amount of storage, memory and processing capability to execute. Also, the software must be run on specific platform for which it was designed, such as a Microsoft Windows Operating system running on an Intel-type microprocessor.

Java is technically an object-oriented language combining the data with the specific functions for processing that data. Java is designed so that its users can build small applets — tiny java programmes that execute one small function of an application. For example, if you wish to access and modify data on an employee's dependents rather than run a whole personnel system to modify that data, you would be able to run a tiny java applet for that specific function only.

If the personnel system programmed in java resides on a network rather than on your computer as a user, all you need to do is to ask for dependent data on a specific individual. The data would come with whatever processing functionality you need. After finishing, you would save the data through the network and the data and software would disappear from your personal computer.

Hence, with this system, you never need to purchase a copy of the software, need to install it on your computer, never have to upgrade the software to the latest version, and never have to worry about the compatibility of the software with your hardware platform or data. Java enables all processing software to be stored on the network, download as needed and then erased from the local computer when the processing is completed.

11.2. Organizational and Business Benefits of Java

Java and like systems promise many potential benefits for organizations and businesses including the following:

- Companies will no longer need to purchase hundreds or thousands of copies of commercial software to run on individual computers. Instead, they will purchase one network copy made of java applets; the way such software is paid may also change dramatically - companies could be charged for each usage much like companies or individuals are charged today for telephone services.
- Companies will only need to download applets when needed and do not need to store the software on their computers; this will reduce the cost of computing for the companies.
- Organizations will have less need to set information technology standards (software, hardware, telecommunications), because all development can now be done without concern for the platform on which it will be run. All types of computing devices, including cellular phones or television sets, could run java applets.

11.3. Multimedia

Multimedia is defined as the facilities that facilitate the integration of two or more types of media, such as text, graphics, sound, voice, full-motion video, or animation into a computer-based application. Multimedia is becoming the foundation of new consumer products and services, such

as electronic books and newspapers, electronic classroom presentation technologies, full-motion video conferencing, imaging, graphics design tools, and video and voice mail. Many worldwide websites have full multimedia capabilities.

By pressing a button, a person using a computer can call up a screen full of text; another button might bring up related video images. Still another might bring up related talk or music. Among other applications, multimedia features are being used for:

- *Online customer support services*: providing answers to customer's enquiries with visual aids, video, audio and animations features that adequately meet the customer requirement.
- *Online technical support services*: providing online technical aids to customers using graphics, audio and video clips that provides needed solutions on request.
- *E-learning*: providing training and educational contents online using several combinations of text, audio, video, animations and graphics.

12. THE MEANING AND SCOPE OF THE INTERNET

The word "INTERNET" means International Network. It is global collection of many different types of computers and computer networks that are linked together. It is also referred to as a network connection of many computer networks based on a common addressing system and communication protocol called TCP/IP (Transmission Control Protocol/Internet Protocol).

The Internet allows individuals to exchange information with other computers and computer users anywhere in the world. The physical layer of the internet connects users on telephone, satellite and cable TV networks, local area networks (LAN) and wide area networks (WAN).

The internet is the sum of nil private networks connected to it. Adesina (2002) describes the Internet thus:

- The world's current largest computer network, allowing or facilitating free exchange of information between one computer user and many others.
- A vast information super highway, enabling computers of all kinds to communicate directly like parts of a giant global computing machine.
- A web of different machines in different networks with different users.
- A research support and information retrieval mechanism.
- A massive communication medium.
- A network of networks based on the Transmission Control Protocol/Internet Protocol (TCP/IP).
- A community of people who use and develop those networks.
- A collection of resources that can be reached from those networks.
- The fastest and most reliable means of data transfer.

The internet connects millions of individual computers together through:

- Leased line method, or
- Dial-up Access method

In the leased line method, an internet host is linked to a service provider through a permanently connected telephone line while the dial-up access is the method by which an internet host is linked by means of personal computer equipped with modem and communication program.

12.1. Features of the Internet

The features of the internet involve:

- *Real Time Information, Retrieval and Transfer*: This enables communication in real time. For instance, the e-mail can be sent and received from any location in no time.

- *Global Access*: The internet can be accessed from anywhere in the world as long as a connection to a local provider can be established.
- *Interactive Graphic User Interface (GUI)*: The internet presents information in user-friendly mode, e.g. www pages are formatted with brilliant graphics and texts providing a very enabling environment for information dissemination.
- *Dynamic*: The internet is constantly being updated, providing users with current state-of-the-art technologies and information.

12.2. Internet Facilities and Resources

The services of the internet are listed below:

- *Electronic Mail*: This is a worldwide service and system for sending and receiving electronic mail (e-mail). It represents a large portion of all internet traffic. The e-mail is a messaging system that allows you to send mails, communiques and reports to users on the internet. It also allows for the creation of a group mailing list where mail sent to one address will cause the information to be distributed to all members of the group. The mailing list can be used to disseminate textual information such as office memos and reports to a number of people at a time.
- *Electronic News*: This is mainly distributed through the Usenet news system. Usenet news is distributed on a variety of levels from local distribution to the news server on the local machine to world distribution to all other Usenet news systems in the world. Usenet, news groups can be thought of as bulletin board systems where users posting to a certain group can inform all other readers of that newsgroup. Each group concentrates on its own specific topic. Usenet news is also a way to receive up-to-date information on exciting news. Information Access: This is an electronic information system available on the net and includes the Gopher. The Web Area Information Services (WATS) provide much of the information on the internet in a readily accessible format. There are also other non-standard information services developed specifically by certain institutions.
- *Gopher*: This is a menu-based system. It provides interconnected links between files on different computers around the internet. The files are linked as a series of directories around the Gopher Menu located on other computers. The Gopher provides access to text documents.
- *World Wide Web (WWW)*: This is a hypertext-based information service. It provides access to multimedia and complex documents and databases. The information is presented in form of web pages. The web is a very effective method of providing information. This is because of its visual impact and advanced features. It also provides access to other services such as Gopher, Usenet news, file transfer, remote connectivity as well as special access to data on the local network.

The web can be used as a complete presentation media for information on a company's products, services and corporate activities. Other facilities include:

- E-commerce
- Shopping
- Trading
- E-learning
- Online technical support
- Entertainment
- News
- Discussions
- Internet chat
- Demonstration, etc

- *Access and Control:* The internet is used by people from various backgrounds, interests and personalities. Professionals and non-professionals use it:
- To send or receive e-mail
- To engage in on-line conversation
- As bulletin board
- To play games
- To send interactive messages
- To do file transfers

12.3. The Benefits and Problems of the Internet

Benefits of the Internet:

Today's world is information-driven. This is why this age is commonly referred to as the information age.

A major component of the information age is the Internet. The benefits of the internet include:

- (i) *Communication:* This allows people to share ideas, problems and solutions among themselves: This is in consonance with the popular maxim "a problem shared is a problem solved" Communication, they say, is the soul of business.
- (ii) *New Business Opportunities:* The dynamism and the turbulence inherent in the business world informed the need for investors and entrepreneurs to search for new and innovative ideas with a view to improving the net-worth of the organization.
- (iii) *Product Analysis:* First-hand reports and information can be obtained on the internet in respect of the functionality and viability of a product current on test or that one may wish to purchase.
- (iv) *Market Analysis:* Market surveys concerning a new product or service idea can be obtained on the net.
- (v) *Expert Advice and Help:* Experts are readily available on the net to render sometimes true advice and help with problems you might have.
- (vi) *Recruitment of New Employees:* Job lists and resources are available on-line for prospective employers. Resume can be posted to the Usenet groups to inform the availability of new skills.
- (vii) *Cost-Effective Document Transfer:* Hypertext documents provide an effective method to present information to subscribers or the general populace. Organizations may choose to create web documents and register their sites with large websites to improve on the availability of the documents to a larger client base. This provides global advertisement opportunities.

Other benefits of the internet include:

- Rapid information access
- Creating a client base
- Library services
- Recreation and entertainment
- Access to databanks and research information
- Receiving regular updates on topics of interest

Problems of the Internet

The negative aspects of the internet include:

- Transmission of pornographic materials
- Deliberate infection of computers with viruses, etc

13. CONCLUSION

Information Technology (IT), as defined by the Information Technology Association of America (ITAA), is “the study, design, development, implementation, support or management of computer-based information systems, particularly software applications and computer hardware.” IT deals with the use of electronic computers and computer software to convert, store, protect, process, transmit and retrieve information, securely.

Recently, it has become popular to broaden the term to explicitly include the field of electronic communication so that people tend to use the abbreviation ICT (Information and Communications Technology).

Today, the term information technology has ballooned to encompass many aspects of computing and technology, and the term is more recognizable than ever before. The information technology umbrella can be quite large, covering many fields. IT professionals perform a variety of duties that range from installing applications to designing complex computer networks and information databases. A few of the duties that IT professionals perform may include data management, networking, engineering, computer hardware, database and software design, as well as the management and administration of entire systems.

Using information technology to manage institutional resources brings so many benefits. These include: Better planning to identify resource needs and how they may be satisfied; Better pre-service and on-the-job training for those who use resources; More effective use of storage facilities; More accurate and punctual maintenance of all resources, records, material resources, human resources, finance and time; and Closer supervision and more reliable accountability of both staff and students.

Moreover, by using information technology to manage institutional resources more effectively, the head (Vice-Chancellor, Provost, rectors, etc) will achieve easier access to available resources and proper utilization of all resources.

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