

# **The Roles and Challenges of Information and Communication Technologies (ICTs) in Service Delivery in the Libraries of Higher Institutions in Nigeria**

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## **Abstract**

*This paper discusses the roles and challenges of information and communication technology (ICT) indicating that ICT is imperative for sustainable library information services delivery in Nigerian tertiary institutions. Although librarians have been identified as being responsible for effective library services delivery, the environment as well as infrastructural provision must be very conducive and adequate. For effective library service delivery to be achieved, ICT-enhanced library services of tertiary institutions have been assessed. The use of computers and other communication gadgets in information handling and processing has arisen due to increased workload involved in copying as a result of information explosion. In order to keep pace with handling these increasing number of information carriers, computers are utilized to handle information processing with greater speed and accuracy than manual processing and access to information processed by computer is instant. The roles of ICT in library services delivery therefore include networking, online searching process, CD-ROM technology, library automation, the internet services, e-mail, reference services, digitalization, photocopying services for accessing and retrieval of information resources for proper use and dissemination. The paper identifies funding, high cost of ICT materials, shortage of skilled manpower, inconsistency in polity, poor maintenance culture, corruption, inadequate political will on the part of government, insecurity as well as economic instability as some of the challenges bedeviling sustainable library services delivery in tertiary institutions in Nigeria. The paper draws conclusion and recommends some measures including global partnership, capacity building, infrastructural upgrade through improved budgetary allocation, manpower development,*

*adequate monitoring and supervision for effective job performance as well as political stability as essential for any meaningful library services delivery for sustainable educational advancement in Nigerian tertiary institutions.*

### **Introduction**

Information and Communication Technology (ICT) gadgets such as computers and the internet have been touted as potentially powerful enabling tools for educational change and reform. The result of library transition into the information age and its array of Information and Communication Technologies (ICTs) are interconnected and interdependent and this scenario has influenced the educational development of libraries without borders. Today, libraries and ICT have played a tremendous role in the growth and development of libraries through the provision of information resources sustainable in services delivery in Nigerian tertiary institutions (Akintunde, 2006). Ekere (2000) observed that libraries are known to play a very active role in the distribution of publicity materials and publications on various educational programmes, especially, those connected with the management of education at tertiary institutions in Nigeria. Libraries generate, organize, evaluate, repackage information resources and analyze, edit, synthesize, interpret, translate and place information available for easy access. They provide information for decision-making and implementation of policies.

Ajakaye (2004) decried the cumbersome, time-wasting and rigid policies and practices of traditional libraries and librarians, saying that in the libraries, a patron undergoes a rigorous training on the cataloguing systems, meets most of the times in Nigerian libraries rather frustrated looking officials, spends more than half hour looking for the only book available and gets to know later that it had been borrowed or worse still, the book only to discover that some very relevant portions have been ripped off. In the internet, the same materials are available to several users at the same second, minute and hour worldwide. The truth of the matter which cannot be disproved is that with the internet, a lot more fresh ideas are available to the students or the researchers than any library can handle. Haigun (2001) asserted that with technological advancement, libraries cannot remain mere venues for the transmission of prescribed set of information,

therefore, tertiary institution libraries have to take up the challenge of training their students so as to give them technological knowledge and skills that would benefit them even in very competitive environment.

The world has been witnessing increase in knowledge and information explosion during the past few decades. "The present race between knowledge and book production has made it impossible for any library, however big it may be, to acquire all the printed literature in the world even on the smallest area or spectrum of knowledge, or to cope with even a fraction of the daily production of literature" (Owoeye and Anasis, 2010). Therefore, the traditional concept of ownership in collection on development is gradually being replaced by access to information and knowledge without regard to location and format. It is in view of this that this paper attempts to determine the role of Information and Communication Technology (ICT) in sustainable library and information services delivery system in Nigerian tertiary institutions.

### **Conceptual Framework**

It has become paramount to clarify the conceptual definitions of this paper due to the fact that these concepts may be shrouded in definitional controversy in that; they have wide ranging application and usage in different disciplines and circumstances. In our circumstances as librarians, we are concerned with their application in Library and Information and Communication Technology.

The concept of library has attracted various definitions. There are almost as many definitions as there are experts in the field of librarianship. However, those definitions have a common focal point and mean almost the same thing. The term library, derived from the Latin word 'libber' meaning 'book', has been commonly used to mean a collection of books, whether for public or private use. The ALA Word Encyclopedia of Library and Information Science (1983), defines a library as large and comprehensive collection of books gathered together according to a carefully prepared scheme to serve determined purposes and housed from the beginning in a building designed to accommodate both the books and those who wish to consult or study them. Although the definition above gives a clue to what a library is, much of the emphasis, like in many other definitions, is mainly on books. The modern concept of library, which is faceted and multifarious

in nature, defies the definitions. A library is not just a house or room where only books are kept for use for those who wish to consult them. A library is a designated building where information in prints and in other formats are collected, organized, carefully prepared according to some specific or definite scheme and made accessible for reading and consultation by all ages and interests.

Information and Communication Technologies (ICTs) have attracted various definitions from different people in literature. Olakulehi (2007) defined ICT as the range of technologies that are applied in the process of collection, storing, editing, retrieving and transferring of information in various forms. Hawlgins (2004) defined ICT as electronic gadgets in a gamut of sophisticated technologies, which facilitate learning or research through the gathering, processing, storage and retrieval of information content in the new ways. Barlet (2002) posited that ICT refers to systems of producing, storing, sending and retrieving digital files.

Information and Communication Technology (ICT) is defined as diverse set of technological tools and resources used to communicate and to create, disseminate, store and manage information. These technologies involve computers, internet, broadcasting technologies (radio and television) and telephony (Rusten and Hudson, 2002). In a similar view, Ibrahim (2002) observed ICT as simply the computer and telecommunication devices used for data and information gathering or acquisition, processing, storage, retrieval, dissemination and its transfer. Duncombe and Heeks (1999) see ICT as the electronic means of capturing processing, storing and dissemination of information.

The use of computers and other communication gadgets in information handling and processing has arisen due to increased workload involved in copying as a result of information explosion. In order to keep pace with handling these increasing number of information carriers, computers are utilized to handle information processing with greater speed and accuracy than manual processing and access to information processed by computer is instant (Aina, 2003).

With the advent of electronic publishing, many library and information materials are now in electronic form. These are reference sources, full text monographs and electronic journals. Electronic

publishing has become vital to libraries because of the cost of print materials. As a result of this, it is found that the average cost of accessing electronic publishing has been found to be much cheaper than owing the entire issue of a journal.

### **The Changing Trend in Library Services in Tertiary Institutions for Sustainable Delivery in the 21<sup>st</sup> Century**

The gap between Nigerian tertiary institutional libraries with access, and those without access, to information technology is actually narrowing as the “information age” continues to expand the horizon through which information services are provided in libraries. Unlike in the past, today, technology has provided the opportunity for Nigerian tertiary institution librarians to know how they can combine computer and communication technologies for effective services delivery. Williams and Sawyer (2003) assert that in the era of information technology, there should be a connection through internet-based remote control devices to regulate tertiary institution libraries. According to Gbaje (2007), technology has brought about a completely different operation of providing library services as a result of new development services to the extent that the internet is now the dominant mode of information exchange in libraries in the digital age. Nigerian tertiary institution libraries must therefore accept this advancement and adopt it to close the digital gap.

This change poses serious implication for the development and purpose of educational institutions. ICT has permeated all strata of human activities and it is increasingly gaining prominence in the performance of different tasks in the fields of medicine, tourism, travel, business, law, banking, engineering, architecture etc. (Tinio, 2002). The way these fields operate today is very different from the way they operated in the past and the rapid breakthrough in new Information and Communication Technologies will further change the way knowledge itself is developed, acquired and delivered (Oliver, 2002 and Miltwa, 2007).

The changing trend in the digital age has made it imperative for Nigerian tertiary institution libraries to develop strategies to manage access to materials that are available in electronic format and effectively share them, with the platform for doing this provided by ICT. ICTs have offered Nigerian tertiary institution libraries more efficient

ways of acquiring, organizing, storing and disseminating or transmitting information (Mosuro, 2000).

### **The Roles of Information and Communication Technologies (ICTs) in Service Delivery in the Libraries**

Information and Communication Technology has become important field for all information professionals. This is because of its relevance and application to tasks in libraries and information centers. The major applications of ICT to information professionals are in the areas of networking, online searching, CD-ROM technology, library automation and the internet.

#### **Networking**

A network is a system that uses communication equipment to connect two or more computers network through sending information and receiving feedback. Information and Communication Technology aimed at providing the latest information to the patrons across the globe, users can benefit from ICT resources, using modem-modulator/demodulator (modem). The device is used in national and international networks. It allows a computer to communicate with another through a system that consists of computer terminals, over a standard telephone line by converting the digital data from computer into analogue signals and vice-versa. It is a piece of hardware that is plugged into computer and telephone computers usually have a modem. However, for computers to communicate with one another via a modem, they must be compatible in terms of speed at which the signal is transmitted (Capron, 2000 and Aina, 2003).

The growth in technological development in the area of computer networks is boosting the functions and operations of Nigerian tertiary institution libraries. The process of retrieval and dissemination of information services in Nigerian tertiary institution libraries has witnessed tremendous growth because of networks (Rahman, 2002). Through networking, a user is able to access many databases. Some of the applications of the network include fax messages, e-mails, voice mail, video conferencing, internet virtual.

#### **The Online Searching Process**

One very important product of the convergence of computers and telecommunications technology is the online searching. The service

delivery via online searching is essential because it is fast, accurate and comprehensive. This has tremendously improved the provision of library and information services to users. Through ICT, a user is able to access information, both bibliographic and full text, in several million documents over a long distance. Online searching is a means of direct communication between a user and the computer system in an interactive mode. The user uses the computer terminal to directly search the databases of his interest which may be available to him/her locally or in a remote computer several thousand miles away, which a user who is interested in a particular area or discipline will type different search terms that will match his/her interest with those terms which may be from any existing Thesaurus or subject headings already fed into the computer. During the search, terms may be combined; the results will appear on the screen which can be printed out. It may be a bibliographic record of the item needed or the full text of the record (Hartley et al, 1997).

**CD-ROM Technology**

This is a more recent technology that is less complicated because it does not require communication links. This technology can be used for the storage of music, directories books, periodicals, computer applications etc. Data stored in this technology can be read with laser technology. Tertiary institution libraries stand to benefit greatly from this technology because it does not require connection to other peripherals like the telephone which poses additional challenges in Nigeria (Oduwole et al, 2002).

**Library Automation**

Library automation is the use of automatic and semi-automatic data processing machines to perform library tasks electronically. Library automation involves the computerization of routine tasks hitherto performed by human beings. The objective of library computerization is to make the services of a library more effective and efficient. Library automation has many advantages as it reduces the number of repetitive routine tasks (Tedd, 2004).

Attempts were made at automation of higher academic libraries of institutions like the Universities of Ibadan, the University of Lagos, and the Ahmadu Bello University Zaria, as far back as 1975, 1982 and 1987 respectively. Today, these universities have taken giant steps towards the use of these technologies. For example, the Ahmadu Bello University Library (known as Kashim Ibrahim Library) Zaria is doing tremendously well in ICT. This Library began full automation in July 2007 by using Alice for Window (A.F.W) software in its circulation services, cataloguing, CD-ROM, retrospective conversion, digitalization of theses, dissertations and other functions of the library. However in February 2010, the software was changed to Virtua which is in use till date (KIL Handbook, 2010).

**The Internet**

The internet is an important aspect of Information and Communications Technology. It is a collection of vast information sources of interlinked computer networks. Through the internet, one can access bibliographic and full text databases, electronic mail, newspapers, magazines etc. According to Adebisi (2004), one of the most important facilities on the internet is the world wide web (www) which consists of a series of various computers that are linked to the internet through the use of hypertext transfer protocol (http).

Nowadays one needs computer with a fast modem and an Internet Service Provider (ISP). The computer has to be installed with web browser software. The popular browsers are the internet explorer and netscape (Osuala, 2001).

Other vital areas through which libraries provide services delivery include reformatting, photocopying, microfilming and digitization. Reformatting involves copying activities of materials photocopying, microfilming and digitalization. Some library books could



become brittle and break easily whenever they are handled because of the paper used in their production. Such books would eventually damage the intellectual content in them through photocopying, microfilming and reprinting (Gwang et al, 2010).

Photocopying provides the opportunity of preserving the intellectual content of brittle books and of reducing the wear and tear of valuable books to the extent that users can at least be happy to use copies in place of the original. On the other hand, photocopying is inherently stressful to books and inherently disastrous. Fortunately, photocopying is the very best option to have more copies in libraries and also help to reduce mutilation. This can also help students, lecturers and researchers to have access to their own copies of materials. Most academic libraries e.g. Kashim Ibrahim Library of Ahmadu Bello University, Zaria, have photocopying machines at subsidized rate for students, staff and researchers to enable them to photocopy a few pages of materials because of piracy (Storm, 1965; Aina, 2004 and Gwang, et al, 2010).

### **E-mail Services**

The electronic mail (E-mail) is another essential application of the internet. Through the e-mail one can forward and send messages to any user who has an e-mail address. As long as a user has an e-mail address, he/she can enjoy this facility. Thus, users with e-mail facilities can send and receive messages on the internet to and from anywhere in the world regardless of the distance. The advantage of an e-mail over the postal system is that the message is accessed instantly once the e-mail address is correct.

Tertiary institution libraries in Nigeria have adopted this aspect of the internet and both staff and students are encouraged to have their e-mail addresses for effective communication. Journal subscriptions, selection of publications and other services are now online (Naqui, 2001). Also there are many software programs available on the internet which can be downloaded freely. A user of a library can access the websites of other libraries as well as their catalogues on the internet. Most journals are now available electronically and have their full texts on the web. Some of these journals are freely accessible to any user.

Oketunji (2009) says reference service focuses on professional advice and assistance provided by the library staff, from the material in the library's collections or elsewhere to assist the individuals using the library reading room or making enquiries e.g. by mail, telephone or online to meet their information needs. It also includes the range of information aids such as guides, directories and databases, and the equipment and facilities that are provided for research to be carried out, and delivery of materials from the collections to users to meet their user's information needs.

### **Reference Service in Contemporary Society**

A reference librarian has remained constant in his/her duty over the years. The difference that exists now is primarily in the tools that are used. In the past, the reference librarian used books, magazines, and newspapers, and the library catalogue. Today, reference librarians have incorporated a host of new tools like the keyboard, telephone, photocopier, microfilm, fax machine, television, computer, printer, modem, disks, CD-ROMS, telecommunications and the internet to help their patrons.

With electronic information technology, unlike clay tablets or papyrus or vellum or paper or microfilm, is a medium/tool that enhances the organization's dissemination of information. Unlike these static media, however, today's and tomorrow's information technologies allow for something approaching simultaneity in the interconnected processes of obtaining access to, selecting and organizing information. Many reference materials have been computer-produced and they have begun to duplicate or replace standard print sources. Some of these sources are bibliographies, directories, dictionaries, encyclopedias, indexes, etc. Thus, in most reference units, provision of reference services through these sources has been greatly enhanced using ICT (Encarta, 2006).

According to Oketunji (2009), Reference Librarians engage in the process of interpreting information, something that no information technology demands of users and the one that they can do since technology is simply a tool. It is a conduit for the delivery of information from provider to users.

**Challenges of Library and Information and Communication Technology**

Though various attempts have been made towards improving the standard of libraries for effective services delivery through information and communication technology for sustainable information service delivery, Nigerian tertiary institutions are still facing so many challenges. These challenges include inadequate funding for ICT resources of the sector, shortage of skilled manpower, inconsistency in the polity, poor maintenance culture, inadequate communication infrastructure and high cost of telecommunication facilities, corruption, inadequate political will on the part of governments, insecurity as well as economic instability.

The limiting factors in computer searching include the cost of acquiring and maintaining the computer terminals. Libraries usually claim that the cost of acquiring computers and installing internet is very high, therefore the library's budget cannot absorb the additional cost. Secondly, most of the third world countries lack the technical know-how to operate the computers. With this, library services will not improve as expected. In addition, appropriate infrastructure such as power supply is not guaranteed. Finally, the rate at which new versions of technology appear and the former versions are regarded as old models that require upgrading is very alarming. These are just some of the challenges bedeviling sustainable library services delivery within tertiary institutions in Nigeria, using ICT.

**Conclusion**

This study establishes that the advent of information and communication technologies have tremendously transformed services delivery in higher institution libraries in Nigeria. Although not all libraries have been automated, there is the urgent need for the remaining categories to follow the new trend through partnership with other relevant organizations. Government agencies and other relevant stakeholders should ensure that conducive atmosphere in terms of infrastructure and manpower is put in place for the overall benefit of Nigerian educational system. With technological advancement, we have seen that for any tertiary institution to enhance educational development in Nigeria, there is every need to strengthen library/information service delivery through ICTs. This will enhance efficiency

and high productivity, and reduce the delays associated with manual system of library/information services.

### **Recommendations**

- There should be increased funding of the library, information and communication technology.
- There is a need for frequent organization of workshops, seminars, conferences to update librarians on latest skills on information management that would enhance effective information provision required for sustainable library service delivery in tertiary institutions in Nigeria.
- Government should be focused on policy formulation and implementation regarding the ICT sector.
- There should be steady power supply so as to allow the system perform well.
- There should be provision of bandwidth, generators, inverters, air conditioners or fans to enhance service delivery in the library and information centres in case of power failure.
- There should be provision of qualified personnel to maintain and manage the library and ICT in Nigerian tertiary institutions.
- Training and retraining of library staff should be a continuous process.
- There should be assistance from non-governmental and other international agencies to support the financing of libraries and ICT sector in Nigerian tertiary institutions. This will have a great impact on information service delivery in tertiary institutions in Nigeria.

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