



# **Influence of Information and Communication Technology (ICTs) in Libraries for Information Service Delivery: Issues and Practices**

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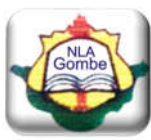
## **Abstract**

*The paper examine influence of information and communication technology (ICTs) in libraries for information service delivery: issues and practices. The paper equally examine the types of information and communication technology (ICTS) application in libraries for information service delivery. The use of ICT for information service delivery is important and necessary in libraries to handle the vast amount of information and for providing faster, accurate, precise, efficient, and effective dissemination of information. However, Issues regarding (ICTS) application in libraries such as Funding, computers, internet availability, standard and up to date union catalogue, were discussed. As a result of advancement in ICT and subsequent globalization, ICT has no doubt improved various aspects of library services from the simple clerical work to the acquisition, organization and dissemination of information and information materials. Also, proper maintenance culture, computer literacy, constant power supply and personnel and equipment for completion of ICTS project were examined. In libraries, ICT has play a tremendous role in easing the arduous task of manual processing and also play a key role in time saving regarding the retrieval of information and has made it possible for libraries to access a wealth of up-to-date resources worldwide. It has also provide a quicker access to information by specialist in a number of disciplines and allow librarians to reach other colleagues and users with messages and document. In Conclusions, adoption of Information and Communication Technologies were hence being used extensively to facilitate the work output in Libraries for effective information services delivery. Therefore, it has been recommendations that, Libraries should keep pace with changes brought in as a result of information and communication technology ICTS through providing adequate infrastructures for effective information services delivery, otherwise they would be left behind.*

**Key words:** Information and communication technology (ICTS), Libraries, Information centres, information service delivery.

## **1.0 Introduction**

The availability of the right information at the right time and in the right form is of utmost importance to users for their knowledge and developmental activities. However, with the advent of information and communication technology (ICTs) today has brought about digital library, which changed the nature as well as job profile of librarians and information professionals bringing about new demands and expectations both from library users and librarians (Adebayo and Adekunjo, 2013). To this regard, developments in information and communication technology (ICTs) have greatly changed the methods of information handling in which libraries and information centre's embrace the combination of tools and procedures



that facilitate the generation, acquisition, storage, organization, retrieval, searching, viewing, updating and transmission of information using electronic means.

Libraries are shifting their role from the custodian of traditional information resources to the provider of service-oriented digital information resources. Consequently, the widespread use of computers, increased reliance on computer networks, rapid growth of Internet and explosion in the quality, and quantity of information compelled libraries to adopt new means and methods for the storage, retrieval and dissemination of information. Also, the development of online services and application of innovative information and communication technologies (ICT) have tremendously increased because it provides enhanced user satisfaction, cost effectiveness, rapid responses, and easier operational procedures. Hence, libraries have been employing ICT and electronic information resources and services to satisfy the diverse information needs of their users such as E-journals, CD-ROM databases, online databases, e-books, web-based resources, and a variety of other electronic media are fast replacing the traditional resources of libraries.

## **2.0 Issues in ICTS Application in Libraries for Information Service Delivery**

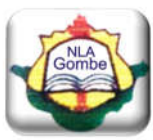
Information communication Technology (ICT) has been recognized by many people as catalysts for change, because of their influence on every aspect of human life. To this note, ICTs refer to a range of equipment or technological tools such as hardware and software used to access, create, store, organize, manipulate and as well as disseminating information (Diane, 2020 as cited in Omole & Adereolujo, 2021). Also, ICT is a generic term that encompasses a range of telecommunication technologies such as Internet, Radio, Video conferencing, Satellite, Cables and other communication medium (Omole & Adereolujo, 2021). Consequently, computer technology, communication technology, and accumulation storage technology are some of the areas that redesign the way libraries access, recover, store, control, and circulate information to patrons. Hence, practical and effective ICTS application in libraries and information centres requires certain prerequisite conditions as identified by Omole & Adereolujo (2021) which include;

### **2.1 Funding**

The acquisition and maintenance of the relevant equipment required for digital resource sharing all depends on the availability of fund. However, fund is also needed to connect to the internet, subscribe to the various online databases and obtain software licenses. To this regard, ICT is a capital-intensive venture, hence funding determines the availability, use and is necessary for the acquisition, installation, maintenance, training of staff and users and sustainability of the ICT facilities for information service delivery. Study carried out by Haliso, (2011) on factors affecting information and communication Technology use by librarians in southwestern Nigeria, specifically on how libraries get ICT support showed that about 65.5% of the libraries under the study did not have a separate bandwidth connection to provide internet services to their clientele due to inadequate funding. In the same vein, Lots of universities in Africa are supported and funded by the governments and do not create profits on their own. This assertion has been shown in number of studies and the end result has always been that ICT turns to suffer because the governments channel their scarce resources of funding to other prioritized areas rather than education which consequently have a negative effect on availability of ICT in libraries (Chaputula, 2012, as cited by Essien, Lu, Abredu, & Zotoo, 2022)

### **2.2 Computers**

The need for computers in the sharing of resources stems from its ability to receive and store large volumes of information. However, internet accessibility is made possible through the use



of computers. Also, computer is employed in the processing of data needed for exchange. It is also used to access the OPAC and also share online classification. Meanwhile, the state of ICT infrastructural facilities in most tertiary institutions poses a serious problem to ICT use in our libraries. To this regard, facilities such as computers, computer network and software, printers, telecommunication facilities, photocopiers, limited access to ICT hardware and software and first broadband internet connection which are needed to enhance the use of ICTs in libraries to function effectively are not only inadequate, but not very well spread and utilized in many libraries. Roenherg, as cited by Omole & Adereolujo, (2021) submitted that the use of computer for services delivery is still very low. This shown that computers and allied technology used to enhance sharing have not been adequately embraced by many libraries. Based on this, computers should be well networked and integrated for vital role in the performance of routine activities which include acquisitions, cataloguing and classification, and indexing of materials in libraries Also, libraries should exchange the performance of in-house activities through networked computers.

### **2.3 Internet Availability**

The quest of the academia to explore different fields of study through research is satisfied by the vast sea of resources found on the internet. With internet connectivity, libraries can reach beyond their walls to provide patrons with resources available in their libraries. Ibrahim (2019) noted that internet have brought tremendous impact on services delivery in libraries. For instance, Social media as typified in library 2.0 model are increasingly appropriate part of libraries and they are tools for enhancing library facilities and knowledge. To this regard, numerous libraries are successfully using twitter to commune services like opening times, new arrivals etc., while others have developed applications that enable users to search catalogs from within Facebook.

There is no doubt that the application of ICTs have provided one of the best innovations in the history of libraries and it is transforming the shape of libraries and role of librarians at an extraordinary shape (Ibrahim, 2019). In the same vein, the online public access catalogue (OPAC) of libraries is also posted on the internet for participating libraries to access their resources. Also, information on online cataloguing, classification and indexing practices are shared using the internet. However, poor state of the internet poses a challenge to the attainment of global connectivity. The few available internet facilities are concentrated on urban areas. The problems associated with the internet in Nigeria range from poor telecommunication infrastructure to lack of search skills needed to navigate through the internet so as to harness the avalanche of available literature.

### **2.4 Standard and up-to-date union catalogue**

Catalogues shows a record of resources on cards or machine-readable formats. However, it reflects holdings of libraries sharing resources. Also, it gives users opportunity to search the collections of other libraries. Similarly, union catalogues facilitate sharing of catalogue data and library resources through interlibrary loan. Meanwhile, the goals include among others the provision of links to document suppliers and electronic journals and the maintenance of accepted standards. It also helps libraries to avoid duplication of resources since they can easily see what is available in each cooperating library. Ibrahim (2019) submitted that ICT has brought unprecedented changes and transformation to the library and information services. The researcher stressed that conventional OPAC, user services, reference service, bibliographic services, current awareness services, document delivery, interlibrary loan, audiovisual services, and customer relations can be provided more professionally and successfully by means of ICT.



This is because they offer suitable time, place, cost efficacy, quicker and most recent distribution and end users involved in the library and information routine process.

### **2.5 Computer Skills literacy:**

Many librarians graduated from library schools without acquiring computer and ICT skills. This however, makes it difficult for them to embrace technological innovations. This implies that, librarians must possess certain skills to utilise ICT effectively and efficiently for information service delivery. Consequently, ICT Skills are the capacity to respond appropriately to the diverse conditions and challenges presented by our situations and jobs to accomplish a goal or purpose. The term "information and communications technology (ICT) skills" refers to the individual capacity to locate, analyze, use, and generate information using digital technology, communication tools, or networks (Ahmed & Ibrahim, 2023).

The ICT skills level of Nigerian librarians is a proxy for how well they can perform their professional duties of collecting, cataloguing, searching for, and disseminating information, as outlined by Ogunche (2017). It also includes the proficiency needed to work autonomously in a digital and online environment. To apply and make use of information and communication technologies for efficient and successful service delivery, it is essential for librarians to acquire the appropriate skills. As Iqbal and Khan (2017) noted, ICT skills provide the impetus for technological revolution and keeping up with the industry's ever-changing trends. They establish that technological advancements require librarians to acquire both fundamental and modern skills and knowledge to maximize the efficiency of these technologies in libraries. To perform effectively, librarians must also possess a breadth and variety of ICT skills. For example, word processing skills, statistical analysis skills, scanning and uploading skills, electronic presentation skills, and internet navigation skills among others

### **2.6 Constant power supply**

Adequate infrastructures were needed by libraries like affordable and reliable internet supply, good computing facilities, steady electricity supply, among others, in order to enjoy ICT usage. However, studies conducted by Enakrire & Onyenania and Myhill, as cited by Essien, Lu, Abredu, and Zotoo, (2022) revealed that adoption and use of ICTs by countries who lack Adequate infrastructures that give access to ICT especially steady electricity supply, continue to operate in fairly low capacity. It is imperative that power must be available before ICT facilities can function effectively for information service delivery. This implies that, effective use of the Internet and proper networking between one library and another are brought to reality through efficient power supply. Also, digitizing and uploading the OPAC to the internet and accessing the holdings of other libraries which are vital aspects of sharing can only be achieved with the availability of electricity. Hence, regular supply of power facilitates the use of computer and internet facilities.

### **2.7 Personnel and equipment for completion of projects**

Some libraries that started automation for their services delivery abandoned the project due to lack of personnel and equipment for effective execution of the projects. However, proper automation for effective service delivery is necessary if electronic resources must be adequately shared. This implies that, the issue of technical know-how is a paramount problem which could hinder the success of the whole process. Also, funding is the major constraint of information technology in library services and that it is more than just acquiring the hardware and software but updating and maintenance is very crucial in order to sustain it. Infrastructures, like effective air conditioning system is also a high cost implicating risk which is very essential in a mechanical library or office.

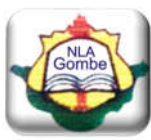




### **3.0 Types of Information and Communication Technology (ICTS) Applied in Libraries for Information Service Delivery**

Libraries being the focal point for teaching, learning, and research in academic institution, provide standard information resources for effective information services delivery. Today, digital technology have revolutionized the way information were packaged, processed, stored, and disseminated. Therefore, a well-established library is essential for any academic institution. Meanwhile, libraries were struggling to keep their place as the major source of inquiry in the face of emerging digital technology. To this note, different electronic and digital media, and computer aided electronic equipment, networks and internet has provided significant role in retrieval and dissemination of information and playing a vital role for modernization of libraries. Saleem, Tabusum and Batcha (2013) noted that there are several information communication technology for various housekeeping, management and administrative functions of the library which includes:

- 1) **Library Automation:** Library Automation is the concept of reducing the human intervention in all the library services so that any user can receive the desired information with the maximum comfort and at the lowest cost. Momoh (2017) states that automation reduces the work stress of library staff, improves library services, make library administration and management efficient, helps avoid duplication of the work, facilitate resource sharing, increase technical processing efficiency over a manual system and subsequently leads to job performance of library staff. However, major areas of the automation can be classified into two-organization of all library database and all housekeeping operations of library. To this note, libraries play a significant role in the achievement of institutional goals and this role becomes even more critical in adoption and integration of Information and Communication Technology (ICT) to information service delivery. Therefore, Information and Communication Technology (ICT) is the application of computers and other technologies to the acquisition, organization, storage, retrieval and dissemination of information. Onwubiko (2011) as cited by Abu, And Okarfor, (2023) perceives ICT as the application of communication technologies consisting of hardware, software, networks and media for the collection, storage, processing, transmission and presentation of information, via voice, data, text or images. According to Eyo, Nkanu and Nkebem (2011) as cited by Abu, And Okarfor, (2023) ICT are tools that facilitate the production, transmission and processing of information. Therefore, Information and communication technologies (ICT) facilitate the process of identification, collection, storing, processing and disseminating of information.
- 2) **Library Networking:** Library networking means a group of libraries and information centers are interconnected for some common pattern or design for information exchange and communication with a view to improve efficiency. Jan (2018) reported that libraries have already joined library networking. The researcher further stressed that there were many reasons responsible for offering library networking. One reason were having access to the knowledge that enables several libraries to broaden the range of subjects that could be covered and thus raises the quality of services. Secondly, sharing the workload and shifts enables libraries to offer this service for longer periods. Also, Costs of software and database were reduced due to negotiation powers of library networking. In a nutshell, the most significant and probably best acknowledged library networking project were Question Point which were joint venture of the Library of Congress and On-line Cataloging Library Centre (OCLC) (Jan, 2018). Also, Qobose and Mologanyi (2015) reported that several hundred libraries worldwide participated in "Question Point". Hence, Question Point offers a wide range of modules and functionalities.



- 3) **Library Management:** Library Management includes the following activities which will certainly be geared up by the use of these fast ICT developments, Classification, Cataloging, Indexing, Database creation, Database Indexing. However, ICT has no doubt improved various aspects of library services from the simple clerical work to the acquisition, organization and dissemination of information and information materials. As a result of advancement in ICT and subsequent globalization, the present day librarians are expected to be skilled in using computer, networking and the internet to fulfill their professional obligations (Oguche, 2017). They are also, required to know various computer operations such as turning computer on, opening a folder, copying a file from one disk to another, scanning etc; the use of application software such as creating a new word processor document, modifying an existing word processor document, print out a document, operating in a networked environment (Local Area Network, Wide Area Network) just to mention but few for effective information service delivery.
- 4) **Digital Library:** A digital library is an assembled of digital computing, storage and communication machinery together with the content and software needed to reproduce, emulate and extend the services provided by conventional libraries based on paper and other material means of collecting, cataloging, finding and disseminating information. However, a full service digital library must accomplish all essential services of traditional libraries and also exploit the well-known advantage of digital storage, searching and communication. Also, it provides access to part of or all its collection, such as plain texts, images, graphics, audio and video materials and other library items that have been electronically converted, via the internet and worldwide web (www) for effective information service delivery.
- 5) **Technical Communication:** Technical Communication consisting of technical writing, editing, publishing, DTP systems etc. Internet skills such as using the worldwide web (www), sending an e-mail message, using the word to find specific information, taking part in an online discussion or chatting (videoconferencing), and sending attachment with an e-mail message are also necessary ICT skills that librarians should acquire in order to function effectively in the digital era for effective service delivery in libraries (Oguche, 2017).

#### **4.0 Use of Information and Communication Technologies in Libraries for Information Services**

Nowadays, the use of evolving information technologies and knowledge resources in libraries have paved the way into the digital world. However, with technology, new paradigms of opportunities were available for libraries to create borderless access to information, adaptively and flexibly engage different users, widen libraries' patron-base and automate house-keeping routine practices, thereby minimizing physical and mental effort for effective service delivery. Chimah and Nwokocha (2015) emphasized that Information and communication technology (ICTs) provides opportunity for full organizational restructure to provide enhanced users satisfaction. It also provides Cost effectiveness, integration, faster and simpler programmes, rapid responses and easier operational procedures for effective service delivery. As a result of that, Chimah and Nwokocha (2015) quoting Joseph (2010) identified the following as types of ICTs applied in libraries in libraries and information centres as:

- 1) **Federated Search.** Federated search is a technology that came into existence as a result of the desire by database and electronic resource subscribers to search and retrieve resources from multiple and disparate sources on a single interface.

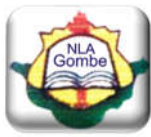


- 2) **Virtual Reference.** Virtual reference service refers to the remote delivery of reference sources and resources to users who are not inside the library physically. This service includes; Knowledge base, Online chats, Text Messaging, and Co-browsing.
- 3) **Digital Institutional Repository.** Kari and Orji (2022) defined Institutional repositories as an online platform for storing research output that do not meet with the standard of publishing in peer reviewed journals. Also, the researchers further describe institutional repositories as a digital community that hosts and preserves intellectual output of a single or multi-university community that provides evidence on the features of such a community. According to them institutional repositories serve two purposes which include collections of intellection research output and showcasing the characteristics of the institution involved.
- 4) **Online Databases.** This is one of the ICT tool that allows for searching electronic information online example is the JSTOR. Journal Storage is a United States-based online system for archiving academic journals, providing full-text searches of digitized back issues of several hundred well-known journals. It also includes SCIENCE DIRECT, EBSCOHOST, HINARI, AGORA etc. Corroborating the above, Uzuegbu, Chukwu, and Ibegwam (2012) in a study on creating universal resource locator (URL) links on library computers desktop page: A panacea for Students' underutilization of subscribed electronic databases in academic institutions in Nigeria using Michael Okpara University of Agriculture Library Umudike (MOUUAU) as a case study, it was revealed that collection development of the library is rapidly growing. Apart from access to its modest collection of books, journals and periodicals, library users have access to electronic databases subscribed by MOUUAU Library. The databases are AGORA, EBSCO Host, HINARI, OARE, NUC Virtual Library and Lan-TEEAL of 2005 CD and 2009 DVD versions.
- 5) **Virtual Libraries.** Virtual library refers to an information service or collection of electronic resources whose collections are entirely in virtual or digital form and information is accessed over a network. Such a library provides access to virtual indexes, catalogues, and books. Virtual library does not have physical space, where users visit to access information resources.
- 6) **Open Access Repository.** Open access is interested in the free availability of scholarly outputs on the Internet granting the user to make legal and non-commercial use of the document and at the same time acknowledging the intellectual ownership of the author of the document. Based on the above , one could deduce that ICTS brought about different information sources to the users as compared to the printed version as information can be access anywhere at any time without border.

## **5.0 Sources of Information Technologies and Communication Technologies Available In Libraries for Information Services**

The use of application models such as web-based catalogues, Integrated Library Software (ILS) and other emerging Web technologies were flexibly redefining library operations for effective services delivery. Ferdinand, Ruth and Paul (2015) reported that the University of Chicago Library listed some of the information and communication technology (ICTS) available in the library's disposal to include:

- 1) **Electronic Books:** Libraries now provides access to a variety of electronic books, as well as the other printed works (such as essays, poems, or historical documents). Some of these electronic books and texts are part of large, searchable databases.



- 2) **Electronic Journals:** Most libraries now have an offline E-Journals Database to help you find journal materials that is useful to users and an online versions of e-journals which the library subscribe to have access to current journal publication.
- 3) **Online Database:** Is a web based filing system designed to store information. It is a database accessible from a network, including from the Internet. Most libraries now subscribe to online databases of books and journals that are relevant to the University curriculum which will help to facilitate teaching and learning in the University environment.
- 4) **Online Sources:** Online sources are materials that are available online. It can be an online newspaper, magazine or television website such as NBC or CNN. Peer-reviewed journals, WebPages, forums and blogs are also online sources. Some other names for online sources are 'electronic' sources, 'web' sources and 'internet' sources. These are very useful ICT resources which many libraries are now making available to satisfy the urgent needs of their user community.

According to Chowdhury and Chowdhury (2007) as cited by Tran, (2013) in a study “Organizing information from the shelf to the web: library collections, acquisitions, and technical services,” identify the following as sources of ICTS in libraries for information services as:

- Library OPACs, which provide access to library collections;
- Online bibliographic or full-text databases (database search services), which provide access to remote collections;
- E-books and e-journal services such as Net library, which provide access to electronic books and journal articles;
- Intranets and databases created by companies and institutions to provide access to various information resources within the institution;
- Websites, which are accessible either by going directly to the site if the web address or URL (uniform resource locator) is known; and
- Subject gateways that provide access to selected web resources in one or more specific discipline(s).

## **Conclusion**

In the era of information and communication technology ICTS, libraries and information centres should keep pace with changes otherwise they would be left behind. However, providing unlimited access to electronic information resources in libraries and information centres as well as keeping track of them is one way of keeping pace with change. Also, the success of library and information centres in ICTS application depends on its ability to contend with the problems associated with it. These problems are found to be linked with administrative policies/ practices, funding, staffing and e-resources provision using ICT.

## **Recommendations**

Based on the findings of this paper, the following recommendations were made:

- **Budget allocation for development ICTS application**  
A certain percentage of the Libraries and information centres budget should be allocated to the development of ICTS infrastructure. Funding issues may also be addressed by diverting funds from the print resource allocations or by canceling some journal titles in order to get enough money for new resources. Another option could be to participate in networks or consortia to enjoy the benefits of discounts. Finally, should explore the option of making constant requests to their Administration for sufficient funds allocations for development ICTS and collection.





- **Re-skilling of librarians**

Librarians and other paraprofessionals should be trained and retrained so as to function effectively in an IT-driven information environment. The acquisition of requisite ICT skills will help them to develop digital information resources or strategically plan for the application in their services.

- **ICT infrastructural development**

There should be a policy as well a strategic plan for ICT infrastructural development in Libraries for information services. This will provide an enabling environment for effective application for the success of services delivery.

- **Commitment to digital library projects**

Digital projects need to be developed which include integrated library automation, creation of standardized databases, digitization of theses and dissertations, and creation of various types of institutional repositories (IRS). Commitments to each of these projects will redefine, reposition and reinvent the university library for user-centered services.

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