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Application Venues of Information Technology in Library and Information Services: A Review of Concepts, Nigerian Status and Technical Standards

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Abstract

In this paper, authors review Information Technology (IT) as it relates to Library & Information Services. Impact of ICT on Library & Information Services is discussed. ICT enabled services in the Library and Information profession are identified. Application venues of IT in library services are also discussed in various categories: Acquisition, Technical, Online Public Access Catalogue (OPAC), Circulation, Reference Service, Online Search/Literature Search, CD-ROM Search, Developing Local Databases, Internet Search, Document Delivery Service, and Patent Information Service. Also ICT application in Nigerian Libraries is reviewed. Information Technology Standards in libraries such as ANSI/NISO standard Z39.50 are reviewed. The paper concludes by stating the impact of ICT on libraries and the need to improve infrastructure.

Keywords: Information technology, libraries services, Nigerian libraries, technical standards.

1.0 Introduction

1.1 Concepts of Information Technology as it relates to Library & Information Science

Information is dynamic and unending resource that affects all disciplines and all walks of life. ICT has revolutionized the field of library and information services. ICT has developed to such a stage that it has given access to information at fingertips. UNESCO defines Information Technology as “*The scientific, technological and engineering disciplines and the managerial techniques used in information handling and processing; their applications; computers and their interaction with men and machines and associated social, economic and cultural matters*”(Peltu,1982). In a nutshell, ICT on

Library and Information Science means the application of computers and communication technologies to the acquisition, organization, storage, retrieval and dissemination of information process.

Convergence of computer and communication technologies and their subsequent application to library and information activities has changed the philosophy of information from unitary to universal access. Over the past few decades developments in information technology have brought many changes to university library services and infrastructures in Kerala. The first wave of library computerization in Kerala took place in the 1990s. During the second wave of library computerization, which began in the 2000, the focus was on the

deployment of computer networks providing access to electronic information.

The concept of Information Technology (IT) has been described in the library literature in different ways. While some see IT as the means by which science is used in the collection, storage, processing and movement of information; others in their own view IT or ICT as the acquisition, analysis, manipulation, storage and distribution of information; and the design and provision of equipment and software for these purposes.

Other scholars see the term information and communication technology as a term that involves a lot of activities related to information handling and processing. ICT is considered as the use and application of computers, telecommunications and microelectronics in the acquisition, storage, retrieval, transfer and dissemination of information. IT permits dissemination of information of greater value effectively and efficiently to the world at large through large number of media (wide variety of sources) e.g. computer databases, Internet services, online information retrieval, compact disks, etc.

1.2 Impact of ICT on Library & Information Services

Computing technology, communication technology, and mass storage technology are some of the areas of continuous development that reshape the way libraries access, retrieve, store, manipulate, and disseminate information to users. ICT has impacted on every sphere of academic library activity especially in the form of the library collection development strategies, library building and consortia. ICT presents an opportunity to provide value-added information services and access to a wide variety of digital based information resources to their clients. Furthermore, academic libraries are also using modern ICTs to automate their core functions, implement efficient and effective

library cooperation and resource sharing networks, implement management information systems, develop institutional repositories of digital local contents, and digital libraries: and initiate ICT based capacity building programmes for library users.

Information and Communication Technology (ICT) has brought unprecedented changes and transformation to academic library and information services. Conventional library and information services such as Online Public Access Catalogue (OPAC), user services, reference service, bibliographic services, current awareness services, document delivery, interlibrary loan, audio visual services, and customer relations can be provided more efficiently and effectively using ICTs, as they offer convenient time, place, cost effectiveness, faster and most-up-to-date dissemination and end users involvement in the library and information services process. The impact of ICT is characterized on information services by changes in format, content and method of production, and delivery of information products.

Furthermore, it is evidenced that the emergence of internet as the largest repository of information and knowledge, changed role of library and information science professionals from intermediary to facilitator, new tools for dissemination of information and shift from physical to virtual services environment and extinction of some conventional information services and emergence of new and innovational web based.

1.3 ICT Enabled Services in the Library

Information is knowledge, facts or data. For the purpose of enabling the users to assimilate information, it should be repacked. Knowledge becomes information when it is externalized i.e. put in to the process of

communication. The effectiveness of communication technology depends on how well it provides its clients with information rapidly, economically and authentically. A large number of ICT enabled services including OPAC; e-resources, etc., are

available in the university library.

Information Technology (IT) enhances easy information retrieval of documents. Retrieval of information from electronic resources and Internet is simpler, easier and faster in comparison to manual systems.

Loan service	CD-ROM Search	Compilation of Bibliographies
Inter-Library Loan	Literature Search	Document Delivery Service
Reference Service	Developing local Dbases	Conference Alert Service
Proficiency Corner	Internet Service	New Addition Alert Service
Patent Information	Consultancy Service	Reprographic service

Source: Antherjanam & Sheeja, 2008

1.4 Application Venues of IT in Library Services

Impact of information technology spreads across different sections of the library. Various functions of the library are discharged more effectively with the application of IT. Detailed analysis of major impacts of IT on different sections of the library is described below.

Acquisition

The impact of Information technology in collection development is very prominent in university library. Most academic library is integrating electronic and Internet based information sources in its collection. The university libraries have been keeping non-book materials like floppy disks, CD-ROMs and multimedia reference books in the collection.

With the help of web, acquisition work has become very much simplified. Order placing, duplication checking, price checking etc are done very effectively using ICT technique. Online bookshops and publisher's websites save the time of the librarians. For the procurement of journals, order is placed in the prescribed format to the publishers through Internet. Invoices can be downloaded from the websites that makes service faster and avoids postal delay. E-mail helps in sending

reminders to the publishers, vendors and even to the borrowers of the books. IT also helps in the process of the serial control in the university library. It helps in preparing union list of serials and helps in circulating via e-mail to the branch libraries.

Technical

Establishing links to the most frequently used library catalogues help the librarians for authority work. With the help of OPAC, it is now very convenient for the technical staff to assign call numbers to the newly added books. IT has reduced the volume of work done in catalogue card preparation. With the help of some software libraries can create a central bibliographic record for the library management system.

Online Public Access Catalogue (OPAC)

ICT has revolutionized the practice of cataloguing in the library. With the help of OPAC users access the holdings of the library catalogue at their desktop across the campus. It reduces the cost of maintaining a catalogue. Elimination of many paper files and decentralization is possible.

New Addition Alert Service

Technical section of the library can

provide new additions alert service to the users including the staff. List of new additions in the library is compiled and e-mailed to user community regularly. This service is the major impact of ICT in technical section.

Circulation

The use of technological devices such as computers, barcode scanners and its software in circulation helps in performing the routine operations easily and quickly. The integrated facilities of some Library automation software such as ADLIB, XLIBPlus, help in this regard especially in bar-coding library collection. Transaction process of the collections in the library has become faster than before. Now, most libraries heavily depend upon telephone, Internet and e-mail for checking availability, reservation and renewal of books.

Reference Service

Libraries, particularly reference section, have both printed and multimedia reference sources. In the reference section, queries are answered through telephone. For ready reference services library staff use Internet and E-mail facility.

1.5 Electronic Information Service

Electronic services are also provided very efficiently in libraries with the application of ICT. This section offers following services to the user community:

Online Search/Literature Search

The implementation of ICT has created an environment for searching and retrieving the documents from the databases. The advantages of online searching over manual include speed, accuracy, convenience, accessibility to combine concepts, specific search, modification of search strategy etc.

CD ROM Search

CD-ROMs are another outcome of ICT. In

some libraries CD-ROM databases are increasingly used as an important medium for storage and dissemination of information.

Developing Local Databases

Computerized databases provide easy and user friendly access to the information resources. Library utilizes ICT for creating and sharing databases of its holdings through CD-ROMs, VCDs and other multimedia resources.

Internet Search

Library provides free Internet service to its users. Library users make use of the Internet services daily in the university library.

Document Delivery Service

No library can afford to procure every piece of information published across the world because of financial and other constraints. Data exchange between different systems and media such as co-axial cables, satellite communication etc. have promoted the resource sharing among the libraries. ICT has helped in the emergence of various networks in the LIS field. Document delivery services are provided in association with networking agencies.

Patent Information Service

The library can become approved patent centre and make patents available either as hard copy or on CD. Patent Information service is also provided through email on request.

2.0 Literature Review

2.1 ICT Applications in Nigerian Libraries & Information Centres

With the invention of Information and Communication Technology, libraries now use various types of technologies to aid the services they render. Everyday new technological advances affect the way information is handled in libraries and

information centers. The impacts of new technologies are felt by libraries in every aspect. Computing technology, communication technology and mass storage technology are some of the areas of continuous development that reshape the way that libraries access, retrieve, store, manipulate and disseminate information to users. The academic library has been from its inception an integral part of institutions of higher learning, rather than an appendix or adjunct.

ICT has impacted on every sphere of academic library activity especially in the form of the library collection development strategies, library building and consortia. ICT presents an opportunity to provide value-added information services and access to a wide variety of digital based information resources to their clients. Furthermore, academic libraries are also using modern ICTs to automate their core functions, implement efficient and effective library cooperation and resource sharing networks, implement management information systems, develop institutional repositories of digital local contents, and digital libraries: and initiate ICT based capacity building programmes for library users.

The emergence of computers has revolutionized modern society. One wonders how life was conducted prior to computers and their peripherals. Like other fields of human endeavor, there is no aspect of library activities that digital processing is not applicable. Digital technology is of particular importance when information is to be gathered, store, retrieved and evaluated (Kennedy and Davis, 2006). The importance of Information and Communication Technology (ICT) in Nigerian libraries is no longer an issue in contention. The issue in contention is how Nigerian libraries can ensure their continuous derivation of the benefits from new opportunities afforded by ICT. In order to bridge the gap that exists

between traditional and modern methods of information storage, retrieval and provision in the digital age, the use of ICT in library operations must be seriously emphasized. Ideally, ICT is expected to have a major impact on the management, structure, and work activities of Nigerian libraries. As first step to bridging the gap, Nigerian librarians must accept one basic fact which is, ICTs are enablers of innovation in the managerial and operational processes in libraries. That is, the use of the technologies of modern computer-based information systems is a major force that has the capabilities of transforming the traditional methods used in cataloguing and classification, indexing, abstracting etc. It is expected that all technologies that process, store and communicate data and information in libraries should be managed as integrated systems and be used as access tools for the libraries resources (Nkanu and Okon 2010).

Nigerian 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. This is one of the many challenges confronting Nigerian libraries and librarians as Information Technology sweeps the world. Many Nigerian libraries are now converting the contents of their print resources into electronic databases thus, increasing their dependence on technology. Unlike in the past, today, technology has provided opportunity for librarians in Nigeria to know how they can combine computer and communication technologies in the performance of library tasks. This confirms Williams and Sawyer (2003), assertion that, in the era of information technology, "we will have everything connected to everything", which are internet-based remote control devices to regulate our libraries. Technology has brought about a completely different way of providing library services resulting to the development of new services (Gbaje, 2007). The Internet is

now the dominant mode of information exchange in libraries in the digital age, then, it is no longer a luxury but, a necessity which Nigerian libraries must accept and adopt to close the digital gap.

2.2 Information Technology Standards in Libraries

Technical standards have been an important part of librarianship in the United States since 1939, when the American National Standards Committee Z39, the forerunner of the current National Information Standards Organization (NISO), was formulated. Today, the environment in which technical standards bearing on libraries arise grows increasingly complex, as the rise of the Internet and the World Wide Web engage in a wide array of organizations and interests in the development and use of technical standards for computing, networking, and digital publishing. So, in the early twenty-first century, organizations like the Internet Engineering Task Force (IETF), International Organization for Standardization (ISO) and the World Wide Web Consortium (W3C) play prominent roles in the development of technical standards that have significant effects on digital libraries and archives, and on digital publishing (Tomer, 2010).

As Tomer (2010) noted, an ISO standard more directly relevant to the interests of libraries (and illustrative of the conditions that influence the evolution of technical standards) is ISO 23950, also known as ANSI/NISO standard Z39.50. Designed as a protocol for searching and retrieving information, usually from bibliographic records, Z39.50 specifies procedures and formats for a client to search a database provided by a server, retrieve database records, and perform related information retrieval functions.

Other library-oriented ISO standards include: ISO 15511:2003 Information and

documentation – International Standard Identifier for Libraries and Related Organizations (ISIL); ISO 9230:2007 Information and documentation – Determination of price indexes for print and electronic Delivery and Rights Management: Functional requirements for identifiers and descriptors for use in the music, film, video, sound recording, and publishing industries; and ISO 11620:2008 Library performance indicators.

Technical standards “are the bases for making many exciting and empowering things happen – like connecting one system to another, producing files on one system that can be transferred to another, and saving users money when a different manufacturer’s less expensive component can be connected to their system” (Campbell, 1992). Or, to cite another view, “without standards no one can use intelligent machines very effectively, equipment cannot interoperate, and all the information people are so busy creating would stay locked in files and archives, largely inaccessible” (Libicki, 1992).

Conclusion

It is revealed from the above discussions that IT in libraries enhances services thus:

Users are encouraged to make very good use of the available ICT facilities.

With the help of telephone, e-mail, fax machines, etc. reference queries are answered faster than before.

Selective Dissemination of Information (SDI), Current Awareness Services (CAS), etc. are also done faster than before.

Issue & return of books, renewals are done faster now than before.

Book selection, price checking are also done very efficiently using ICT

Some library users search OPAC for getting information about the where about of books

Most visitors make use of Internet searching facility, online journals etc.

If the software or the hardware stops working, it is very difficult to continue the routine work of the library (if it's already automated).

Most Nigerian libraries and information centres have embraced IT but there is need for improved infrastructure and training of librarians and library users.

Technology standards in libraries give room for interoperability which facilitates information sharing via systems and networks.

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