

Information and Communication Technology in Academic Libraries

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Abstract: - *The emerging challenges posed by the contemporary environment are many in number. These challenges are posed by application of ICT, manifested in many forms or notions like digital repository, open access, user centric services (e-learning, e-teaching, information literacy, orientation programmes), web-based library services, application of social networking, library cooperation including consortia, and legal issues. This paper aims to present the impact of ICT implementation on Libraries and Library professionals in Academic Colleges.*

Keywords: ICT, Information Technology, Library Services, Library Automation, Information Systems

Introduction

With the invention of Information and Communication Technology, libraries now use various types of technologies to aid the services they render. Every day 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.

Information Communication Technology

Information Communication Technology (ICT) is a diverse set of technological tools and resources used to communicate and create, disseminate, store and manage information, (Blurton,1999). So, we can define ICT as ‘the use and application of computers, telecommunications and microelectronics in the acquisition, storage, retrieval, transfer and dissemination of information’.

ICT in LIS

ICT provide an excellent opportunity for Library professionals to manage themselves better. Applications of ICT have made a great impact on Libraries and information centers. It is one of the

key components of modern library which facilitates the rapid growth and development of a LIS education. ICT makes a bridge between nation-to-nation, society-to-society and group-to-group.

ICT in Academic Library

Oyedun (2007) observes that over the past twenty seven years, academic libraries have been affected by accelerating changes in information and communication technology. The introduction of various information technology (ICT) trends has led to reorganization, change in work patterns, and demand for new skills, job retraining and reclassification of positions. Technological advancement of the past twenty-five years, such as the electronic database, online services, CD-ROMs and introduction of internet has radically transformed access to information. Rana (2009) opines that ICT holds the key to the success of modernizing information services. Applications of ICT are numerous but mainly it is used in converting the existing paper-print records in the entire process of storage, retrieval and dissemination.

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.

ICT has brought unprecedented changes and transformation to academic library and information services, conventional LIS such as OPAC, users services, reference services, bibliographic services, current awareness services, Document delivery, interlibrary loan, Audio visual services and customer relations can be provided more efficiently and effectively using ICT, 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 on information services is characterized by changes in format, contents and method of production and contents and method of production and delivery of information products. 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 services.

Scope of the Paper

This paper aims to present the impact of ICT implementation on Libraries and Library professionals in Academic Colleges.

Need for Information Communication Technology in Libraries

The application of information technology in libraries results in increased operational efficiency. The IT increases productivity of library staff. It relieves professional staff from mundane jobs that involve a lot of duplication so that they can be fruitfully used for user-oriented library services. It improves quality of services rendered by the library. Use of information technology ensures ease of functioning, accuracy and economy in human labour with greater speed. The exponential growth of information has made manual systems redundant, giving way to computerized information storage and retrieval tools. Effective and efficient handling of huge quantum of information is only possible by using computers, which have the added advantage of being highly accurate and efficient that adds value to information. Moreover, the technology also helps in rendering services that were hitherto not possible using traditional means. The new information technology facilitates improved management of physical and financial resources. The advances in technology and its availability at lower cost, has also raised expectations of users from librarians and libraries. The new information technology, on one hand, facilitates wider access to information for the library users, on the other

hand, it facilitates wider dissemination of information products and services generated by the library. The availability of networks facilitates resource sharing and high-speed communication with other libraries.

Components of ICT

ICT is a broad term that covers wide range of technologies. It is the convergence of computers, communication and microelectronic-based techniques. The technologies and devices like Radio, Telephone, Telegraph, Fax, TV, Telephone, Mobile phone, Internet, WWW, Email, LAN, ISDN, Videoconference and Satellite Communication Techniques are a major part of ICT. With the help of LAN, CUSAT community easily shares the information. Telephone and other devices play important role in library services like SDI, Inter library loan, reference services, and online information retrieval. ISDN has increased the capacity for data transmission which facilitated introduction of new services such as E-mail, Fax etc. Cheaper data storage media has increased the storage capacity of libraries.

Advantages of ICT

ICT reduces labor and saves a lot of time of the staff and users too. LAN is used to link a variety of different communication devices. LAN provides cost effectiveness in various services in Library. It allows secured resource sharing in library. Internet and E-mail system in the library enable the students and scholars to remote access, worldwide communication. Professional

communication among library and Information Science societies has become easy with the help of E-mail.

Disadvantages/ Limitations of ICT

Impact of ICT has created various problems in online publishing. In case of e-journals and online databases, the library loses its access after stopping the subscription. The publishers do not give access to the issues which were subscribed.

Besides these ICT has following disadvantages:

- Expensive
- Need Expertise
- Socio technical issues
- Information insecurity
- More technology dependence
- Less use of human brain

ICT Based Services in Library

A library web page or Universal Resource Locator (URL) facilitates single window access to various web enabled library services. A URL could be as simple as a library web page listing the services with some links to catalogue and external free and subscribed resources or may include advance features like interactive helps and value-added services such as subject gateways, self-help tools and frequently asked questions, and information about the library such as timings, calendar, rules etc. can be hosted on the library web site. Apart from the ICT based services, Libraries are making use of potential of internet and computing power to provide new and innovative services.

In a web enabled environment the new LIS services can be grouped into the following three categories:

- Providing access to internet and internet based services
- Providing access to web based resources
- Providing access local or internal information resources in digital form

Access to Internet

Internet is not only a medium for digital communication but also the world's largest repository of information. However, under-developed internet infrastructure in a country like India, poses a serious challenge to growth of ICT enabled services. Large segments of users may still be deprived of personal access to internet facility. Libraries, therefore, provide free or controlled access to internet and email. Depending upon the availability users can be given time slots for use of internet facility. Usually a few internet enabled terminals are provided in the library that can be used by the visitors for internet access and email etc.

Access to Web Based Resources

As already discussed, many types of library materials such as journals, books, patents, newspapers, standards, photographs, pictures, motion pictures or music are now available in electronic or digital form. From the user's point of view digital resources hold many advantages such as time and place convenience, timeliness, ability to search directly on text (as against the catalogue records), ability to link to further reading material,

and ability to disseminate and share information. From the library's point of view digital format offers convenience of storage and maintenance, cost advantage, ability to target global users, etc. However, digital resources also pose human, social and technological problems, such as discomfiture in reading on the screen, problems in internet access and speed, poor infrastructure, lack of sufficient skills to use the digital resources, and perceptual change resulting from right to use rather than physical possession, etc. In this section, we will briefly discuss various some types of library materials such as journal, books, theses & dissertations, patents, course material etc.

E-Journals

Libraries have been exploring easy to cope with the problems of ever increasing prices of the journals, space requirements and decreasing level of usage as the journals get older. Nevertheless, libraries are required to maintain back issues of the journals, usually in bound form. Electronic Journal helps the librarians in addressing these problems to a great extent without significantly affecting the service levels. Electronic Journals can be accessed via internet from any web enabled PC. Depending on the type of subscription, one or more users can access the service simultaneously, either directly from an independent web enabled PC or in a local area network through a proxy server (IP addresses based access). Electronic journals also offer benefit of full text searching and downloading of articles. Many publishers of electronic journals

offer their journals through consortia of libraries at much lower rates. INDEST (Indian Digital Library of Engineering, Science and Technology), and INFLIBNET are two such consortia operating in India. Access to articles in electronic journals can also be made through aggregator services which offer searchable databases of contents of e-journals from several publishers, and links to journal site for full text. Emerald, OCLC and J-Gate are some of the example of e-journal aggregator services. The main disadvantage of electronic journal is that libraries cannot physically possess the journals.

E-Books

E-Book has been described as a text analogous to a book that is in digital form to be displayed on a computer screen. E-books can be read just like a paper book, using dedicated E-Book reader such as GemStar eBook or on a computer screen after downloading it. There are also some newer technologies developing such as electronic paper, which is much like paper, except that the text can be changed, and talking books in MP3 format. E-books offer advantages like portability, 24 hours access, text search, annotation, linking, and multimedia and self-publishing possibilities. Development of e-books is still in the infancy stage and issues like compatibility, e-book readers, availability and intellectual property rights are to be addressed before it can be implemented on large scale.

Blogs

A blog (an abridged form of term web log) is a website, usually maintained by an individual, with regular entries of commentary, descriptions of events, or other material such as graphics or video. Entries are commonly displayed in reverse chronological order (Wikipedia, 2008). Blogs are considered as lightweight publishing tools. Blogs provide control to an individual or group of individuals for publishing contents or making commentary on it. Technologically, blogs are easier to use, platform-independent, and accessible online over the Internet. Broadly, blogs can be said to be online dairies, however, thousands of blogs are maintained by experts in different subject areas who are willing to share their knowledge, understanding and opinions with other people. Michael Casey, who coined the term “Library 2.0”, for example maintains a blog on Library 2.0 called Library Crunch. The most obvious application of blogs for libraries is to use it as a tool for promotion, publicity and for outreach services. Libraries can disseminate information to their users, make announcements for its new resources and events through its blogs. Blogs can be used to initiate debates and interaction amongst users and staff. Moreover, library staff and users can be encouraged to use Library blogs to get to know each other and interact at personal level.

Wikis

A wiki is a collection of web pages designed to enable anyone who accesses it to contribute or

modify content, using a simplified markup language. Libraries can use wiki as a communication tool to enable social interaction among librarians and patrons. Users can share information, ask and answer questions, and librarians can do the same within a wiki. Moreover, a record of these transactions can be archived for perpetuity. Transcripts of such question-answer sessions would serve as a resource for the library to provide as reference. Furthermore, wikis (as well as blogs) will ultimately evolve into a multi-media environment, where both synchronous and asynchronous audio and video collaborations will take place.

Electronic Databases

Most of the publishers now provide access to their full-text journals through their web site or through other electronic publishing platforms. While there are a number of public-domain databases, most online databases require annual subscription for accessing them. Thousands of databases are now available on compact discs (CD-ROM) as well as on the Web.

Electronic Theses and Dissertations (ETD)

Dissertations and theses produced at universities are important sources of information and knowledge for further research. A large number of universities have converted their theses and dissertation collection into digital libraries and have made it available on Internet for global access. A number of universities have also implemented Electronic Theses and Dissertation programmes, where researchers submit theses in electronic format. Some initiatives such as

Networked Digital Library of Dissertation and Theses (NDLTD) (www.ndltd.org) in development of web based union catalogues of ETDs submitted over 100 libraries throughout the world are worth mentioning.

Patents

Many patent issuing authorities now have made their complete full text patent records online. For example, United States patent documents can be searched and downloaded free of cost from (www.uspto.gov/patft/index.html). Some of the commercial organizations such as Derwent also provide downloading of full text patent from either an online database vendor (e.g. Dialog, STN) or directly from their site to the subscribers

Subject Gateways

Preparing subject guides or path finders has been an intellectual activity for reference librarians. Such guides are normally prepared in consultation with the subject experts or by a subject librarian, who picks up the sources after careful evaluation. Random surfing of the Internet may be a popular pastime, but is an inefficient use of bandwidth and time. One of the most useful ways to discover quality resources in a particular subject area is use of subject-based Internet gateways and directories. A subject gateway thus is a facility that allows easier access to web based resources in a defined subject area. These are basically a dynamic catalogue of pre-dominantly online resources, though some libraries include information on print resources as well. Generally access to subject gateways is provided through library website, designed to help library users

discover high-quality information on the internet in a quick and effective way. A simple subject gateway may list web based or print resources on a given subject with links to the website of the resources and some useful information such as keywords, class number, description and how to access. Advanced subject gateways offer searchable catalogue or even full text search facility on listed sources.

Digital Library and Archives

Many Libraries traditionally have been repositories of local information and heritage documents such as manuscripts, rare books, maps, photographs and paintings etc. Archives or record management is also part of LIS function, particularly in business and research organizations. In other cases such as university libraries, documents generated in-house such as dissertation and theses, research reports etc represent the intellectual strength of the institution. Libraries are developing digital repositories of such resources, and providing Internet or intranet access to these. Large public and academic libraries also provide up to date local information via internet. Digital libraries are a natural progression from electronic document sharing.

The main benefit of digital library is the ability to provide 24-hour, remote access to high-demand or restricted materials for multiple concurrent users. Setting up a digital library can either be done using ‘off-the-shelf’ digital library products,

document management products or library management products capable of digital library management; or in-house system development using open archives software. Some of the off-the-shelf products are from Blue Angel Technologies, CONTENTdm, Crossnet Systems Ltd, Endeavor Information Systems, Epixtech, ESP, Ex Libris, Fretwell-Downing Informatics, IBM, Sirsi, and SydneyPlus. Greenstone (<http://www.greenstone.org>) is leading open source digital library management software.

Digitization

Digitization is not an end in itself. It is the process that creates a digital image from an analogue image. Selection criteria, particularly those which reflect user needs are of paramount importance. Therefore, the principles that are applicable in traditional collection development are applicable when materials are being selected for digitization. However, there are several other considerations related to technical, legal, policy, and resources that become important in digitization work.

Conclusion

Implementation of ICT in library operations is a very complex, stressful and continuous process. Most of the libraries do not follow a systematic plan in using ICT. It requires imaginative, intelligent planning and huge investment of fund including the skilled human resources. Libraries are changing in terms of their collection, facilities and services owing to constant changing scenario of information on account of Information and Communication Technology (ICT) applications

and information seeking behavior of clientele. Libraries are no longer considered as store house of knowledge rather they now act as Learning Resource Centre.

References

1. Ambili, K. & Gokul, A. (2009). Paradigm Shifts in LIS Profession and Implications of the National Knowledge Commission (NKC) Recommendations. In *Library Profession in Search of a New Paradigm 2008 proceedings of 23rd national seminar of IASLIC*, Kolkata, 2008, IASLIC, Kolkata, 3-11
2. Arunachalam, S. (2006). Open access: current development in India. *Digital Library of Information and Technology* Retrieved on November 21, 2012 from <http://dlist.sir.arizona.edu/1255/>.
3. Blurton, C. (1999). New Directions in Education, In: UNESCO's world communication and information 1999-2000, Paris: UNESCO, 46-61
4. Callaghan, M. (2002). The impact of ICT on society. Retrieved on November 21, 2012 from <http://www.rdn.ac.uk/casestudies/eevl/ict/case3.html>.
5. Dasgupta, A. & Satpathi J. (Eds.) (2007). *IASLIC: Challenges and Prospects*. Indian Association of Special Libraries & Information Centres: Kolkata.

6. Kohl, D. (2008). Towards a New Understanding of the Library Mission: Vision and Implementation. In *Globalizing Academic Libraries: Vision 2020, 2009 proceedings of the international conference on academic libraries, Part I*, New Delhi, 2009, Mittal, New Delhi, 1-8
7. Oyedun, G.U. (2007). Internet use in the library of Federal University of Technology, Minna: A case study. *Gateway Library Journal* 10(1): 23-32.
8. Ramana, V. (2004). *Information Technology Applications in Libraries*. New Delhi: EssEss,
9. Rana, H.K. (2012). Impact of Information and Communication Technology on Academic Libraries in Punjab. Retrieved on November 21, 2012 from <http://www.goarticles.com/cgi-bin/showa/cgi? =1239032>