INFORMATION COMMUNICATION TECHNOLOGY AND DIGITAL STORAGE IN LIBRARIES

Gajendra Ballav Devchoudhury

Abstract

In the rapid changing scenario of Information Communication Technology, the trend of traditional library also changed. The Information and Communication Technology (ICT) is now being an important role in the learned society. The traditional library system is gradually into a form of digital library. The storage technology of digital library is very essential in present day context.

Keywords : Metadata, Digital Library, Digitization

1. INTRODUCTION

The The relatively recent change from the term Information Technology (IT) to Information and Communication Technology (ICT) due to the convergence of IT and ICT has open up new challenges for libraries.

Information Technology is the collective name for a group of technologies that are concerned with the storage, retrieval, manipulation, analysis, and transmission of information. Since the fabrication of the first modern computer in the mid 1940's, computer technology has developed at a tremendous pace to the point where it has penetrated almost all occupations and has spread to the far concerns of the world. Similarly, communication technology has made rapid progress in the post World War II period. But it is the development of this technology in the last 15 years that has made IT so important. The development in this area have been brining about a revolutionary change in the way humans work, and in the way they interact with each others. The spread of telecommunications has brought into limelight the Internet, the global intercommunication of computer networks. This has made available a large store information to all concerns of the world. Information Technology provides the following services for information –

- storage of large amounts of information in a cost effective manner.

- structuring of information to enable quick retrieval of what is required.

- analysis of stored information to help in decision making.

- Sharing of information among people geographically dispersed.

- Quick transmission of information over large distances.

IT consists of five components i.e., electronic science, computer science, tele-communication science, artificial language and human interface.

2. INFORMATION COMMUNICATIONS TECHNOLOGY – CREATING NETWORKS WITH GROWING REACH

It involves rapid advances in two technologies – digital storage and processing of information (information) and satellite and optical fibre transmission of information (communication) – are creating new and faster ways of storing, handling, distributing and accessing information. These innovations enable the

processing and storage of enormous amount of information, along with rapid distribution information through communication networks. For example in 2001 more information can be sent over a single cable in a second than in 1997 was sent over the entire internet in a month.

Linking computing devices and allowing them to communicate with each other creates networked information systems based on a common protocol. Individuals, households and institutions are linked in processing and executing a huge number of instructions in imperceptible time spans. This radically alters access to information and the structure of communication extending the networked reach to all corners of the world.

3.   TECHNOLOGICAL TRANSFORMATIONS

Today's technological transformations are intertwined with another transformation, globalization and together they are creating a new paradigm – the network age. These transformations expand opportunities and increase the social and economic rewards of creating and using technology. They are also altering how and by whom technology is created and owned, and how it is made accessible and used.

Technology is not inherently good or bad the outcome depends on how it is used.

4.   SOME INITIATIVES IN IT SECTOR

The Department of Information Technology has setup Community Centre(CICs) at 487 blocks in the seven North Eastern States 9 Arunachal Pradesh, Assam, manipur, Meghalaya, Mizoram, Nagaland, Tripura) and Sikkim to provide connectivity at the block level and thus promote application of Information Technology for accelerating socio economic development of the region.

5.   INFORMATION TECHNOLOGY ACT

The Government of India has created the necessary legal and administrative framework through the enactment of the Information Technology Act, 2000. While on the one hand it seeks to create the public key infrastructure for electronic authentication through digital signatures.

6.   DIGITAL LIBRARY

Digital Libraries are a form of information Technology in which social impact matters as much as technological advancements. Future knowledge networks will rely on scalable semantics, to automatically indexing the community collections so that users can effectively search of billion repositories.

7.   NATIONAL INFORMATION CENTRE (NIC)

 It provides informatics services for decision support to government offices/bodies at national, state, district and block levels. It offers network services. NIC also provides video conferencing facilities.

8.   INFORMATION TECHNOLOGY USE IN LIBRARY MANAGEMENT SYSTEM

The IT revolution has also embraud the library system. A massive and rapid computerization process throughout the levels of the library system has made IT an integral part of the library management scene in many countries all over the world. The incorporation of IT into the day-to-day activity of libraries has a strong impact on virtually every aspect of their management processes.

Although there is no agreed definition of IT, the term "IT" includes three main components – management information system(MIS) or decision support system(DSS), hardware, and human factors.

A management information system is the set of structure and procedures that govern the collection, processing, analysis, presentation and use of information within an organization.

9.   IMPACT OF ICTS IN LIBRARIES

Technology is changing the nature of libraries and librarians, and it continues to exert a major influence on the strategic direction of libraries in society. Today the library services are transitioning from local traditional collections to global resources provided on demand via the most advanced networking technologies.

10.   DIGITAL DATA STORAGE IN LIBRARIES

Digital data storage media for storing digital data are constantly being developed, improved or superseded, and any discussion of them here can only be taken as description of the current situation i. e., optical discs, magnetic media, other media for digital data storage.

The concept of the "digital library" evolved out of potential for digitization of all forms of media : print, image, sound, complex data sets, and computer simulations of nontime-bound sequences, otherwise not demonstrable events, etc., and retrieving them in context of multiple networked information systems. The digital library often serves as a multidimensional (library) catalogue or index to bring together the resource discovery information of every resource that was topically, creatively, or by reason of other connections generatively related. A digital library does not only consist of digitized and digitally born information resources, but also of electronic metadata on non-digital objects.

Digital Data : Considerable attention is now being paid to the possibility of converting the intellectual content of items in library collection into digital data by electronic means and storing it on magnetic tapes or discs. Both textual and pictorial information can be converted. For example by using optical character recognition devices which convert texts into their digital code equivalent, or by using scanners to convert text or, more usually, pictures into an analogue form. Text can also be input by keyboarding. In addition to information already in another format being converted to digital format, much information is now originated in digital form and may appear only in that form in the library.

Digital data have considerable advantages. They can be rapidly duplicated and speedily transmitted without deterioration through electronic communications networks to whatever the user is working.

Storage : It is a mainly technical requirement, although new media may complicate storage decisions and costing. Today's large digital repositories use multiple level of mass storage media and mechanical robots to locate and mount the media.

Phases of Digitization : Undoubtedly, digital media will have to co-exit with print media. Different kinds of collection could be digitized at different times depending on the priorities of the library. To start with, any one type of collection, for example, important out of print publications could be made available in digital form.

Feedback of its usage can be sengut and analyzed. In the next phase, another type of data could be converted into digital form.

Digitization Process : Digitization is a process of converting paper documents to electronic format. Scanning process does the conversion. Digital information can be transmitted and received anywhere in the world where the infrastructure to send and received is in place. Due to the implementation of the IT, the librarian need to be well aware of the technical issues, potential problems involved, trained manpower available, the hardware required, document management systems, optical character recognization (OCR) technology for implementing digitization of the collection and services. As been know the concept of digital library is growing very fast globally. It is a welcome trained that various institutions and professional societies are involved to provide opportunities for the library and librarians to upgrade and enhance the professional knowledge about digital library. Various important aspects like digital libraries issues, architecture, electronic publishing, collection building, storage, organization, transmission of digital information, creation and use of hypertext and hypermedia system, networks and their implications, manpower development etc.

We are in the early stage of a transmition from a print-based to a digital society. The latest technologies offer cheap computer processing power, cheap mass storage, inexpensive and ubiquitous access to high speed networks and retrieval devices give us the ability to create, to manipulate, to storage and especially to transfer large quantities of information in digital form at low costs. Digital information can be stored on any medium that is able to represent binary digits 0 and 1.

Conversion from the conventional storage to digitized format required discrete analysis as the primary function, based on user electronic storage and retrieval system. Some of the common digitized storage media that are presently used world over are the Hyper books, CD-ROM, Multimedia. New media are constantly being developed. Some that are still in experimental stages or have been only very recently introduced are digital videotape, digital audiotape and digital paper.

11.   CONCLUDING REMARKS

Concurrently, both hardware and software technologies are evolving in ways that make it possible to maintain large amounts of information in conjunction with the communication networks from almost any location with the available distributed databases.

The information communication and networking technologies have made considerable impact on the traditional libraries and information centers. In fact the technology is change the very nature of libraries and the librarians and is exerting a major influence on the strategic direction of libraries in the society where in the users want instant access to information. This has resulted in digitization of documents and their storage in multimedia management systems accessible through borrowers.

With the growing importance of rich media content in higher learning; libraries throughout the world are facing a significant challenge in offering increasingly mobile demands of users to access these learning resources.

12.   REFERENCES

1.   Husen, Torsteen (1994) The International Encyclopaedia of Education Vol.6, Elsevier Sciences, New York.

2.   Neil J. Smelson, Paul B. Baltes (2001) International Encyclopaedia of Social & Behavioural Sciences, Elsevier, New York.

3.   UNDP (2001) Human Development Report 2001: making new technologies work for human development, Oxford University Press, Oxford

4. Govt. of India (2004) India 2004 : a reference annual, Publication Division, Ministry of Information & Broadcasting Govt. of India.

5. Ghosh, Bhabani Kumar (2001) Terminology for library and information science professionals, ACB Publications, Kolkata.

6. Parthan, S and Jeevan, V K J (2002) Information Management in E Libraries, Allied Publishers Limited, New Delhi.

7. Harvey, Ross (1994) Preservation in Libraries : principles, strategies and practices for librarians, Bowker Saur, London.

8. Gopal, Krishnan (2000) Digital Libraries in Electronic Information Era, Authors Press, Delhi.

About Author

Sh. Gajendra Ballav Devchoudhury is working as Assistant Librarian in Omeo Kumar Das Institute of Social Change and Development at Guwahati. He hold B. Sc., B. L. I. Sc and Diploma in Computer Application. Before joining this Institute he worked in many different institutes and carries his vast experiences in Library Automation. He is Life Member of Guwahati Library Association and Assistant Joint Secretary of the same. He is also member of ILA and IASLIC. He has attended a number of national and regional conferences, seminars and workshops and presented and contributed several papers.

E-mail : lib1_okd@yahoo.co.in, dkdscd@yahoo.com