A Study on Problems and Challenges of ICT in Library

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Abstract: - *Recent developments in Information and Communication Technologies (ICT) have characterized new ways of information generation, managing, and dissemination. This paper addresses and documents the emergence of digital technologies, the purpose and characteristics of digital libraries, and digitization policy. It also elaborates the process of digitization including the hardware and software requirements. This paper also focuses on fundamentals of digitization initiatives and the challenges of digitization and suggests the skills required by librarians to make optimum use of ICT.*

Keywords: Technology, Dissemination, Infrastructure, Digitization

Introduction

ICT has changed the traditional methods of library activities and services, providing new dimensions for teaching, learning and research in higher educational institutions. With the help of ICT tools, it is possible to store, retrieve, disseminate and organize information by creating websites and databases. Information is now published both electronically and in print making it accessible to users according to their demands. It is important to assess the ICT applications in library and information centers in the India.

Libraries in India have struggled with many problems but recent govt. support for research has provided a golden opportunity for the development of library services and increased access to information for the users. Information Library Network has played a major role in bringing the ICT culture and establishing ICT infrastructure.

Significance of ICT in Library

1. Changing Role**:** Most and more library users are using digital technologies and have access to global information resources via the Web. Unfortunately, the huge amount of information available on the web is generally overwhelming information users. Further, a large number of Web users are still not able to use the web efficiently.

2. Funding: Due to severe budget cuts and high prices of books and journals subscriptions, libraries are faced with no option but to reduce expenditure on books and journal subscriptions.

The introduction and use of ICTs in libraries has not made the situation any better. Money is required to maintain and upgrade the equipment and software, pay software license fees, pay for access to electronic journals and online databases, pay for internet connections, etc.

3. Copyright management: Digitization and provision of access to digital collections accessed via electronic networks, especially the Internet, is presenting bigger challenges to librarians. Unlike print-based documents, digital-based information resources can be accessed from anywhere via electronic networks, copied several times, manipulated (i.e. edited, modified, repackaged, etc.) or deleted.

4. Information access: Whereas libraries generally contain and provide access to selected information resources, this is not the case with information accessed on the web. Distribution of pornographic materials and information produced for deliberate disinformation is very easy to do on the web and this presents problems to many librarians on how to exclude access to such types of information, especially on Internet workstations located in libraries.

5. Preservation: The print-based library and archives environment, as opposed to the digital information environment, has evolved over centuries. Preservation methods and formats for print-based documents have also been developed and tested. There are print-based documents that are over 2000 years old in the world today and can still be read. The digital information era is in its infancy and already some of the information is stored in formats or media that cannot be accessed or read.

6. Legal deposit: In the print-based environment, producers of publications are required by law to deposit copies of their documents with the national library or national archives, or any agency designated to receive and preserve such publications. In the digital information environment, the situation in many countries is still not clear as to who is responsible for the long-term preservation of digital information resources.

Evolution of Information Technology

The information technology (IT) revolution of today is indisputably caused by the unprecedented advances in technology. Computers, Telecommunications, Micro graphics and Reprographics have emerged to give shape to the familiar phase known as ―Information Technology. This advancement has made accessibility to world information and knowledge possible from any part of the globe.

Information Technology is a generic term used to denote activities connected with computer based processing, storage and transfer of information. It includes microprocessors, cable access television, fiber optics, satellite, tele-text, word processing, electronic mail, video, robotics and such others. Information Technology is collective term for the whole spectrum of technologies providing ways and means to acquire, store, transmit, retrieve and process information. Information Technology is not one technology but many, which have converged to serve the needs of the information

revolution. Computing technology, Telecommunications, Audio and Video technology, printing technology all are part of it. Any definition of Information Technology (I.T.) must therefore be very broad.

Information and Communication Technology (ICT) is often used as an extended synonym for information technology (IT), but is a more specific term that stresses the role of unified communications and the integration of telecommunications (telephone lines and wireless signals), computers as well as necessary software middleware, storage, and audio -visual systems, which enable users to access, store, transmit, and manipulate information. The term ICT is now also used to refer to the convergence of audio-visual and telephone networks with computer networks through a single cabling or link system. ICT covers any product that will store, retrieve, manipulate, transmit or receive information electronically in a digital form.

The Development of Information Technology

There are three distinct strands in the development of information technology. They are:

- The techniques used to record and store data.
- The techniques used to analyse data
- The techniques used to communicate data.

Today, there has been a convergence of these technologies and much modern equipment carries out all three tasks. So, we tend to forget that in the past they were quite separate operations. All three

have gone through stages of development which correspond to man's general technological advance.

The stages are:

Manual Methods -Mechanical Methods - Electromechanical Methods - Electronic Methods

The Technology of Recording and Storing Data

The development of this technology has been determined by the storage media used at various times in history.

- Clay Tablets – Paper - Punched Cards - Electronic Machines

The Technology of Analyzing Data

The task of analyzing data included both calculating and comparing.

Calculating means primarily adding, subtracting, multiplying and dividing. Comparing means determining whether value of one item of data is greater or less than another and it is often carried out with a view to sorting data into order.

The main developments in this technology have been:

- The abacus - Mechanical calculators - Punched Card equipment - Electronic computer

The Technology of Communicating Data

This technology is being used to communicate the information from the available data sources to the needy users. The main developments in this technology have been:

• Messenger and Postal services

• Mechanical and electronic systems

• The Telephone and related systems

• Digital telecommunication systems

Components of Information Technology

Currently Information Technology is the latest buzzword in the information arena. In fact the ways of communicating available information from the various sources to end users are among the major challenges now a days.

Today information can not only be stored, retrieved, disseminated in enormous quantities but also at phenomenal speeds. Information Technology opens an unprecedented opportunity in the way information is stored, retrieved, manipulated and exploited. Basically, Information Technology connotes the trinity of computer, telecommunication and micro-electronics.

There are three key components of the new technology.

These are:

• New ways to store information compactly and cheaply.

• New mechanisms to manipulate, scan and research such records and

• New facilitates for cheap and rapid transmission of information over long distances. Advances in Information Technology which are being utilized for library and information activities are as follows:

• Computer Hardware and software

• Storage technologies

• Data bases

• Telecommunications

• Information systems

• Micro-forms and micro graphics

• Expert system

• Videotext and tele-text

• Electronic Mail

Application of Information Technology in Libraries:

Information Technology is very useful for libraries in creating databases of their own and making them available to users through networks. It also enables libraries to provide effective and efficient services. Most of the library operations like book acquisition, circulation, office management, information services, etc. are inter-related, inter-dependent and mutually supportive for overall administration of the library. The modern technologies, i.e. Information Technology gadgets which are convergent and highly relevant for application in modern library and information system can be grouped into four areas, as follows:

Computer Technology

1. Information Resource Building

2. Data Entry

3. Classification and Cataloguing

4. Circulation Control

5. Serials control

6. Decimation and all allied service

7. Information retrieval service

Communication Technology

Communication is the process of transforming information from an information source to a destination. Communication, the exchange of information and the transmission is very essential in a social system or in an organization. Dictionary meaning of communication is news or the act of making oneself understand the means of sending information between one place to another. In modern days, various means of communicating the information have come into existence. There is a need to communicate information effectively, efficiently and timely by applying modern technologies such as communication technology.

The major areas of communication technology are:

Audio-visual technology, Fax, Telex, E-mail, Video text, Tele text, Online search, Tele conference, Voice Mail Box, Satellite Technology, Cellular telephones, Internet, Intranet, Extranet, CD-ROM, DVD.

Reprographic Technology

Reprographic technology covers:

1.Photocopying.,   2.Micro-copying.   & 3.Optical/Digital process.

Reprography also includes micrography. It is a reproduction process. It has made a great impact on document delivery system. Today it is possible to record micro images in various microforms such as microfilm, microfiche, ultra fiche and COM (Computer Output Microform). Micro-

graphics is a powerful micro-force for records management and information control.

Printing Technology

Printing or Printing Technology has great importance and plays an important role in information and communication process. It has various evolutionary changes from making of paper and invention of printing to the modern printing technology of laser printers.

Printing Technology works in co-ordination with:

1.Technical Writing, 2. Editing & 3. Publishing.

Impact of ICT on Library and LIS Professionals:

The main objective of a college library is to become an instrument of instruction. In order to determine how far it has succeeded in achieving the objective, one should determine the extent to which the users use the library resources for their assignment as an integral part of the curriculum. In other words we can say that the teaching in the classroom must depend more on library than the textbooks. A college library is expected to support the objectives of the college. Therefore the basic function of the college library is to provide study materials to its users in shortest possible time and serve the requirements of the students, teachers and researchers towards reading, study and research.

The use of ICT in libraries has raised a number of challenges are as follows:

1. More and more library users are using digital technologies and have access to global information resources via the web.

2. Use of ICTs in libraries has not made the situation any better. Money is required to maintain and upgrade the equipment and software, pay for software, license fee, pay for access to e-journals and online databases and pay for the internet connection.

3. Digital information resources can be copied and manipulated under pressure from information procedure. Copyright law in which the right holders are increased at the expense of users and this may affect the provision of access to digital information in libraries.

Skills Required for the New Age LIS Professionals

The electronic environment of the 21st century will demand a range of skills from Library and Information Science (LIS) professionals, including:

i. Technical skills.

ii. Information Technology (IT) skills.

iii. Managerial skills.

As per the National Knowledge Commission, India, skills required fulfilling the changing role of libraries are:

i. Library and information handling skills.

ii. Service orientation.

iii. ICT knowledge skills.

iv. Communication and training skills.

v. Marketing and presentation skills.

vi. Understanding of cultural diversity.

vii. Knowledge mapping skills.

Conclusion

Now the power of information technology has been realized and widely accepted. The experts say that the positive changes and impacts of information technology would be visualized across the globe out there are some negative trends too. As this era has witnessed the fast development of tools and techniques of information and some may fear that human would also be come like a machine. But here we have to remember that our aim is not in the next millennium to have human in service of machine and information in stand. We would like to have the components of machine and information in the service of human being.

A well equipped library with the facilities of modern information technologies could satisfy the maximum numbers of library users, who have kept the demand of the present technology. So, the libraries are using information technology to automate a wide range of technical process, build data bases, network and provide better services to their users.

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