Application of Information Technology in Libraries: An overview

Bandana Sharma
Department of Library & Information Science, University of Jammu
E-mail: bandanasharma211@gmail.com

Abstract-Information is an indispensable for human development as air is essential for the survival of all living organisms on earth, including human beings. The pace of change brought about by new information technologies has a key effect on the way people live, work, and play worldwide. The increasing role played by information technology in the development of library services for an active reaction to the challenges of the information service providing. The paper attempts to discuss the fast development of Information technology and its application in the library services. Today libraries are equipped to accomplish the newly information Technology based services. Information Technology enabled services fulfill the information needs of the users at the right time in the right place to the right person.

Key words-Information Technology, services, Library

1. INTRODUCTION

Information is the key factor of any kind of research and development. Information is a fundamental resource which is essential for survival in today’s competitive and wired world. The information itself and way it is accessed have undergone changes owing to the developments in information and communication technology. It is a vital ingredient for socio economic and cultural development of any nation or individual. According to Kem “Information is considered as the fifth need of man ranking after air, water, food and shelter”. The value of information in every human endeavor cannot be overstressed. Quick and easy access to every required information is a supreme importance especially for libraries. Information technology application and the techniques are being used by the libraries for information processing, storage, communication, dissemination of information, automation etc. Further, origin of internet and the development of World Wide Web revolutionized the information communication technology. Recognizing the advantages application of information technology the libraries are essential to provide the facilities to their user community.

2. ADVANTAGES AND DISADVANTAGES OF INFORMATION TECHNOLOGY

All computer based systems should be user friendly and should satisfy as many of the following factors as possible:

Some of the advantages of information technology include:

a). Easy to gather different library activities.

b). Collaboration and creation of library networks
c). Avoid repetition of efforts within a library
d). Increase the range of services offered
e). Save the time of the users
f). Increases efficiency
g). Speedy and easy access of information
h). Improves the quality of library services
i). Enhance the knowledge and experience
j). Integration within the organizations.
k). Improve the status of the library
l). Improve the communication facilities
m). More stable
n). Helps to attract the users.
o). Remote access to users
p). Round the clock access to users
q). Access to unlimited information from different sources
r). More up to date information
s). Information flexibility to the users
t). Reforming and combining of data from different sources

2.1 Some disadvantages of information technology include:

a). Insufficient funds
b). Operational costs are exceeding year by year.
c). Inadequate trained staff
d). Unemployment.

3. ROLE OF LIBRARIES

In the modern knowledge society libraries have a new role and there are various types of library models. In the modern society, where the use of electronic services and Web-based information sources
constantly increases, libraries are managed in a more
democratic way, have more flexible communication
system and work organization, and their service
development is based on the quality and user-
orientation of services. In the modern knowledge
society libraries have a new role and there are various
types of library models. These are as follows:

a) Traditional library as a memory institution
b) Library as a learning and research centre
c) Library as a cultural and communication
centre
d) Electronic library
e) Digital library
f) Virtual library as library without walls

4. APPLICATION OF INFORMATION
TECHNOLOGY IN LIBRARIES

Information Technology is very useful for libraries in creating
databases of their own and meeting 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 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 many areas, as follows:

4.1 Computer Technology

Computers are now extensively used in the library operations and have great impact in the management of libraries and information centers. Computer technology can be used in various fields of library activities. Some of the area where computer application takes places are:

(i) Information Resource Building

Acquisition of books, monographs, audio-visual, electronic materials such as CD-ROM, maps and so on. There are some specific functions of an acquisition process. (Suggestion, recommendations and selection of library collection.)

a) Duplication checking/library holding checking.
b) An vender selection.
c) Preparation of order/cancellation of order lists with terms and conditions of the supply.
d) Checking of overdue orders.
e) Record of items on order.
f) Record of received and non-received items and receipt to the vender.
g) Items verification with order file and invoice.
h) Inspection of items by the concerned department.
i) Prepare for payment after accessioning.
j) Preparation budget and maintain accounts and statistics subject wise etc.
k) Final report. (Items/subjects wise/chronologically/booksellers reported etc.)

(ii) Data Entry

a) Books.
b) Clients/Members.
c) Serials.
d) Audio-visuals.
e) CD-ROMS, Floppies.
f) Gifted items.
g) Maps, Reports etc.

(iii) Classification and Cataloguing

a) Catalogue card production.
b) On-line cataloguing.
c) Duplication checking of catalogue cards.
d) Production of duplicate catalogue cards.
e) Preparation of authority file subject heading list.
f) Shorting, checking and filing of catalogue cards.
g) Automatic generation of added entries (author, title, series etc).
h) Generation of monthly accession list.
i) Developing centralized and on-line cataloguing

(iv) Circulation Control

a). Registration/cancellation and make time for membership.
b). Issue, return, renews reservation of documents and produces the slip for proof.
e). Inter library loan.
f). Use of bar code system.

(v) Serial Control:

a). Input essential serials data.
b). Order list of new serials.
c). Mode of payment, prepare for payment.
d). Receipt and updating the records.
e). Receipt to vendors or publishers.
f). Preparing the list of present holdings, additions, missing, cancelled serials chronologically, subject-wise, etc.
g). Renewal and cancellation of present subscriptions.
h). Sending reminders and follow-up of missing issues.
i). Binding control.
j). Accession register of bound serials.
k). Prepare budget and maintain accounts/statistics - subject wise, binding etc.

(vi) Documentation and allied services:

a). Indexing and abstracting of micro and macro documents.
b). Thesaurus construction.
c). Compilation of union catalogue.
d). Bibliographical control.
e). Current Awareness Services (CAS).
f). Literature search.
g). Selective Dissemination of Information (SDI).
h). Newspaper clippings.

(vii) Information Retrieval:

a). Database creation and maintenance, interactive searching, saving of in house as well as external databases.
b). Search and print outs of queries against specified requirement.
c). Information about the books (issued, reserved, lost, overdue, weed out).
d). Member-ship, inter library loan, penalty charges, periodicals, newspaper clippings, reports etc.
e). According alphabetically, chronologically, subject-wise, members wise, keywords with each particular such as accession no-wise, title, author, call number, edition etc.

5. IMPACT OF ICT ON LIBRARIES

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. The introduction of various information communication technology (ICT) trends has lead to reorganization, change in work patterns, demand for new skills, job retraining and reclassification positions. Technological advancement of the past twenty five years, such as the electronic database, online services, CDROMs and introduction of internet has radically transformed access to information. 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 programmers for library users. Information and Communication Technology (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, inter library 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 characterized on information services by changes in format, contents and method of production delivery of information products. Emergence of internet as the largest repository of information and knowledge, changed the 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 innovative web based services. The Exponential rise in generation of new information, especially Scientific and Technological information since World War II has gradually reduced the effectiveness of the traditional tools and retrieval aids used by librarians. We are now in the age of information technology revolution along with information explosion. Due to information explosion, automation of library service is imperative for efficiency and effective working of library and information center. The automation is defined as a technique of making a process or a system that operates automatically. Though generally library automation may mean use of suitable machines to perform the activities of library mechanically without much manual or mental efforts by human beings, today library automation signifies —mechanization of library housekeeping operations predominantly by computerization. The most
commonly known housekeeping operations are acquisition control, serials control, cataloguing and circulation control. In recent times, even the related topics such as information retrieval, semi-automation, automatic indexing and networking of automated systems are also treated as part of library automation. and reprographic technology have an equally important role because of the extent of support they offer. Most of the Library and Information Centers (LICs) of India have started using computers and Information Communication Technologies in organizing their collections, housekeeping operations, processing, retrieval and dissemination of information to the end users. The use and impact of ICTs is now visible in Indian library and information centers which may be due to the drastic reduction / escalation of the cost of hardware and software and their easy availability in the markets with service support from the suppliers or vendors. The impact of IT is also evident on the activities of many LICs associated with universities and other institutions of the national importance. Thanks to University Grants Commission for establishing INFLIBNET which have been playing an important role since its inception for initiating the automation and networking activities of library and information centers of universities, colleges, R&D laboratories and various institutions of higher learning. So far 142 universities have been covered under the INFLIBNET Programme which enables the university libraries to purchase computers, modem, printer, air –conditioner, software (Operating and application software) and get telephone connectivity, etc. The recurring grant is also provided for meeting the expenses of data support work, salary of Information Scientist, telephone charges for accessing 112 INFLIBNET databases through Internet and maintenance charges for first five years from the date of installation of systems

6. LIBRARY AUTOMATION

The automation is defined as the technique; a process or a system that operates automatically. According to the Encyclopedia of Information and Library Science, Automation is the technology concerned with a design and development of the process and systems that minimizes the necessity of human intervention in their operational. Library automation may be defined in simple sense as —a process of mechanization of library operations which are of a routine and repetitive nature. This covers usually housekeeping operations such as acquisition, serial control, cataloguing, circulation, references and administration work. In wider sense, it can be said that computerization of all library operations is known as Library Automation.

7. NEED FOR LIBRARY AUTOMATION

Computers have revolutionized all fields of knowledge. It has been gradually weaving electronic webs in various parts of the globe for quite a few years now. Now it is being used extensively in libraries by developed countries and in a limited scale in the third world countries. Today, information technology coupled with computer technology has conquered even space and time with regard to dissemination of information. The word Automated Library is used to denote a library in which the collections of library materials are primarily on paper but in which the library's procedures have been computerized.

Library Automation is required mainly for the following reasons:

a). Obtain increased operational efficiencies;
b). Relieve professional staff from clerical chores so that they are available for user oriented services;
c). Improve the quality, speed and effectiveness of services;
d). Improve access to remote users and other stakeholders (e.g., the general public);
e). Improve access to resources on other networks and systems, including the Web;
f). Provide new services not hitherto possible;
g). Improve the management of their physical and financial resources; Facilitate wider access to information for their clients;
h). Facilitate wider dissemination of their information products and services;
i). Enable their participation in resource-sharing /library networks; and
j). Enable rapid communication with other libraries (including libraries) and professional peers.

8. Areas of Library Automation

Following are the areas of Library Automation:

a). Acquisition;
b). Cataloguing and Indexing;
c). Circulation;
d). Serial Control;
e). Library Administration and Management;
f). On Line Public Access Catalogue;
g). CDROM Database Searches;
h). Resource sharing through Library;
i). Network/INTERNET;
j). Desktop Publishing (DTP);
k). Office Automation;
l). Information Retrieval
9. USE OF E-RESOURCES BY INFORMATION PROFESSIONALS

There has been an emergence of electronic information in different forms, and the libraries have responded to it fairly well. First there were databases, then the world-wide web, electronic journals, and e-books. All these new media are present in libraries and the libraries are continually incorporating digital information in their services for the benefit of teacher and teacher education. A teacher educator is able to integrate the use of ICT into training effectively by developing competencies like creativity, flexibility, logistic skills, administrative and organizational skills, collaborative skills et through various approaches as follows:

(i) E-Learning

Electronic learning is simply the delivery of educational content via electronic media including internet, satellite, video, interactive TV and CD-ROMs. The use of e-learning is a paradigm shift and allow access to education by “anyone at any time at any place.”

(ii) E-Mail

Electronic mail is the most commonly used service of the internet, which facilitates communication with the people and institutions all over the world. It also enables teachers to plan, Programme, participation in meetings/conference, library involvement etc.

(iii) E-Publishing

Electronic publishing is the process of creating and disseminating information through electronic means. ICT enables the teacher to access online libraries, journals and research to enable self-learning.

(iv) E-books

Electronic books are simply digital version of books that can be obtained electronically, stored and read on either on a traditional PC or a common handheld device. It becomes a vast source of the very first growing information to enhance the horizon of knowledge of the teacher and Teacher Educators.

(v) E-journals

Libraries have been exploring to cope with the problems of ever increasing prices of journals, space requirements and decreasing level of usage as the journals get order. 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 level. E-journals also offer the benefit of full text searching and downloading of articles. Emerald, OCLC and J-Gate are some of the example of e-journal aggregator services.

(vi) E-Library

Electronic library is a great support to e-learning environment. Information collection, organization, dissemination etc is possible through e-libraries. This benefits a teacher through dynamic web collections, effective search for the information.

(vii) Open Access Journals/Articles

There is another type of online journals, whose full text articles are available in the web for viewing and downloading free of charge, called open access journals. Open access articles mean online access without access charge to individuals and libraries. Open access (OA) can be achieved by two ways-

a). By Publishing an articles in OA journals
b). By depositing the same in OA achieves or Institutional repositories.

(viii) OPAC (On-line Public access Catalogue)

An online public access catalogue is a computerized online catalogue of the materials held in a library, or library system. The user in the library can search the bibliographic database and find specific information online.

(ix) Current Contents Bulletin

This is the service, in which the library provides information about the contents pages of the journals received by the library during a week. This service is started right from its inception and is greatly appreciated by its users particularly the faculty fraternity.

(x) Library Portal

A portal is an access point it consists of web pages that act as a starting point for using the Web or web based services. With the advent in information and communication technology and also to cater value added information services to their wide range of users, a library portal is necessary to develop for providing the entire collection of resources on the user’s desktop. The library portal is accessible through intranet only.

(xi) Digital/Virtual References Services

A digital/virtual references service is a service requested and provided over the internet usually through e-mail and instant messaging by the library staff responsible for providing reference services to the users. This service is a new way of answering
users’ reference queries without them visiting the library. This service is provided using e-mail answering queries over a period of time or through real-time chat messaging services. Users’ get connected to this service through library website by clicking on a link ‘Ask a Librarian’ or ‘Live Chat Reference Services’. This enables libraries to meet users’ expectations in the web-centric environment without wasting their valuable time.

(xii) Social Networking and Web 2.0

Social networking is the grouping of individuals in specific groups like small rural communities or experts in a particular field to discuss or exchange views online through a website. Facebook and Orkut are the best examples of such mushrooming sites on the internet. In order to be part of social networking site, membership is a must and depending upon the interest, one may interact with friends or groups or anybody in general on topics of common interest. These sites can be used as a good tool by libraries to get users’ feedback, ranking for services, library notices, etc. In the web 2.0 environment, the sites providing social networking play crucial in enhancement of library services.

10. Conclusion

As eventual remarks, it is reminded that libraries are operating in a quickly changing situation, they should be aware of latest technologies to continue and maintain the importance of the service offerings. Utilization of Information Technology in present libraries is optimistic to gain right information at the right time in the right place and at the right cost. Information Technology helps to progress the rank of the library and it condense the work stack of the library professions. Information Technology has broken the worldwide boundaries, new apparatus and methods help to provide better services to our clients.

REFERENCES