



EMERGING TRENDS AND TECHNOLOGIES IN LIBRARY AND INFORMATION SERVICES IN NEW DIGITAL ENVIRONMENT

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ABSTRACT:

The growth and Application of development of Information Communication Technology (ICT) in library has brought the emergence of paradigm shift from conventional library to smart digital library. It has made it convenient to use its service and resource to its multi types users more efficiently and effectively with limitation of time and place. It has made access to knowledge much easier and faster. Now a day's mobile technology has turned into a basic piece of human life for communication and also helps to student, researchers in e-learning. This paper discusses about the different modern tools and technology like Library automation, Institutional Repositories, Digital library services, Consortia based services, RFID implementation, Ask the Librarian, cloud computing, web based library services, which has made library smartest channel in seeing the academic needs of its user at their finger tip. It also describes various objectives of these library services.

Key words: -IR, Cloud computing, RFID, Web-based services, Library consortia.

INTRODUCTION:

The new generation librarianship urges the library professionals, policy makers and administrators to take some serious innovative measures to improve the provision of e-services through some dynamic electronic movements in the wake of providing qualitative services towards students flourishing exposure to global electronic information. Additionally, librarians should volunteer with the idea of implementing extended applications of Library 2.0 enhanced with RSS feeds, wikis, blogs, tagging, ranking etc. to facilitate two-way interactions between users and library professionals. Therefore, a fellow librarian should be innovative and adhered to use of online journals and databases, Automation and digitization of the resources in the library and other such advanced services. In this context, if the library professionals could be more users oriented by garnering their knowledge and experiences from the latest revelations of Information communication Technology (ICT), it will make the library services more dynamic and fruitful.

Role of Academic Libraries:

Libraries have a long history, starting with the closed –access to the present-day hybrid, digital and virtual libraries that use the latest ICT provision of information through various services. Libraries are the major repositories of knowledge and an integral part of academics to make good citizens. Accordingly, in electronic age the perception of librarians have changed from storekeepers to information scientist, information officers, navigators, and cybrarians who find themselves in the vast ocean of knowledge and are engage in satisfying clients thrust of knowledge anytime and anywhere on single click. Due to invent of the computer and internet, libraries become a knowledge dissemination centre in present environment. The complete housekeeping activities of library is managed by the computer and internet i.e., Storage, process, retrieve, maintaining stock verification, source tracking and disseminate information. As a result, conventional idea of library is being converted from print to digital version. In this change library have maintain the

third-party storage of keeping its data and serve the same at anywhere and anytime through the different mode of services i.e. social media, mobile devices, CD-ROM facility, internet services and mobile library facilities to provide the qualitative content to its users. In present era libraries are bounded by the networked data which is connected to the ocean of knowledge and internet services. Academic libraries are the core centres of any academic institutions, which support teaching, learning, research and other academic activities. All the function of academic libraries is similar around the globe.

Emerging Trends Tools and Technologies:

Library Automation: Library automation is the use of computer and associated technologies to revolutionize the meaning of libraries and redefine their existence as a computerized library where essential library activities like acquisition, cataloguing, reference, circulation etc. are successfully handled with the help of computers and semi-automatic data processing machines to perform library activities such as acquisition, cataloguing and circulation thus saving the time of users and staff.

According to Encyclopaedia of Library and Information Science “Automation is the technology concerned with the design and development of processes and systems that minimize the necessity of human intervention in operation”

According in Webster’s Third New International Dictionary of English Language” Automation is the technique of making an apparatus, a process or a system which operates automatically”

Objectives of the Library automation in Academic Libraries:

- To improve the quality of existing services and access collection.
- To reduce routine time consuming, repetitive tasks and number of staff required.

- To improve the speed of cataloguing, technical processing and putting items on shelves faster.
- To improve cooperation and resource sharing among libraries.
- To participate in utilization of national and international computer networks.
- To improve prestige and vision of Academic Libraries.
- To fulfil the five laws of Dr. S.R Rangnathan.

Institutional Repositories:

A Repository is defined as a “Site” or “Container” to deposit or store objects. For storing digital resources, we have digital repositories. As per Wikipedia “ A repository is a central place where data is stored and mined. A repository can be a where multiple databases or files are located for distribution over a network, or a repository can be a location that is directly accessible to the user without having to travel across a network”. The popular types of repositories are Institutional repositories, Departmental Repositories, Subject Repositories, National Repositories and Material repositories (Wikipedia ,2017).

Institutional repositories have potential for value adds services and offer a range of advantages to researchers, academicians, learners and institutions worldwide. As institutional repositories capture, store, preserve and provide access to the scholarly output of an institution, they enhance access to research, accelerate its publication, and widen its impact. Open access institutional repositories are online platforms where authors or their designated intermediaries deposit their scholarly publications, so that anyone can read. Open access offers advantages to individual authors, researchers, institutions and to humanity itself for the progress of research generally by allowing improved management of intellectual outputs and freeing up the progress of dissemination.

Objectives of an Institutional Repository:

For the global community:

- Aids in the understanding of activities and outcomes related to particular research
- Support re-use and re- purposing of information.
- Provide a stable environment for the preservation of born digital materials.
- Cost effectiveness
- Decrease in duplication
- Ensure trust through appropriate licensing
- Help community inputs to metadata through tagging, reviews, notes for the institutions.
- A repository can interoperate with other institution and university systems and maximize efficiencies by sharing information between them.
- Managing an institution's research assessment or quality assessment submission.
- Earlier those contents which are published is included in the repository, including unpublished research articles etc.
- Store some content that isn't necessarily published, sometimes known as "grey literature"
- Increase the visibility and prestige of institution.
- Cost effectiveness.
- Increase transparency and quality of learning materials.
- Assist storage, management, attribution, preservation and retrieval of student contents.

For Researcher:

- Showcase and preserve historic documents and scholarly output.
- Allows the creation of personalized publications lists.
- Actualizing the potential to undertake citation analysis through following links to papers held in other repositories.

For Learners:

- Provide access to the latest research
- Improve access options for students enrolled on courses (Particularly remote students)

- Enhance access for non-traditional learners. (Widening participation)

Digital Library Services:

- We are moving towards the age of digitization where the world is moving like the needle of the clock. There is no time to stop or look behind. Digitization has a tremendous effect in library and information science field. There is a paradigm shift from hard copy to soft copy, print to digital, ownership of documents to access of information, traditional to digital libraries. Digital library is a library that maintain all or a substantial part of its collection in computers. Processible form is an alternative, supplement or complement to the conventional printed and microfilm materials that currently dominate library collections. Beginning in 1992-93, the US Govt. agencies NSF, DARPA, and others initiated the digital library efforts in US with massive funding resulting is 6 major initiatives.

- Digital Library Initiative – II (1908-2002)
- E-Lib programme in UK.
- AL system-Wikipedia.

Objectives of Digital Library:

- To expedite the systematic development of the means to collect, store and organize information and knowledge in digital form. To convert the existing print documents into digital form with the help of new information technology.
- To promote the economical and efficient delivery of information to all sectors of the society.
- To encourage cooperative efforts which leverage the considerable investment into research resources, computing and communication network?
- To strengthen communication and collaboration between and among he research, business, government and educational communities.
- To capture, store manipulate and distribute information.

- To introduce and provide new services.
- To provide efficient information retrieval
- To create electronic databases
- To identify all relevant sources quickly.
- To maintains cost effectiveness of library operations.
- To provide need based and retrospective search services to the user.
- To provide rapid access to bibliographies as well as full text information.
- To have large number of databases in CDs.
- To subscribe and access the electronic journal across the world.
- To digitize documents for preservation and for space saving.
- To provide facility for networking and resource sharing
- To manage all the activities pertaining to acquisition, processing, shelving, circulation and control of entire digital library
- To save the time of library staff as well as the users.
- To minimize the massive storage and space problems in libraries.
- To provide effective and efficient digital information services.

Digital library acts as global, multilingual repositories of data, knowledge, sound, and images. In digital libraries knowledge is recorded and stored in many forms, often using different languages and symbol system

Consortia based services:

The term “consortium” is derived from the field of economics and refers to the grouping together of different independent companies in order to bring together of different independent companies in order to bring together financial or material resources under a single managing body for the joint performance of specific operations. A library consortium helps libraries to get the benefit of wider access to electronic resources at an affordable cost and at the best terms of license. It can be introducing as a formal association of libraries, which is not

under the control of same institution. It is usually restricted to a geographical area, number of libraries, types of materials, subject interest, which is established to develop and implement resource sharing among members. The primary purpose of establishing a library consortium is to share physical resources amongst members. Access to resource is now considered more important than collection building. The library Consortium ia a group of two or more libraries that have agreed to cooperate with each other in order to fulfil certain similar needs, usually resource sharing. The objective of Library Consortia is:

- Control and reduce information costs.
- Improve resource sharing
- Develop a network information environment (e.g., via campus systems, campus networks, and the internet.
- Share licensing issues with each other.

Types of Consortiums:

There are many types of consortia. Formation of particular type of consortium depends upon many factors. Broadly, there are the following groups with different features.

- Open Consortia: This consortium is very flexible and it is open for members to join or leave in consortia.e.g., INDEST Consortium of Ministry of Human Resource Development (MHRD), Government of India. In this type libraries are free to join and leave.
- Closed Consortium: It is within defined group. As the name indicates, this type of consortium is formed by coalition, affiliation and collaboration among exclusive member libraries like CSIR, DAE, IIM Consortium.

RFID implementation:

RFID means Radio frequency identification i.e., the technology that uses radio waves to automatically identify individual items. It is the wireless use of electromagnetic fields to transfer data, for the purposes of automatically identifying and tracking tags attached to objects. The tags contain electronically stored

information. The RFID device serves the same purpose as a barcode or a magnetic strip on the back of a credit card or ATM card; it provides a unique identifier for that object. And just as a bar code or magnetic strip must be scanned to get the information, the RFID device must be scanned to retrieve the identifying information. In barcode we require a person to manually scan a label whereas RFID is designed to enable readers to capture data on tags and transmit it to a computer system, without needing a person to be involved.

Objectives of RFID:

- To carry data in suitable transponders, generally known as tags and to retrieve data, by machine readable means, at a suitable time and place and to satisfy particular applications needs RFID is one of the most technologies being adopted by both industry and academic world.
- Modern academic library is a place where millions of books advanced, periodicals, CD's DVDs and other electronic reading materials are contained.

Web Based Library Services:

- Virtual Tours: Web sites of libraries provide virtual library guide to the physical facilities including collections, services and infrastructure available in the library. The combination of library maps and floor plans, library departments and photographic views are used for the tour are also using new technologies such as Quick Time movies are being used to replace image maps on main campus website.
- Ask a Librarian: ASK Librarian services are internet-based questions and answer services that connect user with individual experts who possess specialized subject knowledge and skill in conducting searches. Most ASK Librarian services have a web-based question submission form or an email address or both. Users are invited to submit their queries by using web pages, web forms or through email. Once a query is read by a service, it is assigned to an

individual expert for answering. An expert responds to the query with factual information and or a list of information resources.

- Real Time Services: A new and exciting method of digital reference service in which libraries are attempting to provide more and more is live reference information to users. These are real time interactive reference services in which the users can talk to a real, live reference librarian at any time, from anywhere in the world. Users and librarian can interact using chat technologies and unlike with email reference, the librarian can perform a reference interview by asking the users to elaborate or clarify if needed before proceeding to the answer the question. The librarian can perform internet searches and push websites on to the user's browser and can receive immediate feedback from the user as to whether their question have been answered to their satisfaction.

- Bulletin Boards: Bulletin Board is an electronic communication forum that hosts posted messages and articles connected to a common subject or theme or interest. It allows users to call in and either leaves or retrieves messages. The messages may be directed to all users of the bulletin Boards or only to a particular user, but all messages can be read by all users. Several libraries are using Bulletin boards for their web-based library services. The bulletin Board System is also used as an interactive interface to invite suggestions on activities and services of a library. It can also be used as an interface to distribute library services.

- Web-Based user Education: Web guides and teaching tools are found everywhere on web because they are easily updated, accessed and printed on demand. The web-based user education provides a high degree of interactivity and flexibility to the users. The library websites can be used web based user education for imparting, training to users in teaching the basic library skills along with glossary of library

terms, using library OPAC, locating books, magazines, bibliographical data and library materials, understanding how to navigate the libraries websites and how to select the most relevant database, instructions for searching CD ROM and guidance in locating web based databases and other electronic resources and instructions on subject searching training, using Boolean Operators and searching internet resources through search engine.

- **Library Portals:**

The library portals provide a gateway to information, services from multiple sources and access to the organization's resources. The use of semantic Web technologies in developing Library portals facilitates users search, access and retrieval of learning resources. The portal should aim to provide access to a coalition of learning repositories with learning resources available in different formats. The implementation of library portals with Semantic Web Services will fulfil the vision of libraries. The Semantic Library portal should have automated interaction with a search engine at the resource, combined with web technologies will enable ontology facilitated sharing and reuse of learning resources. Such a portal will allow the library to provide best services.

Cloud computing: Cloud computing is a new computing model for IT services which many libraries and other organizations are adopting. It is viewed that cloud computing is a death of hardware. Cloud computing is helpful in libraries to maintain the record data as well as maintain the record data as well as maintains private and sensitive data. Cloud computing helps libraries by showing their presence on the web.

Cloud: The term "CLOUD" basically refers to the Internet of Network. The Internet is often represented as a cloud thus it is from this analogy that the term cloud computing arises. Term "Cloud" comes from the shape of cloud symbol and it is metaphor for the internet.

Today we are living in the age of information. IT plays a very vital role in library science for collection, storage, organization, processing and analysis of information. We are facing many problems due to recent advancement of IT. With the advent of IT, libraries have become automated. Efforts are being made towards virtual libraries. The latest trend in the library science is the use of "CLOUD COMPUTING". If we can achieve the economy in the library function.

Objectives of Cloud Computing:

- To solve resource sharing problem
- To solve the problem in accessing information
- To save the time of the users and library staff
- To attract the users towards cutting edge technologies
- To cope up information explosion in every stream

CONCLUSIONS:

The vital role played by ICT to promote the collaboration between libraries and their users in this digital environment is a remarkable one. Librarians endeavour to develop new ways to reach out to one's unreachable users by creating and developing user friendly services. Librarians are heart of the academic institutions always take a leading role in circulating the knowledge flood among the academics with the range of digital sources and services. Libraries use emerging technologies to provide right information to the right user at the right time. It is good sign relates for digital revolution in the field of library and information science. IT supports librarians to get ready to accept new technologies to serve the users efficiently, effectively and exhaustively.

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