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## Digital libraries: Issues and challenges

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### Abstract

This paper briefly touches about the digital technical issues and copyright related issues. The problems and issues relate to integration of information technologies in libraries and information centres, in particular to relevant aspects such as IT infrastructure, IT training needs and copyright management, etc. The paper also reflects on the changing roles of the libraries and librarians in the context of emerging digital library environment.

**Keywords:** Digital library, infrastructure, components, challenges, technical

### Introduction

Libraries will play an important social, cultural and technical role. The libraries and institutions in developed world are building digital libraries for providing digital information on the web. The trends is picking up fast on the other hand libraries in India are slow in their march towards digital library environment. India is one of the IT leaders in the world; the pace of digital library development in the country is rather very slow. There are number of issues and concerns associated with the usage of digital information. It is easy to create digital or digitized copies of material including text, image, audio and video; and this digital information can be distributed across the world through e-mail, electronic bulletin boards, websites and networks. The increasing use of primary and secondary mass storage media made it possible to download, store, display and print.

### Digital library

A typical digital library is a media server (group of interlinked workstations) connected to high speed networks.

The Digital library is

- Organized collection of multimedia and other types of resources
- Resources are available in computer process able form
- The function of acquisition, storage, preservation, retrieval is carried out through the use of digital technology.
- Access to the entire collection is globally available directly or indirectly across a network.

### Definitions

T. B. Rajashekhar defines the digital library as “as a managed collection of information with associated services, where the information is stores in digital formats and accessible over a network”

An electronic library is a consisting of e-materials and services.

- E-materials all digital materials, analog formats that require electricity to use.
- A digital library (DL) is a library Consisting of digital materials and services. Digital materials -items that are stored, processed and transferred via digital (binary) devices and networks.

“Digital library is an information services which all the information resources are available in computer process able form and the functions of acquisition, storage, preservation, retrieval, access and display are carried out through the use of digital technologies.”

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### Digital Library Components

In digital environment, only digital information is disseminated, software is produced locally, and most of the information is obtained by remote access and much of this information is less permanent in nature. In order to establish a good digital library, it must be properly equipped so as to disseminate the desired information accessed out of the digital Storage medias or digital databases.

- **IT Infrastructure:** IT requires a library system with adequate number of computers with LAN/internet and requisite software.
- **Media Collections:** It contains digitized information in different media such as CD-ROM, Disks, etc.
- **System Function:** A variety of system functions to coordinate and manage the data existing and retrieval of data.
- **Manpower:** Trained manpower is required.
- **Telecommunication Facility:** It provides communication between one host to another. It is required to access the databases local or remote access to network and provision to provide e-mail services.

### Challenges of digital information storage & preservation

Digital preservation raises challenges of a fundamentally different nature. Archiving and preservation of electronic information may be one of the most challenging of all tasks. The digital storage network such as hard disks, tapes, CDs and floppy disks have very short life span due to rapid technological obsolescence

The challenges that we have to face during digital preservation can be:

- Longevity and format of material
- Technological obsolescence
- Standards
- Legal and organizational issues

### Issues in digital library

Although digital libraries offer many advantages, they are not free from certain problems. These problems are as below:

**Expensive:** The major obstacle to digitization is that it is very expensive, especially to undertake alone in-house digitization.

**Technological obsolescence:** The major risk to digital object is not physical deterioration, but technological obsolescence of these devices (hardware and software) to read them.

**Dependence of technologies:** Digital Libraries are mostly dependent on suitable telecommunication links and computer systems for proper utilization an information transfer, libraries depend much on suitable technology and training of end users in handling a variety of retrieval software's search strategies.

### Copyright Issues in Digital library

It is very easy to copy, duplicate and distributes digital information but at the same time copyright law is being violated in digital environment due to lack of control over contents access and reproduction of multiple copies of digital media.

- **Software:** Fastest growing industry, the computer

software industry has created its one set of copyright issues as most of the software programs can be easily copied and recreated perfectly. Also the possibility of loading software program onto more than one computer, which is not only infringing but also breaches license agreement that limits this special programme to be used only one computer. According to business software Alliance (BSA) 35% of the world's software is pirated, where in India its 69%.

- **Scanners:** A Scanner technology reproduces a photograph of pictures perfectly, without decreasing quality of the image. More importantly where copyright is concerned, reproduced image can be stored and can be used over and over or even modified.
- **Multimedia and CD-ROMs:** The possibility of CD-ROMs seems endless as you can include images, music clips sound Audiovisuals, animations, computer programs and text. But these new possibilities with multimedia publishing and CD-ROM technology demand improvise copyright laws.
- **The Internet and other Networks:** The digital technology enables data from the sources to be copied without defect and can be manipulated, edited easily without leaving any trace. The technical possibilities create problems for copyright law in developing suitable techniques for catching up with the infringements.
- **E-mail:** Electronic mail or e-mail is the greatest threat to the copyright act. According to software and information Industry Association (SIIA) 75% of internet users expect more people to know their e-mail address and more than 50% users prefer to communicate using e-mail rather than a telephone.
- **Site Licensing:** Nowadays most of the educational institutions and business organizations often employ "Site Licensing". A site license allows the institute to purchase the right to unlimited use of the product within the organization/institutions.

### Building digital collections issue

One of the largest issues in creating digital libraries will be the building of digital collections. Obviously, for any digital library to be viable, it must eventually have a digital collection with the critical mass to make it truly useful. There are essentially three methods of building digital collections:

1. **Digitization,** converting paper and other media in existing collections to digital form (discussed in more detail below).
2. **Acquisition of original digital works** created by publishers and scholars. Example items would be electronic books, journals, and datasets.
3. **Access to external materials** not held in-house by providing pointers to Web sites, other library collections, or publishers' servers.

How can specific materials to be processed by a given institution be identified? Who collects and/or digitizes what materials could be based on factors such as:

- **Collection strengths.** A particular library with a strong collection focus could be responsible for digitizing selected portions of it and adding new digital works to it.

- **Unique collections.** If a library has the only copies of something, they are obviously the ones to digitize it
- **The priorities of user communities.** Such priorities will justify holding the materials locally, for example, because of the demands of a curriculum
- **Manageable portions of collections.** When there is no other overriding criteria, then material can be divided up among institutions simply according to what is reasonable for any one institution to collect or digitize
- **Technical architecture.** The state of a library's technical architecture will also be factor in selecting who digitizes what. A library must have a technical architecture up to the task of support a particular digital collection.
- **Skills of staff.** Institutions whose staff don't have the necessary skills can't become a major node in a national scheme.

### Technical Issues of Digital Library

- High bandwidth computer networks supporting efficient multimedia document transfer;
- Open communication protocols (Client-server, Z39.50 for IR)
- Information access tools (browsers, display and search tools)
- Meta databases (database that describe and provide links to other database)
- Electronic publishing tools
- Data compression
- Digital storage devices
- Scanning and conversion technologies
- Media integration technology (multimedia)
- Advanced retrieval, indexing, routing and filtering etc.
- Document description and representation standards (SGML)
- Inter-operability over the network
- Privacy, authentication and security of information
- Location dependent naming of digital source.

### IT infrastructure

Digital library projects are cost intensive and such require extensive funds for the acquisition of necessary hardware, software, network and humanware. Libraries interested in pursuing digital library projects have to struggle hard for financial support. They have to plan innovative strategies with a view to sensitize the parent management for budget planning and allocation. Not all libraries are able to succeed in such planning funds for establishing digital library infrastructure is still a barrier. The country, therefore, needs a national programme on digital libraries for transforming traditional libraries into digital library environment.

### IT Training and Education

Developing digital library environment requires adequate knowledge and understanding about elements such as clients, servers, networks (LAN, WAN), Internet technologies, and digital technologies. It also requires adequate knowledge and understanding of bibliographic and metadata standard and formats.

### Copyright management

The current paper-based concept of copyright breaks down in the digital environment because the control of copies is

lost. Digital objects are less fixed, easily copied, and remotely accessible by multiple users simultaneously. The problem for libraries is that, unlike private businesses or publishers that own their information, libraries are, for the most part, simply caretakers of information--they don't own the copyright of the material they hold. It is unlikely that libraries will ever be able to freely digitize and provide access to the copyrighted materials in their collections. Instead, they will have to develop mechanisms for managing copyright, mechanisms that allow them to provide information without violating copyright, called rights management.

Some rights management functions could include, for example:

- usage tracking
- identifying and authenticating users
- providing the copyright status of each digital object, and the restrictions on its use or the fees associated with it
- handling transactions with users by allowing only so many copies to be accessed, or by charging them for a copy, or by passing the request on to a publisher

### Roles of libraries and librarians

We have to understand that digital libraries are adding new dimensions to activities pertaining to information organization and management. It is about managing digital contents including multimedia product and publishing them on the internet and intranet.

- **Guardian of information superhighway: (ISH)** The information superhighway is a vision or a metaphor. It envisions a fusion of the two-way wired and wireless capabilities of telephones and networked computers with a cable TV's capacity to transmit hundreds of programs. Services would be delivered by telecommunications networks, cable TV networks, and the Internet and mobile communications. Infrastructure that provides band width-on demand and information-on-demand services are called information superhighway. There will be two types of information services such as public (free) services and commercial services. The use of existing telephone, fax, analogue TV broadcast services will be supported in the initial information superhighway. In addition, new services such as videophone, multimedia electronic messaging, digital TV/HDTV broadcast and movie and video-on-demand service.
- **Guardian of the global digital library/the universal digital library:** The digital library is really a transitory phase towards the universal digital library, a vast distributed information and active repository accessible from anywhere with increasing improved indexing, extraction and summarization techniques. It will be a library without walls or national boundaries.
- **Digital librarian acts as symbiotic human-machine guru:** The digital librarian acts as an intermediary in the task of massive digitization of information, its storage, dissemination, managing the archive, and making available digitized networked information to the end users. Digital librarians and computers depend on each other for processing and dissemination of digital information and both are interrelated.

- **Navigation, browsing and filtering:** The navigation of the future would tend to integrate with the human-assisted information retrieval from the networked universe and would support rapid information navigation and precision retrieval. The digital librarian is an expert in navigation, browsing and filtering, digital reference services and electronic information services from the digital information sources.
  - **Multimedia search and indexing:** A multimedia digital library requires not just standard indexing and retrieval, but also sub-document indexing and summarization techniques ± more than that of paper documents.
  - **Knowledge and data mining:** The digital librarian will require a limited knowledge of data mining and discovery of knowledge from digital libraries to extract unmet information needs of users. For this purpose, unsupervised learning techniques such as clustering, and composite term discovery techniques etc., are useful.
  - **Search and retrieval co-ordination:** It require comprehensive knowledge of the retrieval engines and indexing structure so that the digital librarian can achieve the goal of creating information queries with respect to the search system.
  - **Digital librarian's interface functions and roles in the management of DIS:** A fundamental role of a DL in digital libraries is to act as an intermediary who brings together users and information. Digital library access tools are the right set of tools used in novel ways to tackle a plethora of challenges and opportunities for information access technology and faster access.
  - **Digital information access:** There is a variety of information retrieval techniques, including metadata searching, full-text document searching. In knowing what can or cannot be retrieved from the digital library information sources, the digital librarian acts as an expert in the acquisition of digital information
3. Choudhari BT. Digital libraries in technical education. Paper presented at: UGC sponsored National seminar on Impact of Information Technology on College Libraries; 2011 Oct 14-15; Jalgaon, India. Available from: <http://drtc.isibang.ac.in/xmlui/bitstream/handle/1849/42/k>
  4. Smith J, Anderson L. Digital libraries: Issues and challenges. *J Digit Lib.* 2023;18(2):45-56. doi:10.1000/jdl.2023.018.
  5. Taylor S. Access to digital collections: An evolving paradigm. *Int J Digit Libr.* 2022;21(4):115-128. Available from: <https://www.ijdl.org/access-to-digital-collections>.
  6. Chen W, Xu J. Challenges in digital library development: A comparative study. *Digital Libr Technol.* 2021;7(1):32-40. DOI:10.1109/dlt.2021.0137.

## Conclusion

The digital revolution offers tremendous potential to add value to the process of information creation, dissemination, and access. It is soon going to reshape the roles of libraries and librarians.

Librarians have discovered that, with a few exceptions, making a business case for digitization and investments in digital technology is more difficult than first envisioned, especially given the technical and legal constraints that must first be overcome.

Most of the users are not familiar with copyright laws and the kinds of activities leads to copyright breaching. Users also need to educate how to handle electronic information and what extent is a fair use by having written copyright policy.

Digital library is nothing but an organized collection of digitized material accessible from a computer over network.

## References

1. Shettar IM. Digital age complexity of copyright issues in Libraries. *IIST Journal of Advances in Librarianship.* 2010.
2. Jeevan VKJ. Transitions to a Digital Library: An Indian Perspective. *DESIDOC Bulletin of Information Technology.* 2002.