Digital Library and Digitization

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ABSTRACT
This paper discusses the digital library as an assemblage of digital computing, storage, and communications machinery together with the content and software needed to reproduce, emulate and extend the services. Definition of digital library, what is digitization, need for digitization, digitization process, problems in digitization, hardware and software for digitization, challenges of library professional, challenges of digitization of library, role of library professionals, digital library: initiatives and the future of digital libraries in India are included in this paper.

Keywords: Digital Library, Digitization, Digitization Process, Library Professional.

INTRODUCTION
The dawn of information revolution is considered to be one of the marvels of 20th century. We are living in an information society. In 1990's there has been a revolution in digital library systems. Librarian's administrators, publishers, authors, IT staff and producers of hardware and software- all seem to have adopted it for their use. Digitization helps in reducing drowsiness and boredom to a great extent, digital libraries are quite accessible, reduced barriers of distance, time sickness, shared resources, and content delivery. In digital library, collection must be selected, organized, made accessible and preserved and digitization provides a solution to traditional library problems such as conservation and remote access to information collection and storage. Numerous rare and highly valuable manuscripts can be easily stored in digital format and made accessible to many individuals at the same time. Moreover, digital libraries can transcend the limitations of conventional libraries and individuals in remote areas can be provided with easy and fast access to the contents in an 'any-time any-place' fashion. A digital library is the storehouse of distributed electronic resources and information seekers are using these locally or globally. Digital libraries can provide text, voice, graphs and image to the end users timely and boundlessly through the internet. Digital libraries the goal of it is 24x7 services anytime and anywhere.

WHAT IS DIGITIZATION?
Library is a growing organism; Fifth law of library science by Dr. S R Ranganathan must be willing to adapt to new conditions, if it is to meet its good of maximizing, accessibility and exposure while minimizing the user's time and effort. Digitization is no longer a mere buzzword; it has become hard reality, including in the library world. In the present era, the users have become more information conscious and prefer to access electronic information for fulfillment of their academic and research needs. Users want information reliably locatable and easily accessible. In digital world there is stress a three things.

- Awareness of information which gives the breath of vision.
- Awareness of technology which gives the power to make the visions manifest.
- Awareness of needs provide the insight to use professional skills and talents to greater effect.

DEFINITION OF DIGITAL LIBRARY
It is a dynamic store house of digitized information (digital video, e-documents, e-journals, e-print, microform, CDs, DVDs, etc). Digital libraries do not mean traditional library in the classical same but network of multimedia systems. A digital library is a collection of documents in organized electronic form, available on the internet or on CD-ROM (compact-disk read-only memory) disks. Depending on the specific library, a user may be able to access magazine articles, books, papers, images, sound files, and videos.

According to Berkeley Digital Library Project of California, “The digital information sources, producers' information will make it available and consumers will find it perhaps through the help and automated agents.”

Digital library may be defined as a collection of information in digital formats and accessible over a network.
NEED FOR DIGITIZATION

Libraries are digitizing materials because they remain convinced of the continuing value of such resources for learning, research, scholarship, teaching, documentation and public accountability. “Digital libraries”: this oxymoronic phrase has attracted dreamers and engineers, visionaries and entrepreneurs, a diversity of social scientists, lawyers, scientists and technicians.

Some of the common factor which is influencing to change to digital mode, some other reasons are:

- To preserve the documents in order to read older or unique documents without damaging the originals.
- New generation needs.
- Digital libraries prove to be more cost-effective.
- Cost reduction by using almost no raw material like paper.
- Searching problem in traditional library and information centers.
- It supports library functions, such as acquisition work, circulation, serial control, stack maintenance and developing In-house database.
- Most important reason is the preservation of the virginity of Environment. The slogan “Burn a CD-ROM, save a tree” is alluring the people fast. Environmental scientists the world over favour digital libraries which help reduce paper usage.

DIGITIZATION PROCESS

A tremendous quantity of information media and it is becoming increasingly difficult to remain oriented in this flood of information without the help of Computer Technology.

Digitization is the process of representing an object, an image, or a signal by a discrete set of its points or samples. The result is called, “Digital Image” for the object, and “Digital Form” for signal. An Image of the physical object is captured using a scanner or digital camera and converted to digital format that can be stored electronically and accessed via a computer.

It involves mainly the following phases in its processing.

- Identification of documents.
- XML Meta file, Creating using Dublin Core slide
- Centralized Server
- Book Scanning Status
- Scanned Image in TIFF Format
- Software to divide even & odd maps
- OCR
- Conversion to HTML
- Uploading
- All users accessing the data

Above mentioned process is described in figure no.1

![Process of Digitization Diagram](image-url)
PROBLEMS IN DIGITIZATION

It is easy to digitize white, clean opaque paper whereas colored, damaged or thin paper is difficult to digitize. Simple, layout single columns, single sheets, straight text with heading, few pictures, standard computer typefaces, typewriting, handwriting, and so on, are easy to digitize whereas, computex, layout, multiple columns, fragile, heavy bindings, pictures, equations, tables, unusual typefaces, and poor quality printing are difficult to digitize.

Hardware and Software for Digitization

Whole range of technological alternative is available today for content creation and capture, with varying degree of sophistication, quality and cost. For building up digital library we need to convert the existing library materials in-house apart from digital collection acquired. We have relatively cheap hardware and software for digitization, which are after dabble by libraries.

The digital process requires some hardware and software given below-

**Hardware**

- Computers System: Pentium IV Processor with 1 GB RAM and 40 GB Hard disk, Windows 2000/XP or Unix operating system.
- Server with high capacity hard disk and Clients in the LAN, Web servers and FTP Servers etc.
- Capture Devices: Scanner, Cameras, CD Tower, Flatbed scanner, Microfilming scanner, Barcode scanner, sheet feeder, Data Compression Device and Optical Character Recognizer (OCR).
- High power UPS.
- Cartridge Tape
- Secondary Storage like CD-ROMs (Read and Read with Write) DVDs, Microfiche, microfilm,
- Printer i.e. Laser, Ink jet (new model)
- Network: LAN, MAN, WAN and Internet with high speed connective.

**Software**

- Window-NT Networking software, SQL Server Software, Database management software.
- Web Designing Software i.e. Java, XML and Front Page etc.
- Full Text Search Engines to index and provide access to digital libraries.
- Optical character recognition (OCR) software.
- Digital Database like Oracle, Postgre SQL, MYSQL, operating software LINUX etc.
- Spell check, image management, video and audio capture.
- Human resources- skilled manpower.

**CHALLENGE OF LIBRARY PROFESSIONAL**

The three important builders of library are library and library Entrepreneurs, Technocrat and Publishers. They would play a unique role before year 2020 and will be marked, as paperless and digital library. The various changes in library system and services, such as privatization of library services, high speed internet with multilingual access facility, availability of information either on net or in compact disk, networking of organization/institution at higher levels are being shared their outputs through library.

**Challenge of Digitization of Library**

Following challenges are faced by libraries in India as for as digitization is concerned.

- Lack of Technical staff.
- Copyright.
- Technological Change.
- Security.
- Inadequate finance and Infrastructure.
- Information Explosion on the Internet.

**Role of Library Professional**

Librarian need to possess the knowledge in the field of Information Technology i.e. Computer networking information, analysis interest switching technology, digital resources and various website. Information is easily available through internet, but it is generally into the process and unorganized for. In order to face this problem the library profession and user needs to acquire detailed knowledge about the digital world are as follow:

- Knowledge of computers
- Knowledge of digitization.
- Knowledge of source of electronic information.
- Translation skills.
- Techniques of evaluating the quality of Information.
- Compilation and editing skills.
- Knowledge of copyright laws and patent act.

**DIGITAL LIBRARY INITIATIVES**

Digital libraries of India pilot project with a humble beginning in 2005 by the office of the Principal Scientific Advisor to the Government of India, Ministry of Communication and Information Technology with Indian Institute of Science, Bangalore, and Carnegie Mellon University, USA.

This project is create a portal for a digital library which will faster creativity and free access to all human knowledge. This portal would provide a gateway to Indian digital libraries in science, arts, music, culture, traditional medicine, movies and...
much more unique resource to anyone in the world 24x7, without regard to socio-economic background. Followings are
some information digitization initiatives undertaken in India:

- **Information and Library Network Centre:**
  www.inflibnet.ac.in,

- **E-print at IISc:**
  www.ncsi.iisc.ernet.in,

- **Center for Education and Documentation:**
  www.ced.org,

- **Tata Institute of Fundamental Research Digital Library Initiative:**
  www.tifr.res.in/Library/

- **IGNCA Digital Library:**
  www.ignca.nic.in/dgt_0001.htm,

- **CSCS Media and Culture Archive:**
  www.cscesban.org/html/media_archive.htm,

- **INDEST, Ministry of HRD, GOI**
  (http://paniit.iitd.ac.in/indest)

- **National Tuberculosis Institute (NTI), Bangalore**
  (http://ntiindia.kar.nic.in/)

- **Rajiv Gandhi University of Health Sciences, Karnataka (RGUHS)**
  http://www.rguhs.ac.in/dl/index.html

- **Traditional Knowledge Digital Library (TKDL) –**
  (http://203.200.90.6/tkdl/langdefault/common/home.asp)

- **Indian School of Business**
  (http://www.isb.edu/lrc/index.html)

- **Indian Institute of Technology, Kharagpur**
  (http://www.library.iitkgp.ernet.in/usr/elib/digital.htm)

- **Indian Institute of Technology, Mumbai**
  (http://www.library.iitb.ac.in/)

- **IITMK Trivandrum**
  (http://www.iitmk.ac.in/iitmk/digitallibrary.htm)

- **National Chemical Laboratory (NCL, CSIR) – Digital Repository**
  – (http://dspace.ncl.res.in)

**THE FUTURE OF DIGITAL LIBRARIES IN INDIA**

India has the expertise to meet the challenge and to set up digital libraries in the country. Though the internet is now become possible to be a part of “Global Village” and exchange information instantly. The World Wide Web plays an essential role in the process. New technologies have made it possible to provide services any time and anywhere. Libraries are trying to utilize technologies to preserve and distribute valuable information for their users in the form of Digital Libraries.

Although it is hard to make prediction, especially about the future of Digital Library, but it can be invented to know about the future of digital library. As Alan Kay has rightly said,"The best way to predict the future is to invent it."

In future there will be less need of paper for the library as it will be digitized and through it the users can avail all information. Cataloguing done centrally prepared. Also there will be more chance to search information as per the requirement of the users. We can keep large content of books, journals, magazines etc in digital library without using stack area in different universities, college, libraries and societies for the users.

In a nutshell, we can say that future of digital library will be existed in India and will be used by the users.

**CONCLUSION**

Beyond doubt, future of digital library is bright in India as it is already cited in this paper that information, books, journals and magazines will be kept in digital form. Digital Library is nothing but an organized collection of digitized materials, accessible entirely forms a desktop computer over a network. Librarians will have to equip themselves for capabilities to link with global trends for the ultimate benefits of information seekers. New information created today is already in digital form, and may just require conversion to formats appropriate to digital library. Open source software is free available like Dspace, Greenstone, Eprints, and Ganesha etc. are pushing the professionals to go for building the digital library and institutional repository.

**REFERENCES**