

Digitalization of Libraries: Current Trends

Mrs. Babita Rani

Librarian/ Mata Gujri College, Fatehagrh Sahib, Punjab, 140406 (India)

Abstract:

The World Wide Web has made access to the Internet part of the structure of every day life. Millions of people all over the world search the web every day. Digital library are form of information technology in which social impact matters as much as technological advancement. In modern times, the library is constantly required to meet the challenges of information explosion. Digital library is a global virtual library. The main aim of digital library is to provide ready access to required information at a faster rate. The internet is playing a vital role in information source and service. In digital libraries, seeking and searching is very fast. Digital libraries are innovations, the implementation of which is nascent in the developing countries. Thus digital library is one of the hot topics in 21st centaury which changes the librarians and library professionals to update themselves in terms of guide the readers to the right destination without delay. The paper mainly focuses on the e learning, digital library process and global connection of the library.

Key word: Digital Library, Information Explosion, Digitization, Information Technology and Information Retrieval.

INTRODUCTION

The technological revolution including Digital Library has influenced all aspect of life. We have observed advances in information technology and its applications. The novel technology manages to offer computer processing power, mass storage and easy access to high- speed network and retrieval devices which provide the ability to create, manipulate, store and transfer mass information in digital form at low cost.

The networking environment, electronic publishing and resource sharing activities have brought about evolution of libraries into Digital Libraries. The tremendous use and need of modern library has compelled application of new technology to storage collection and information dissemination. The library community was the first to find the best application of the optical storage technology offered by the CD-ROM, which is highly useful and economical.

Library power derives primarily from the repository and custodial functions of libraries but today libraries main emphasis is on accessibility and use of records. Library is actually the “mind of society” and plays a vital role to help in transmission of knowledge of earlier generations to the later ones. The collections of Traditional Libraries or the other hand are mostly print media; manuscripts etc. that are deteriorating at a rapid rate, the collection information is not easy to locate and so does not easily reach to user. The activities of the Traditional Libraries are

confined within the four walls of the boundary. Some significant problems with the paper library that argue the case for digitization are:

- Space required for keeping paper documents;
- Inflexible and convenient books/ card form of catalogue:
- Fixed Library timings as human agent is required to use paper library:
- One user can use a particular document at a time;
- Increasing complexity with the growth of publication (Shah 2006).

Definition

Digitization refers to the process of translating a piece of information such as a book, sound recording, picture or video, into bits. Bits are the fundamental units of information in computer systems. Turning information into these binary digits is called digitization. This digitization process can be carried through a variety of existing technologies.

According to -Lesk (1997)

“Digital library are organized collections of digital information. They combine the structuring and gathering of information, which libraries and archives have always done, with the digital representation that computers have made possible.”

According to –Williams Arms

“An informal definition of a digital library is a managed collection of information, with associated services, where the information is stored in digital formats and accessible over a network. A crucial part of this definition is that the information is managed. A stream of data sent to earth from a satellite is not a library. The same data, when organized systematically, become a digital library collection.

A digital library, is not confined to just digitized collection. It should be built according to principles that are not necessarily the same as those employed for paper collection, and it should be evaluated according to different measures that are not yet totally clear and not defined perfectly.

There are many definition of a “digital library”. Terms such as “electric library” and “virtual library” are often used synonymously. The elements that have been identified as common to those definitions are:

- The digital library is not a single entity;
- The digital library requires technology to link the resources of many;
- The linkages between the many digital libraries and information services are transparent to the end users;
- Universal access to digital libraries and information services is a goal of many digital libraries;
- Digital library collections are not limited to document surrogates; they extend to digital artifacts that cannot be represented or distributed in printed formats;

- To gain knowledge what constitutes digital library let us have a look into a few definitions of digital library

For a simple understanding we can conclude that digitization is the process of converting print and similar forms to digital forms.

Digital Conversion process includes the following:

1. Documents: they include text, bibliographic or full text, photographs, diagrams, charts, maps, colour images etc. They exist either in print or non-print form, and also, as single unit or collections.
2. Data Capture: it includes manual data entry (word processing), optical character recognition (OCR) or imaging using scanners.
3. Data Processing: the text in the convertible document may require conversion of diacritics or special characters; images may need enhancement, amplification or compression. In many cases a simple conversion from print to digital is not enough.
4. Storage: the digitized information needs to be recorded in proper digital storage medium, which may be hard disk, magnetic tape, optical CD-ROM, or networks with workstation to access.
5. Indexing and Processing: Digitized documents need to be processed using standards, protocols and indexing systems. Classification using library systems also hold much promise. Metadata application should be a major component of the digital information processing.
6. Retrieval/display: it is the process through which an array of technologies for browsing, displaying, and applying packages that ultimately helps in access.

Let us discuss briefly the digitalization process.

1. Data Capture – Manual Data Entry

The basic way of transferring an image of a page (or the real page of text) into digital information is to feed the data manually. If an electronic version of the text is available to us, then the task is simple. However, in most digitization exercises, the original document is not in computer- accessible format, i.e., paper – or image-based. It is a well-known fact that the recent information production originates from computers in word or text or other file formats. Manually entered digital text has the advantage of greater accuracy than some types of data (directories, numerical datasets) not amenable to automated means of digitization. However, manual data entry consumes time, manpower, money and other resources.

2. Data Capture—The Scanning Process

The scanning is a typical part of digitalization that requires hardware, the so-called scanners that can be used to take digital pictures of objects. Scanners can be simple desktop machines or very large and complex systems that process thousands of documents. The physical form of the object can have a great impact on the type of scanning equipment that can be used. Many of the current scanning systems have been designed for business applications where documents are often single sheets or within a small range of sizes, which makes them amenable for automatic scanning. The fragility, odd sizes, and bound volumes of some library materials pose greater difficulties for scanning technologies. They are high productive scanners that suit to library applications.

3. Optical Character Recognition (OCR)

Another simple digitization process is that of scanning printed pages to build a digital databases of text. This process used OCR (**Optical Character Recognition**) software that takes a picture of the page and then turns it into digital text, which can be edited or fully indexed. The OCR software recognizes the shapes of the letters of the alphabet and produces a file exactly the same as one produced by a word processor used to type in the same text. Feature recognition software performs an analogous process on a digitized image of an original picture or on a sound file from an original file. The process of digital conversion is not perfect. As a result, OCR accuracy is in the ranges from 95 to 98%. This means that between two and 5% of the conversion of pictures of words into text will be inaccurate. Even accuracy is difficult achieve always, the readability is assured in many instances. If textual accuracy is required, OCR processed texts must be manually and closely edited, increasing the expense of the digitization process considerably. If the text is inaccurate, then any indexes that are built using the text will also be inaccurate. Thus, the digitalization cost goes high especially due to the manpower required to do.

4. Preservation of digital information

The Preservation of physical information surrogates (analog) is a relatively simple and straight forward task. The normal way of doing such a work involves the microfilming the physical content of the document and keeping it in the controlled environment free from moisture, dust, temperature, humidity etc., if proper storage and controlled conditions are maintained; the life of the microfilmed documents would be in centuries. Digital information preservation is a complex process. The stored digital information may deteriorate sharply owing to known reasons, and prone to corruption of data. Even the regular replication of digital information is ensured to avoid the loss, it is not practically ideal to access it. The digital information existence is possible only when the hardware and software is compatible with digital storage. The longer existence of digital information is determined by the operating system, computational

environments. The transfer of digital objects in to new environment do not ensure preservation as the primary preservation could be different.

A major step towards the digital preservation initiative could lie on the effective use of metadata to support preservation process. The technical aspects of digital preservation includes the consideration of resource type, file format, file size and encoding process. In the application of metadata to preservation includes the description of digital information using data structure, definition and record formats. The access features include name, version, configuration of required application, hardware, software and operating systems. The access environments should be specified so that the metadata can mention pointers to the location of preserved digital information.

5. Indexing

When the digital library invokes concept 'automatic', and all the processes automated, indexing of the digital information remains a challenge. The automatic indexing lies in the process of identifying the key terms or content-bearing terms in the text and generate entries based on programme. It is termed as free text or full text indexing. This process needs no human involvement and it is a programme-driven task based on frequency of text words. If the document has author-given index words, the process normally takes the words and index the content. When there is no human involvement and the information processing is naturally an intellectual process, indexing done would not simply be perfect. The standard subject headings, thesaurus or any other controlled vocabularies are not used and hence the reliance of such automatic indexing of digital collection is questionable.

Functional Components of a digital library

The function of digital library is to create, maintain, manage, access to and preservation of digital content. The information repositories are created by producing the information content in digital form or converting the print to digital form, stored in multimedia repositories, and made available through intranet or internet or from any server to the workstations.

To understand the digital library in an ideal way, let us discuss the major functional components of a digital library. They are-

- Conversion of print to digital and acquisition of digital media;
- Metadata creation, processing and description;
- Storing of digital resource in appropriate repository in a networked environment for hosting in intranet, extranet and internet;
- Creating a single user interface and gateway for the digital resources;
- Patron access through a browser or dedicated client.

It is however true that the above components are mandatory for all digital delivery system nor these alone do not constitute a well- designed digital library.

DIGITAL LIBRARY SERVICES:

Digital Library Services provides a wide array of services to assist members of the library with organizing collections of material or making them more widely available the following services offered by the Digital Libraries.

- Cataloguing database
- Current awareness bulletins
- Externally purchase database
- CD-ROM database
- Remote information services
- Internally Published Newsletters, Report and Journals
- Internet information Sources Mirroring & Cataloguing
- Email
- Bulletin board services
- Netnews Systems
- Audio and Video Communication
- Electronic Table of contents
- Electronic Document Delivery Services
- Electronic Theses and Dissertations
- Reference Service
- Central storage facilities for hosting digital collections and indexes
- Electronic Publishing

ROLE OF LIBRARIAN IN DIGITAL ENVIRONMENT

Though the digital environment is built as a system, which can be used by its ultimate end user directly from their desktop pc, the role of librarian cannot be overlooked. In digital environment also the librarian and information scientist will be needed for packaging and repackaging of information, for electronic publishing, for reference purpose, to advise the user about the strategy to identify relevant electronic sources etc. thus the librarian will be more or less a hypertext engineer. In the new environment it will be very difficult for the librarian to decide what should be organized? How to give citation? How to organize the collection? Etc because the new environment will be really challenging one for the librarian to decide who are author who are publisher and who are user?. In the new environment anyone who has access to the network of digital libraries can be a publisher by merely posting messages to an online discussion group or by other means. A virtual environment is really open for all. In some cases, librarians have the opportunity to digitize unique material in their libraries' collections, which

can then be made accessible to users of the World Wide Web at large. Some US libraries have done this with local history collections; see, for example, <http://www.orange.lioninc.org/local.htm>;

The future

Integrated virtual libraries of the 21st century will provide integrated access to an increasing number of resources including existing library collections, archives, collections, scientific databases, and multimedia presentations. The impact of digital libraries will perhaps be greatest in areas that lack the infrastructure of the developed world. Access to the world's knowledge will soon be available to anyone with a phone line, eliminating the need for expensive and incomplete local collections. As a few institutions suggest solutions to the questions of format, content, and preservation of the information, digital libraries will become unbounded resources in the universe. The research in digital library is continued to attract the digital information researchers that could lead us to a highly structured collections.

CONCLUSION

Digital libraries are not going to replace the physical existence of document completely but no doubt to meet the present demand, to satisfy the non local user digitization must be introduced so that at least libraries becomes of hybrid nature. The initial cost of digitization is high but experiment shows that once digitization is introduced then the cost to manage this collection will be cheaper than that of any traditional library. Day by day the cost of digitization is decreasing, the online publication is increasing, the needs of user are shifting towards a different environment so it's needless to say that after one or two years my library or your library will go to be digitized so it's the pick time to all informational and library professional that they geared themselves to take the challenge.

REFERENCES:

1. Athavale, Raghvendra tripathi and Swapna S. "Digital Library; today needs." 1. *Managing Information Resources in Digital Environment*. New Delhi: Society for Information Research & Studies(SIRs), 2013. 39-42.
2. House, Ann Peterson Bishop and Nancy A. Van. 2. *Digital Library Use*. New Delhi: Ane Books, 2005.
3. K Rajshekharan, R Raman Nair and K M nafala. 3. *Digital Library Basics: A Practical Manual*. New Delhi: EssEss Publication, 2010.
4. Kain, M L. "Traditional Library to Digital Environment." In 4. *Digital library*, by V P Singh and Others, 341. Dehradun: Central government Library Association, 2006.
5. Kataria, B S Nigam and Sanjay. 5. *Digital Libraries*. New Delhi: Mahamaya publishing House, 2008.

6. Pandey, Shiv Nandan. "Emerging Concepts and Challenges of Digital Library and Preservation." In 6. *Digital library*, by V P Singh, 341. Dehradun: Central Government Library Association, 2006.
7. Sathpathy, Sunil Kumar. 7. *Modernisation of Libraries; a Challenges in Digital Era*. New Delhi: Mahamaya Publisher House, 2008.
8. Shah, Anita Kushwaha and Versha. "Digital Library Concepts." In 8. *Digital Library*, by V P Singh and others, 341. Dehradun Central government Library Association, 2006.