



Digital Libraries

KEYWORDS

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Mr. Amitkumar Lalitbhai Ghoricha

Ph. D. Research Scholar, NIMS University, Jaipur (Rajasthan)

ABSTRACT *Digital libraries are quite new about 20 years of age. At the same time, they have been growing at a fast pace. Digital libraries have the following characteristics they store, preserve, distribute and protect contents in different formats and, at the same time, they allow interaction between the user and the contents; they are always present, both geographically and over time; they can make works internationally known, enhancing referencing and citations; they can make public the products of the educational process and let them be used as inputs for further learning. This work address some aspects of digital libraries that make them suitable tools to support higher education. Examples are presented.*

Introduction:

Contemporary society has experienced an extraordinary explosion in information which has resulted in a corresponding increase in the publication of books and other materials which acts as information carriers. The effective and efficient use of new technology helps us to improve the library's image. One of the basic functions of library is to make its resources readily available to its users. In this information age, ICT is playing a very vital role for disseminating information to the users in the networked environment. Internet, WWW, digital library, electronic journals, and online databases are all such developments, which are changing the way libraries function today. Today's changing and extremely advancing technological environment requires everything to be advanced. To cope with this type of environment every field is suppose to accept the change and implement new emerging technology in it, so is the case of libraries.

Definition of Digital Libraries :

According to Harter (1997), the relatively recent use of the term "digital library can be traced to the Digital Libraries Initiative funded by the National Science Foundation, the Advanced Research Projects Agency, and the National Aeronautics and Space Administration in the United States, in 1994. Since then, the term has been adopted by various authors and organizations and various definitions have been proposed. Among the definitions are those by Oppenheim and Smithson (1999), the Digital Library Federation of the United States and IBM (1994), have provided different definitions of a digital library. Oppenheim and Smithson (1999:97) define the digital library as:-

"An information service in which all the information resources are available in computer - process able form and the functions of acquisition, storage, retrieval, access and display are carried out through the use of digital technologies.

The Digital Library Federation provides a more comprehensive definition. It defines digital libraries as:-

"Organizations that provide the resources, including the specialized staff to select, structure, offer intellectual access to, interpret, distribute, preserve the integrity of, and ensure the persistence over time of collections of digital works so that they are readily and economically available for use by a defined community or set of communities (Walters 1998).

From the above three definitions, and the vast amount of literature available on digital libraries, one can get an indication of the features of digital libraries. These are the following:

- Digital libraries are organizations with specific objectives or goals. Most digital library project's objective is to gen-

erate, collect, store, and organize information in digital forms, and make it available to defined groups of users for searching, retrieval, and processing via communication networks

- Digital libraries have functions and processes being undertaken in order to achieve the objectives and goals of the organization. These include selecting resources to be included in the collection; offering access to resources; distributing the resources, etc. These functions and processes are carried out by a combination of human resources and technological resources.
- Digital libraries are made up digital collections. Digital libraries store materials in electronic format. These include document surrogates like bibliographic records (metadata) and indexes in addition to full-text documents, audio files, videos, and images some of which cannot be represented or distributed in printed formats. These digital works include both internal and external resources.
- Digital libraries serve a defined community or set of communities. Digital libraries are set-up to serve users, and the information needs of the target community or set of communities determine the information content and services of the digital library.
- Digital libraries are accessed by users through a single user-friendly interface. The main purpose of the user interface is to perform as an 'access and integration layer' to a managed environment of quality assured information sources in local and distributed environments which are available from many sources (Thomas 2000). In most digital libraries, the interface is a portal accessed using a Web browser.

Infrastructure Requirements for Digital Libraries

The following are some of the human, financial and technological infrastructure issues that should be taken into account when considering implementing a digital library:

- Availability of appropriate information and communication infrastructure on which the digital library will be built. Basically this will include appropriate hardware, software, and adequate network connectivity.
- Availability of human resources with appropriate skills. Skills requirements largely depend on the nature and sophistication of the digital library being implemented and may include: hardware specialists, network administrators, database administrators, programmers, content developers, information managers (librarians), etc.
- The target community of users should have access to the necessary hardware, software, and network connectivity. In addition, users should have appropriate information skills relevant to the digital environment. They should be able to access and manipulate information in various digital formats -text, video, audio, and databases.

- Availability of financial resources to support and sustain the development of the digital library. Hardware, software, and manpower cost money, and so is the; maintenance of the technological infrastructure, licensing of access to external resources, payment for copyrights, etc.
- Availability of appropriate legal and technical safeguards to guarantee authenticity and integrity of information and to protect privacy, and abuse of intellectual property rights and copyright, where appropriate. In fact, digital libraries raise more difficult and complex copyright issues than traditional libraries.
- Availability of standards for the management of digital information resources. For good quality information resources, databases and effectiveness of information searching and retrieval, electronic information management standards should be employed. Standards such as metadata standard, object data construction standard, data navigation standard are required.

Benefits of Digital Libraries :

The major advantages of digital libraries over traditional (paper-based) libraries include: faster addition to the data collection with better quality control, improved search functionality and faster access to information found, but also more freedom and reduced bureaucracy for individual users (IBM 1994). In addition to these, there are other potential benefits of digital libraries. These include the following:

- A digital library is available wherever there is a personal computer connected to the network. Therefore it can be accessed at work places and in the home.
- Digital libraries' information resources are available for access to users around the clock.
- In a digital library environment, It is possible and easier

to provide access to information resources in other formats that are not possible in the print format C environment, i.e. multimedia formats like video and audio.

Digital Libraries and References:

Students go to libraries to look for materials that go beyond course contents. They seek additional books, journals, theses & dissertations, technical reports and other items that enhance the learning process.

This is extremely important in the high undergraduate years and in the graduate level. Research is based on a lot of searching, retrieving and reading. So, libraries must carry and make available collections to fulfill this need. Some examples in the traditional world are the subscriptions of scientific journals and conference proceedings.

Digital libraries, like their traditional counterparts, can hold reference materials. In addition they have all the advantages mentioned in the context of courseware. At the same time, the characteristics of being available all the time from anywhere and of cross-institutional cooperation are the strongest points.

Digital libraries in their role of courseware and reference holders and distributors are of paramount importance in distance learning and training. A very special situation occurs in continued education when focusing on training professional staff who works in remote locations, as for example engineers in road and dam constructions, and offshore oil drilling. Current trends in continued education make digital libraries very useful, specially due to the possibility of customization of contents to meet individual needs .