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Digital Libraries Challenges for 21st Century: An Overview

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Abstract :-

The discuses in the paper about the digital libraries challenges for 21st Century: an overview. Its future emerging in the field of digital libraries brings together participants from many existing areas of research. Currently the field lacks a clear agenda independent of these other area. It is tempting for researchers to think that the field of digital libraries is a natural outgrowth of an already known the field. From a database or information retrieval perspective, digital libraries may be seen as a form of federated databases. From a hypertext perspective the field of digital libraries could seem like a particular application of hypertext technology. From a wide-area information perspective services, digital libraries could appear to be one use of the World Wide Web, (WWW). From a library and information science perspective, digital libraries might be seen as continuing a trend toward the library automation. The main focus of digital libraries should be on issues of access, cost and digitization technology and how to develop the necessary infrastructure for effective mass manipulation of the information network..

Key words:- Digital Library, Electronic Library, Modern Library, D-space.

Introduction:-

The availability of several free digital library software packages (Greenstone Digital Library Software) at recent time, the formation of digital library and sharing of information has become an attractive and feasible proposition for libraries and other institutions around the world. Although Library automation has helped to provide easy access to bibliographic data through the use of computerized library catalogue such as On-line Public Access Catalog (OPAC). Digital libraries differ significantly from the traditional libraries operation because they allow users to gain an on-line access to and work with the electronic versions of full text documents and their associated images. Many digital libraries also provide an access to other multi-media content like audio and video (Alhaji, 2009)

What is a Digital Library?

Digital Library**:** This is a computer era. So, we can say that digitalization is the part of computerization. Digitalization means, there we can find the information through computer in digit form. Digital Library, a global virtual library, is a library of thousands of networked electronics libraries. There will be a vast population of users scattered around the globe, who are able to access, easily and conveniently, the complete contents of thousands of repositories containing texts, images, sound recordings, videos, maps, scientific and business data, as well as hypermedia combinations of these elements. The library must a network based distributed system with local servers responsible for maintaining individual collections of digital documents.

A digital library is a collection of digital objects. A collection of research papers is a typical example. When this collection gets sufficiently large, users of the digital library cannot examine each paper individually to find if its subject interests them. To address this problem, digital librarians create an interface to stand between the content of the collection and the user. In a traditional library, an example of this would be a card catalog – a collection of small cards that represent the larger objects contained in the collection. These cards are more manageable than the books that they represent. In a digital library, there are a number of ways that we can present the digital collection to the user The first thing that we need to do is to describe each object in a manageable way. This description is called metadata – data (the description) about data (the digital object). This metadata is more manageable than the digital objects that it represents. Metadata is written in a standard format. This allows the metadata to be manipulated using automated tools.

The future of digital library history will be determined not by the technology involved, but by the ideology. If the will be determined not by the technology involved, but by the ideology. If the prevailing definition of a digital library is an organized searchable collection in digital format, then the future of digital libraries will reflect a move toward integrated service functions and collection development and management similar to the traditional library organization.

Definitions:

The definition used initially for the classes rested heavily on the IMLS model and also aimed to reaffirm the connection between digital and traditional bricks-and-mortar libraries with predominantly paper collections:

A “digital library” is fundamentally a resource that reconstructs the intellectual substance and services of a traditional library in digital form. Digital libraries consist of digital contents (which are sometimes but not necessarily text-based), interconnections (which may be simple links or complex metadata or query-based relationships), and software (which may be simple pages in HTML or complex database management systems). A single, simple, stand-alone web page is probably not a digital library in any meaningful sense, any more than a single page or a single

book is a traditional library. A mass of raw data such as comes from the Hubble telescope is probably also not a digital library, though its contents arguably belongs in one. Digital libraries are not replacements for traditional libraries. They are rather the future of traditional libraries, much as medieval manuscript libraries simply became a specialized and much revered part of the larger print-based libraries that we have today (Seadle, 2006).

Another **Edward A. Fox** "A Digital library is a machine readable representation of materials which might be found in a university library together with organizing information intended to help users find specific information. A digital library service is an assemblage of digital computing, storage, and communicating machinery together with the software needed to reprise, emulate, and extend the services provided by conventional libraries based on paper and other material means of collecting, storing, cataloging, finding, and disseminating information."

Objectives of the Study

a) To establish a digital library in the department;

b) To create, acquire and make available the print resources into machine readable format for long term preservation.

c) To setup digital library for easy retrieval and cost-effective way of providing resources and services locally

d) To preserve the old dissertations of master of library & Information Science;

e) To avoid space problem

f**)** To collect, store, organize and access information in digital form via communication channels.

g) To meet the requirements of patrons by providing better services.

h) To have large digitized databases.

i) To serve widely dispersed communities throughout the network.

Characteristics of Digital Library:

Characteristics of digital library discussed here as noted below:

- Users are usually elsewhere than the information they want, and often wish to correlate things from several sources.
- Whoever wants to use a library must show permission to do so

- Different patrons are permitted different actions and to see different parts of each collection.
- To find specific information, each user must understand the catalog structure.
- To find specific information, each user must understand the catalog structure.
- The catalog may describe items not actually held as part of the collection at hand.
- The catalog and the collected items are used differently and not necessarily housed in the same place.
- Documents are cataloged with text descriptors and also with conventional properties such as author names.
- Documents contain cross-reference to other documents.
- Document identifiers are different from document names.
- Translations of a document may express essentially the same information, e.g. Versions of classic literature in different languages.

Components of Digital Library:

Digital library requires well-established and proven information technologies by accessing the database or servers through networks. The following components are very essentials to create digital library:

1. **Hardware-**

The noted below are the requirement of digital library are as follows:

- 24 hours Internet connectivity
- Computer servers
- LAN or WAN
- Scanners
- Storage media: high power hard disk
- Wi- fi tower and CDs
- Digital camera
- High power Ups
- Converters
- Networks
- Multimedia interfaces

2. Software-

The software requirement of the DL as indicated below:

- Linux operating systems
- Digital library software like Greenstone and D-Space
- Editing software

2.1 About D-Space-

Dspace the Dspace is a joint project of the MIT Libraries and HP labs. It is a digital asset management system. It helps create, index and retrieve various forms digital content. Dspace is adaptable to different community needs. Interoperability between systems is built-in and it adheres to international standards for metadata format. Dspace is an open source technology platform which can be customized or extend its capabilities. Features includes: Dspace is a service model for open access and/or digital archiving for perpetual access. Dspace is a platform to build an Institutional Repository and the collections are searchable and retrievable by the Web. To make available institution-based scholarly material in digital formats. The collections will be open and interoperable.

Human ware

The key skills are required for digital library staff as indicated below:

- Management skills
- Technical Skills
- Subject Skills

Digital Libraries Future and Development issues

There are many thousands of digital library projects currently underway, in all sectors of the library community. The basic concept underlying the digital library is not new. In 1945, Dr. Vannevar Bush of the U.S. Office of Scientific Research and Development discussed a device called a "memex". He envisioned this device being used by individuals as "a sort of mechanized private file and library".

Of these many terms, digital library, virtual library, hybrid library and electronic (or e-) library are most common. In the 1990s, terms such as digital library, virtual library and electronic library became widely used, but considerable uncertainty remains about what they actually mean.

A digital library is not confined to just digitize collection of rare materials. It should be built according to principles that are not necessarily the same as those employed for paper collections, and it should be evaluated according to different measures that are no yet totally clear and not defined perfectly.

Digital conversion process:

Digital conversion process, which includes

- Document
- Data capture
- Data Processing
- Storage
- Indexing and Processing
- Retrieval and display

Documents: In include text, bibliographic or full text, photographs, diagrams, charts, maps, colour images etc. They exist either in print or non-print form or also as single unit or collection.

Data Capture: It includes manual data entry (word processing), optical character recognition (OCR) or imaging using scanners.

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.

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.

I**ndexing and Processing**: Digitized document need to be processed using standards, protocols and indexing systems. Classification using library system also holds much promise. Metadata application should be a major component of the digital information processing.

Retrieval/Display: It is the process through which an array of technologies for browsing, displaying, and applying packages that ultimately helps in access.

Challenges of Advantage/Disadvantages

Advantage of the Study-

1. Helps in Resource sharing facilities.
2. It saves the library manpower and funds.

3. Helps in inter-library loan (ILL).

4. Helps to reach information of their users at faster rate through on-time communication.

5. It minimizes the duplication of new invention.

6. Helps the Libraries to get recent publications from the publishers.

7. E-publications provide aids for connectivity, audio visualization, customizability, creation and revision of documents, interactivity and rapid information retrieval.

8. E-publications may help in overcoming the restrictions on the length of the paper imposed by many scholarly journals.

9. The E-publications data can be maintained up-to-date so that the buyer will be able to purchase the latest version of the publications. This enables on demand publishing and allows retrospective searching and SDI.

Disadvantages of the study-

The computer viruses, disasters, lack of standardization for digitized information, quick degrading properties of digitized material, different display standard of digital product and its associated problem, health hazard nature of the radiation from monitor etc. makes digital libraries at times handicap.

1. Copyright: Digitization opposes the copyright law as the content or resources of one author can be simply transferable by others without his knowledge. The main challenge is that how the libraries broadcast information along with protecting the intellectual properties of an author. There are very strict rules regarding the violation of copyright laws, but in digital era it is very difficult to save the intellectual property rights of an author or publisher.

2. **Speed of access:** as more and more computers are connected then the loads on the server makes website slow. If new technology will not evolve to solve the problem then in near future Internet will be full of error messages. As we all know that the technology is going older day by day, so it's difficult to provide same speed of access because digital content includes audio, video, documents which are of big in size and require more bandwidth speed.

3. **Initial cost is high:** The initial cost of modern libraries such as the cost of software, hardware, communication networks and other equipments are very high. So it is very expensive for libraries to purchase them because libraries are not the profit making organizations, they are depend on any institutions which provides funds for the functioning and running of the libraries.

4. **Band width :** libraries will need high transfer rates for transfer of multimedia resources but the band width is decreasing day by day due to its over utilization; and overload on the internet. The slow bandwidth leads to slow download and uploading of digital material, which means users have to give more time in searching and downloading their contents.

5. Efficiency: with the information explosion there it tons of information on particular topics so it is very difficult to find the right information on the particular topic. The authentication of the information is not sure.

6. Environment: modern libraries cannot produce the environment of traditional libraries. Many users also find that reading printed information much easier than reading information on a computer screen. Due to lack of technological awareness, many people prefer to use print materials for reading. Moreover, the habits are the major problem.

7. **Preservation:** Due to rapid change in technology, libraries become outdate and its information may become inaccessible. In future many new formats evolve, so it is difficult to preserve the library resources at a standard format so that in future we may use it.

Conclusion:-

Digital libraries are multifarious and employee sophisticated forms of information systems. However, they demand great mental skills, so the role of information professionals is very significant. They have to be dynamic and look after information collection, organization, storage and transformation of information. It has to disseminate desired information for user satisfaction by providing user orientation. Digital library is a book to mankind and the information professional is the facilitator of digital library services. Digital Libraries can never totally replace the information professional; rather they will both have to maintain a symbiotic relationship-each partner being incomplete without the other. We also enumerated the merits and demerits of digital library with high point of view. The emerging of Information Technology with high resolution capture and sophisticated engines and large storage digital contents continue to ability to conform the digital library and in the future digital libraries will be common in every Institutes, College and Universities.

References:

[1] Alhaji, I. U. (2009) 'Digitization of Library Resources and the Formation of Digital Libraries: A Practical. Approach'. Available at: http://www.ais.up.ac.za

[2] Arms, Williams Y., "Digital Libraries", Cambridge, MA: The MIT Press, 2000.

[3] Domain, David "The e-book: Pipe dream or potential Disaster? American Libraries, 30(2), 1998

[4] Digital Library Federation. (2001), Registry of Digitized Books and Serial Publication, Available at http://www.digilib.org/collections

[5] Garett, John R., & Lyons, Patrica A."Towards an Electronic Copyright management System" JASIS 44(8), 1999.

[6] Greenstone Training Workshop Material.(2002), Available at http://www.greenstone.org

[7] Ian H. Witten, David Bainbridge, Stefan J. Boddie, (2001) "Greenstone: open-source digital library software with end-user collection building", Online Information Review, Vol. 25 Iss: 5, pp.288 – 298.

[8] Malwad, N.M. et.al (ed). "Digital libraries: dynamic store house of digitized information, New Age International Ltd., 1996

[9] Michael Seadle and Elke Greifeneder (2007) Editorial defining a digital library, Library Hi Tech Vol. 25 No. 2, pp. 169-173

[10] Nazeer Badhusha, K. "Digital Library Architecture" Ane Books India, New Delhi, 2008.

[11] Rahman, Anisur, Uddin, Hanif and Akhter, Ragina (2006) "Information and Communication Technologies, Libraries and the role of library professionals in the 21st century: with reference to Bangladesh. ICADL, LNCS 3334, pp.608-617. http://link.springer.com/chapter/10.1007%2F978- 3-540-30544-6_69#page-1

[12] Riyasat, Azmi and Fatima, Nishat (2008), "Impact of Information and Communication Technology LIS: major shifts and practices", 6th International CALIBER University of Allahabad, Allahabad .

[13] Singh, V. (2016) Digital libraries: challenges for 21st Century, Indian Journal of library science and Information Technology,Vol.1 No.2,pp.57-60.

[14] Sonkar, Sharad Kumar, & et. al (2005) Application of Greenstone Digital Library (GSDL) Software in Newspapers Clippings. DESIDOC Bulletin of Information Technology, Vol. 25, No.3, pp. 9-17.

[15] Verma, M.K. &Verma.N.K (2014) Concept of Hybrid, Digital and Virtual Library a Professional Approach, ETLIS, Vol.7 No.1pp.19-23.