

Digital Library Technologies and Innovations: A Contemporary Survey

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Abstract: *A traditional library only undergoes a transformation into a digital library. In the twenty-first century, the concept of digital libraries first appeared. Virtual libraries, wall-free libraries, electronic libraries, and digital libraries are all interconnected. In this study, we need to discuss the idea of a digital library together with its challenges and objectives. Use the digital library to access information on anybody, anywhere, at any time, and in any format.*

Keywords: Digital library, Information retrieval, Metadata

I. INTRODUCTION

Information that has been digitalized is referred to as digital, and a library is a complete system for accessing, storing, organizing, and disseminating information. Hence, a digital library is an assortment of data and associated services stored in digital media including text, video, audio, and others that are accessible through a network. Providing the appropriate information to the right person at the right time is the goal of every modern library. The shift in the IT sector is also having an effect on the information industry. It is well known that libraries across the world are evolving, especially in light of developments in information and communication technology. Traditional libraries are being replaced by digital libraries, and there are an increasing number of new digital libraries being created. Seven (7) In recent years, India has initiated many programs aimed at establishing digital libraries. The research reveals that the bulk of articles focus on developing digital libraries and collections, with a few exceptions on copyright issues and digital library management. Research has not been done on subjects like digital rights management, digital library laws, and security [4].

1.1 Objectives

- To review the problems faced by the librarians in new digital Era is the main issue.
- To identify the major challenges for librarians to work smoothly in cyberenvironment.
- To furnish recommendation to overcome the problems and tackle the challenges.
- To develop and conduct tutorials for users and utilize the facilities and resources made available by the library.
- To collect, organize digital information and disseminate at the point of care for future use.
- It will provide cutting edge facilities and services to support research, teaching, learning, and communication across discipline.

This column gives an overview of issues and challenges in digital library research under the following headings:-

- Digital library architecture, systems, tools and technologies,
- Digital content and collections,
- Metadata, Standards,
- Building the Resource,
- Interoperability,
- Effective Access,

Issues:-

Digital library architecture, systems, tools and technologies:

- Open networked architectures for new information environments.
- Audio-visual and multimedia information retrieval systems.
- Content management systems.
- Intelligent systems for indexing, abstracting and information filtering.
- collaborative, visual, 2D and 3D interfaces[10]

Digital content and collections:

- One major challenge with regard to metadata is the diversity of digital information formats
- Collection development strategies, policies and management.
- Identifying collections of information which are not accessible or usable because of technical barriers;
- Formulating strategies for sustainable and scalable collections.

Metadata and Standards

- Issues for metadata researchers include:
- DSpace uses Dublin Core set of elements for furnishing metadata and describing items intellectually[8]
- Human and algorithmic approaches to metadata provision;
- Choosing from a wider range of metadata formats.
- Applying metadata standards across digital collections.
- Meta-data harvesting.
- Developing metadata extensions for pedagogical.
- Some types of standards which have been the focus of research include:
- Digital collection development standards.
- Archiving and preservation standards.
- Metadata formats (e.g. Dublin Core, MARC, IMS).
- Cataloguing content and indexing standards.
- Electronic publishing standards for books, journals and other media, OAI and Z39.50.[10]

Challenges:-

Building the Resource:

Develop improved technology for digitizing analog materials.

Design search and retrieval tools that compensate for abbreviated or incomplete cataloging or descriptive information.

Description:-

To capture the navigational and organizational signals included in explicit data structures like as page numbers, indexes, and table of contents—all of which are implicit in printed works—more automated support is needed. Sometimes, in order to devote scarce resources to the digitization of large volumes of material, it is necessary to reduce the level of information included in catalogs or indexes. Five

Effective Access:

Develop approaches that can present heterogeneous resources in a coherent way.

Provide more efficient and more flexible tools for transforming digital content to suit the needs of end-users.

Description:-

The vast range of material and description makes it difficult to develop a reasonable plan for indexing and presenting retrieval results. Ideally, any approach should allow the user to make use of every bit of information that is accessible to speed up retrieval, instead than forcing users who want to search the whole resource to rely just on some lowest common denominator of descriptive data. Texts, audio, and video may be created in compressed or uncompressed forms; images can be produced in big or small sizes; texts can be structured for publishing or preservation; and

materials can be produced in public or "open" formats or proprietary formats. Numerous digital items these days are hard to modify quickly, which puts a load on production and maintenance.[5].

Sustaining the Resource:

Develop economic models for the support of the National Digital Library.

Description:- The expense of creating and maintaining digital libraries is high. Costs are associated with production, availability of ongoing access, and preservation of digital information. It will cost a lot to build and maintain a distributed architecture for long-term backup, migration, and preservation of digital assets. Since the resource is shared by many providers, the net cost is often unknown. Libraries would benefit from improved cost estimates and trends for the establishment and maintenance of a digital information corpus. [5]

II. CONCLUSION

Our study's main objective was to facilitate customers' search for relevant material. We were able to do this by using data mining techniques on historical data and by suggesting services that clients who were comparable to us would choose. Building an entire system is required to handle digital libraries. Since digital libraries provide instantaneous, interactive access to a wide range of online content, their worth is indisputable. However, there are a number of problems with creating and managing digital library resources. To manage content in digital libraries, two long-term strategies are required: first, local content has to be digitized; second, strategies for acquiring external resources need to be devised. We are unable to give internet access to most of the works in our library since it is commonly considered that they are protected by publisher copyright. The materials in a digital library are organized and kept up to date to provide easy access for the target user base. The production and administration of content is vital to the long-term sustainability of digital library services, especially when there are limited technical resources available. Among content management's primary duties are the following. Data mining techniques are used to propose digital library services based on the user's profile and search history. At first, individuals were grouped together according to how similar their profiles and search activities were.

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