AN ANALYSIS OF THE CHALLENGES AND RAMIFICATIONS OF DEVELOPING DIGITAL COLLECTION, INDIA'S EXPERIENCES

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ABSTRACT

Over the course of a decade, libraries have undergone numerous changes as a result of the shift from print to electronic and digital sources. Simultaneously, they are also reaping the rewards of the move, which include simple remote and multi-user access, decreased space needs, full-text search capabilities, round-the-clock content availability, a wider selection of subjects, and more recent content. By utilizing the benefits of the internet and World Wide Web, modern libraries are able to expand their study beyond geographical and temporal boundaries. The purpose of digital libraries is to make it easier to get, store, organize, find, and share digital content. The hard copy materials have been carefully digitized and arranged to facilitate easier access to the digital collection. A vast number of people worldwide can easily retrieve material from digital libraries thanks to their quick access methods and ability to bring coherence to enormous amounts of common knowledge bases. A digital library is an essential tool for organizing and retrieving enormous amounts of information. Text, pictures, music, video, maps, drawings, scientific and business data, and more are all included in the digital library's content. The library preserves the unique collection of digital materials locally and in a distributed system based on networks with a local server, enabling distant access to the locally housed information via computer networks. The digitization of libraries started with cataloging, progressed to large-scale reference works and periodicals, book publishing, periodical indexes, and abstracting services.

KEYWORD: Challenges And Ramifications, Digital Collection, Materials, Coherence, Sample, Remote

INTRODUCTION

There are numerous definitions for digital libraries. Early in the 1990s, Gapen provided a comprehensive definition of distributed learning (DL) as "the concept of remote access to the contents and services of libraries and other information resources, combining an electronic network that delivers information and knowledge from external worldwide library and commercial sources with an on-site collection of current and heavily used materials in both print and electronic form" (Gapen, 1993). In order to make unique materials in their collections accessible and preserved, libraries have been working on digitization projects since the early 1990s. According to the Digital Library Federation (1995), "Digital libraries are 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."

GOALS OF THE DIGITAL LIBRARY

A digital library's main goal is to give users electronic access to the necessary data from virtually anywhere. Many of the traditional library's operations can be done online in a digital library. It can also provide more services than a traditional library. Since a user does not have to physically visit the library in order to utilize its services, a digital library is sometimes referred to as an electronic or virtual library. Digitization extends the life of materials through preservation and facilitates unrestricted access to digital content over communication networks. When information is available digitally, users have the freedom to duplicate it as many times as necessary. This increases the likelihood that at least one electronic copy will remain on the network for future use by future generations. Rapid access to information items has been transformed by digital technology. Digitization is done for two main reasons: first, to preserve old and fragile resources; and second, to increase accessibility to the original contents. Digital material preservation is seen to be an alternate approach of maintaining original content.

The important purpose of the digital libraries creation is identified by different digital library projects were as follows:

- Collecting information and knowledge, storing and organizing in digital form.
- Promoting information in more economically and efficiently to all parts of the society.
- Strengthening communication between research, educational, government and business communities.
- Encouraging cooperative effort that cover considerable amount of investment of resources on computers and communication networks.
- Lifelong learning opportunities are encouraged. (The Association of Research libraries, 1996)

THE DIGITAL LIBRARY'S ASPECTS

• Text, images, music, and video are just a few of the digital materials that can be found in digital libraries.

• The amount of physical area needed for construction and upkeep that traditional libraries typically require has decreased with the advent of digital libraries.

• The digital library's customers can be dispersed over the globe at times, and its services are made to accommodate both local and distant users' needs.

• Users who make use of the digital library's resources can create personal collections there. For future reference, the Indian Academy of Sciences, for instance, has established a digital library with its own collection.

• The primary function of digital libraries is to facilitate access to information resources that may be dispersed across several servers worldwide. Therefore, interoperability and infrastructure are the key concerns in the construction and operation of digital libraries.

• Any number of users can access the same information resources at once.

• The use of information resources has shifted from print to digital with the advent of digital libraries. A large number of digital libraries offer access to non-owned items. Certain information resources might be offered without charge, while others would need payment.

• Collection development policies have been employed by libraries as effective filtering methods for many years. Digital libraries should have the right mechanisms in place to weed out undesirable content and offer user-friendly collections.

• Digital libraries that manage the creation of multilingual information resources can contribute to the construction of a global information infrastructure.

• Since there are no human middlemen in digital libraries, users must be assisted at all IT, topic, and language proficiency levels.

• Digital libraries should be permitted to have better retrieval and searching capabilities.

SETTLEMENT AND EVOLUTION

With more than 75 years of existence, digital libraries are still evolving today. Since its introduction by IBM in 1928, punch cards have been the primary method of data entry into computers for a number of years. Subsequently, the conversion of data into a machine-readable format became crucial. The 1930s saw Eugene Power of University Microfilms Inc. use microfilm technology. The materials are provided in a condensed format to enable libraries to house enormous amounts of data in a little amount of space. Computers are utilized as an additional method of information storage. Computers are utilized as an additional method of information storage. The idea of the "hypertext," which forms the foundation of the modern internet, originated with Vanner Bush's seminal 1945 Atlantic Monthly piece "As we may Think." Bush designed the "Mexex" machine, which is used to arrange, store, and display books, documents, and other materials that may be viewed on a desktop computer via microfilm. He was the one who first thought of using keywords to search documents. (S. Bansode & S.M. Pujar, 2008). There is overlap between the words "digital library," "electronic library," and "virtual library." Digital equipment and networks are used in digital libraries to store, process, and transfer materials. All digital materials as well as a range of analog forms, including video cassettes, etc., are considered electronic materials. If a library only exists virtually, that is, if it doesn't exist "in real life," then it might be classified as a virtual library, much like an electronic or digital library. For instance, a virtual library can be made up of resources from several different libraries that are arranged virtually utilizing computers and computer networks. The Networked Computer Science Technical Reports Library is among the greatest examples of a virtual library (NCSTRL).

The Elements of Digital Library Development

Digital library development involves following elements:

1. First and foremost is conversion of content from physical form to digital form.

2. The digital library extract or create metadata or index information, describe the content to facilitate in searching and discovery. Administrative and structural metadata assists in objective viewing, preservation and management.

3. Storing digital content and metadata in an appropriate multimedia repository is key element. The repository has to take care of rights management capabilities to enforce intellectual property rights, if required. E-commerce functionality also be added if needed to handle accounting and billing.

4. Client service for the browsing include repository querying and workflow.

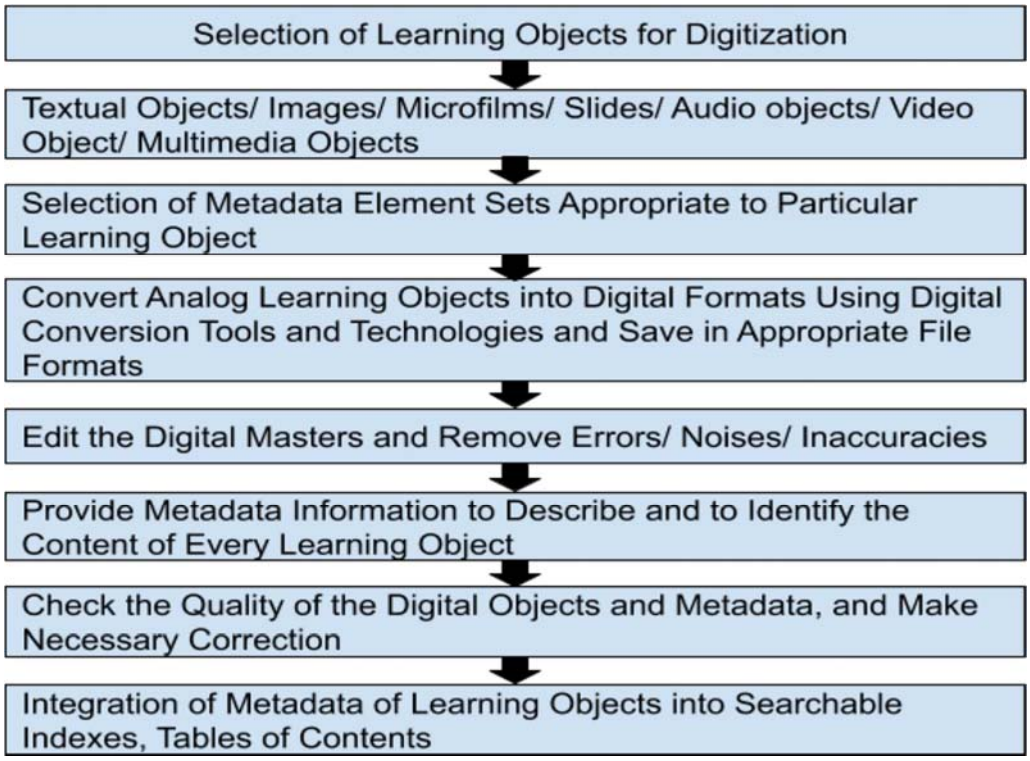
5. Delivery of content is done via file transfer or streaming media.

6. Patron access the digital content through a browser or dedicated client.

7. A private or public network is essential element. (Pradhan, 2004)

Digitalization

The process of converting an analog signal or code into a digital signal or code is known as digitization. The process of representing an item, image, sound, document, or signal—typically an analog signal—by creating a string of numbers that characterize a subset of its points or samples is known as digitization (Lee, 2001). Creating a digital library involves a lot of digitization. Digital libraries are becoming more institutionalized and are becoming a vital source of learning and knowledge. Libraries and information systems have begun digitizing some of its unique and antiquated printed documents. "Digitalization is the process of taking traditional library materials that are in the form of books and papers and converting them to the electronic form where they can be accessed and used," state Witten and Brainbridge (2009).
Because data processing, storage, and transmission enable information of all types to be transmitted in all formats with equal efficiency and to be mixed together, they are essential to digitization. When data is replicated in analog format, its quality decreases with each copy, but digital data may be sent without losing any of its quantity or quality. This is the method of information preservation that is most widely adopted by organizations worldwide.
A document is said to as "born-digital" if it was produced in a digital environment and is accessible in a digital format. Conversely, in the event that the document is solely accessible in hard copy form, it may be transformed into a digital version by means of digitization or text rekeying.



Metadata elements should be appropriate to the types of documents. For example, some metadata element sets for journal articles can be different from metadata element sets for dissertations or audio materials. Metadata also helps to search and retrieve a document from a digital repository. After metadata creation, the learning objects are to be integrated into a learning objects repository or into a digital library. This digital repository can be made accessible through online mode using Internet or Intranet technologies or can be made available through offline mode using CD-ROM technology. If it is made accessible through Internet, metadata harvesters and search engines should be allowed to index the contents of learning objects. This would increase the visibility of the digital repository; promote interoperability and flexibility of search. Figure 1.1illustrates an outline of workflow in a digitization project (Das and others, 2005).

The digitization of documents, particularly textual and image documents should adhere to certain guidelines. The guideline helps to maintain standards and quality of digital objects as well as digital repositories. A number of guidelines have been prepared by different agencies, which are the guiding principles to digitization initiatives abroad. Most digitization projects in India either adopt international digitization guidelines or follow the norms as per international practice. Guidelines were developed in India for digitization of certain types of documents. Recently, University Grants Commissionhas drafted a guideline for electronic theses and dissertations. National Mission for Manuscripts, Indiahas prepared a set of guidelines for digitization of manuscripts. These guidelines are also useful for digitization of other materials like visual materials. Number of guidelines and standards has been developed at the international level by different reputed library associations and federations for promoting best practices in the digitization of different types of documents and materials. For example Digital

Library Federation (DLF) and Research Libraries Group (RLG) of United States have drafted several guidelines of digitization for maintaining quality in imaging projects (Das and others, 2005).

CONCLUSION:

The literature review has examined more than 161 academic articles that have been released since 1996. Three different types of articles—technological applications, case studies, and subject/state-of-the-art reviews—were taken into consideration for this review. Numerous important insights on the research conducted in the study's relevant topics have been provided by the survey. The survey has also played a major role in the careful selection of variables and parameters in the questionnaire's design, which served as the means of data collection from the study's digital libraries. Knowing the pertinent tools and techniques for the study has also been helpful. A survey of the literature on research and reviews from national and international publications that have been published since 1996 has been carried out. Over the past 20 years, a number of domestic and international conferences and workshops on the creation of digital libraries have been held. A thorough analysis of the reviews reveals the pressing need to assess the state of digital libraries in India today and offer solutions for improving their development, design, and offerings. Within the study's designated geographic scope, a significant number of digital libraries have already undergone development, and others are currently in the planning stages.

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