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Digital Library Preservation Resources and Multimedia Practice

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Abstract:

This editorial seeks to examine the definition of a “digital library” to see whether one can be constructed that usefully distinguishes a digital library from other types of electronic resources the digital library of historical resources, a research project which involves building a tested for the purpose of developing and testing new collaborative digital library functionality and presents an initial analysis of the digital library’s public use on the web.. Preserving digital information is a potential impediment to digital library development. Preservation of traditional materials became more successful and systematic after libraries and archives information storage make the concept more come into sight than earlier. Educational videos, instructional visual aids and audio learning resources form a significant part of the collection. Multimedia collection, especially the non-textual knowledge resources in the library.

Keywords: Resource sharing, Library consortium, Library services, University Library Consortium, Digital libraries, Historical resources

1. Introduction

Research and practice in digital libraries (DL) has exploded worldwide in the 1990s. Substantial Research funding has become available, libraries are actively involved in DL projects and conferences, journals and online news lists proliferate. This article explores reasons for these developments and the in the key players, while speculating on future directions. We know that the term ‘digital library’ is used in two distinct senses. In general, researchers view digital libraries as content collected on behalf of user communities, while practicing librarians view digital libraries as institutions or services. Research-oriented serve to build a community of researchers and to focus attention on problems to be addressed; these have expanded considerably in scope throughout the 1990s. Library communities are more recent and serve to focus attention on practical challenges to be addressed in the transformation of research libraries and universities.

A new digitization procedure for the outer tracker has been described in detail. This procedure makes use of test-beam results and also includes a simulation of the readout electronics the present environment is especially conducive to defining a research agenda and developing effective research programs. Multimedia knowledge resources as document surrogates and as significant knowledge sources in a library needs no emphasis. In the present academic and special library setting the educational videos, instructional visual aids and audio learning resources form a significant collection. Time is fast catching up the world over that the traditional forms of collection development techniques and collection maintenance strategies need replacements with the upcoming trends in the profession. Consequently, the traditional information service options are no longer acceptable to a large majority of the users or that there is a strong demand for newer forms of services which are not so familiar to the libraries. Libraries therefore are now forced to be friendly and familiarized themselves with all relevant and current popular multimedia formats. Libraries, especially academic libraries have long formed consortia for the purpose of sharing existing physical resources--principally books and journals held by member libraries. Library consortia, does not have any remarkable history but the consortia arrangements started with the concept of resource sharing since long back. In 19990’s

1.1. Perspectives on Digital Libraries

In a few short years of research and development, already the term ‘digital library’ is used to describe a variety of entities and concepts. Abound (Fox, 1993; Fox, Akscyn, Furuta & Leggett, 1995; Levy & Marshall, 1995; Lucier, 1995; Lynch & Garcia-Molina, 1995; Zhao & Rams den, 1995; Bishop & Star, 1996; Lyman, 1996; Lesk, 1997; Waters, 1998a; Greenberg, 1998). A review of these indicates that in general, researchers focus on digital libraries as content collected on behalf of user communities, while librarians

focus on digital libraries as institutions or services. These communities are not mutually exclusive. Some researchers are focusing on practical problems related to institutions and services and some practitioners are participating in research teams addressing issues of content, collections and communities. In this section we examine possible explanations for these contrasting perspectives

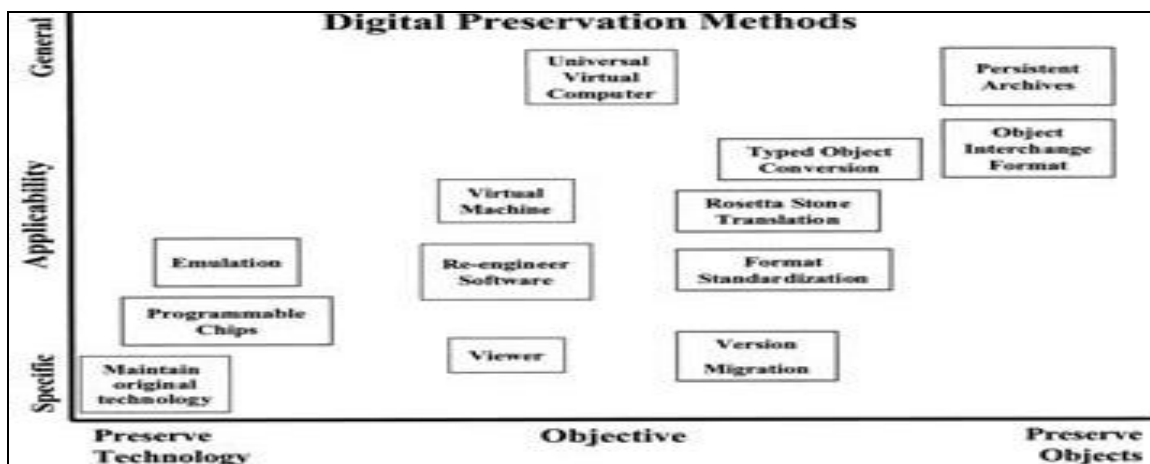


Figure 1: Digital Preservation Methods

Despite building upon a foundation of decades of research and practice in related areas, the term 'digital library' is relatively new. The availability of research funding under this term has attracted scholars and practitioners from a variety of backgrounds, some of whom have minimal prior knowledge of related areas such as information retrieval, computer networks, cataloging and classification, library automation, archives or publishing. Sometimes other research topics were simply relabeled 'digital libraries', adding to the confusion. They also are intended to attract other scholars, with the goal of achieving a critical mass of researchers to address a given set of problems. The Digital Library Federation is a consortium of major research libraries whose purpose is to draw attention to these challenges

2. History of Digital Libraries

The idea of the Digital Library was popularized 1990, because of a large-scale ARPA/NSF/NASA grant program in USA. Although the definition of the digital library continues to be debated, work under this grant program produced a number of very sophisticated information system targeted at specific scholarly communities. Most of these however not directly connected to the efforts of the library community and were designed to explore technology rather than to offer sustainable services. While they developed technologies that will be important to libraries as institutions, they were not intended to create models of the future of such institution. Indeed, it appears that libraries will not become digital libraries but rather will acquire access often used synonymously, users with coherent access to a large, organized, 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.
- Digital library's collections are not limited to document surrogates: they extend to digital artifacts that cannot be represented or distributed in printed formats.

Repository of information and knowledge. The ability of the user to access, reorganize and utilize this repository is enriched by the capabilities of digital technology. It is important to emphasize that we should be seeing the digital library movement more as a systemic one, rather than the efforts of a few large and well-endowed libraries. With the emergence of the Web, HTML offered another alternative; publisher and aggregators began to offer this type of material subscribers and libraries. The convenience of electronic content was so compelling that many users particularly students in a hurry-rapidly began to ignore materials available only in print in favor of this convenience

2.1. Overview of the current implementation

The input to the digitization code is the MC Tracking Hits made during the Great simulation step and stored on the RAWH tapes. In the case of the outer tracker MC Tracking Hits correspond to entrance and exit points for each double layer of straws along with an associated time-of-flight relative to the time of the primary proton-proton interaction. The job of the digitization code is to convert this information into a form comparable to that expected from the detector. Many discrete steps can be identified in the process. The ordering of the steps themselves is fairly static. However, flexibility of the underlying representation is required. For example it should be easy

2.2. Spillover

Spillover of hits from previous crossings is easily handled in the outer tracker digitization procedure since spillover hits are the same as hits from the B event crossing itself with an set of a multiple of 25 ns applied to the drift time parameter.

2.3. Geometric digitization

The stage in the digitization procedure is to convert the each MC Tracking Hit into a set of hit channels and corresponding closest distance.

2.4. Preservation Digitization

Preservation Resources and DPR strive to support preservation librarians as they work through this complex decision-making process. The DPR centers are also developing the infrastructure with which to support the following assertion from the “Benchmark for Digital Reproductions of Monographs and Serials,” endorsed by the Digital Library Foundation (2002): “Digital masters are digital objects that are optimally formatted and described with a view to their quality (functionality and use value), persistence (long-term access), and interoperability (e.g., across platforms and software environments).” Complying with this benchmark requires a scanning environment capable of creating an accurate digital representation of our printed heritage. Consequently, we have determined that DPR centers must have three capacities.

2.5. The Ultimate Outcome: Authentic Preserved Documents

What is the goal of digital preservation? For archives, libraries, data centers, or any other organizations that need to preserve information objects over time, the ultimate outcome of the preservation process should be authentic preserved objects; that is, the outputs of a preservation

Process ought to be identical, in all essential respects, to what went into that process. The emphasis has to be on the identity, but the qualifier of “all essential respects” is important.

To access any digital object, we have to retrieve the stored data, reconstituting, if necessary, the logical components by extracting or combining the bit strings from physical files, reestablishing any relationships among logical components, interpreting any syntactic or presentation marks or codes, and outputting the object in a form appropriate for use by a person or a business application

2.6. The Challenges of Digital Preservation

The purpose of preservation is to protect information of enduring value for access by present and future generations (Conway, 1990: 206). Libraries and archives have served as the central institutional focus for preservation, and both types of institutions include preservation as one of their core functions. In recent decades, many major libraries and archives established formal preservation programs for traditional materials in paper, microform, photographic, and to lesser degree audio visual formats. Preservation programs include administrative and technical components, such as hiring staff with expertise in preservation administration, using preventive measures to arrest deterioration of materials, taking remedial actions to restore the usability of selected materials, and incorporating preservation needs and requirements into overall program planning and resource allocation Digital preservation adds a new set of challenges for libraries and archives to the existing task of preserving a legacy of materials in traditional formats

2.7. Digital Preservation Requirements

In order to preserve digital materials on a scale commensurate with mass storage capabilities and in formats that are accessible and usable, it is necessary to articulate some basic requirements. There are two different perspectives on digital preservation requirements: those of users of digital materials and those of libraries, archives, and other custodians who assume responsibility for their maintenance, preservation, and distribution. Libraries and archives will not accomplish their preservation missions if they do not satisfy the requirements of their users by preserving materials in formats which enable the types of analyses that users wish to perform. At the same time, libraries and archives may not be able to satisfy all requirements of all potential users due to resource constraints, competing priorities,

2.8. Current Preservation Strategies and Their Limitations

Most librarians and archivists have accepted the basic wisdom that digital preservation depends upon copying, not on the survival of the physical media. But copying, also referred to as “refreshing” or “migration,” is more complex than simply transferring a stream of bits from old to new media or from one generation of systems to the next. Complex and expensive transformations of digital objects often are necessary to preserve digital materials so that they remain legit representations of the original secure long term storage. Yet, high quality acid neutral paper can last a century or longer while archival quality microfilm is projected to last 500 years or more. Paper and microfilm have the additional advantage of requiring no special hardware or software for retrieval or viewing. Perhaps this explains why in many digital conversion projects, the digital images serve as a complement to rather than a replacement for the original hard copy materials (Conway, 1994).

2.9. Procedures in Digital Archiving

In the Taiwan e-Learning and Digital Archives Program (TELDAP), different operation procedures are adopted based on characteristics of the collection being digitized. In the previous section on operation procedures in digital archiving, we tried to find

main steps and procedures and draw an integrated flowchart with common operation contents of main steps and procedures in integrated operation procedures.

2.10. Main steps of integrated operation procedures

Consortia-based subscription to electronic resources provides access to wider number of electronic resources at substantially lower cost. When subscribed through a consortium the cost per library can be significantly lower than what each library

Technological developments, electronic publishing of scholarly journals, prizing models of publishers for consortia gives new opportunities for libraries to provide instant access to information. Following factors justifies the need of consortia development for the management of electronic resources:

- **Overloaded Budgets:** Libraries are committing larger portions of their budgetary allocations for either procuring or assessing electronic resources while the allocation keeps on diminishing. The libraries with their diminishing or at best static financial allocations have to consider new ways to consolidate globally accessible electronic resources. Consortia are formed with an objective to enhance the purchasing power of the participating institutes in this critical situation of major financial crunch faced by the libraries and information centres. A consortium facilitates the member libraries to get the benefit of wider access to electronic resources at affordable cost and at the best terms of licenses.
- **Information explosion:** There has been the sudden onslaught of new materials and electronic versions of old materials resulting in the availability of information in numerous forms. This flood shows no signs of abating. Full-text electronic scholarly and popular books are becoming available in online form, and a deluge of such materials and providers over the next few years is expected. A consortium, with the collective strength of resources of various institutions available to it, is in a better position to address and resolve the problems of managing, organizing and archiving the electronic resources.
- **Impossibility of self-sufficiency:** With the proliferation of information in myriad forms, it is difficult for any library to be fully sufficient to cater to the information needs of its user community. Financial constrains, space curb, human resources inadequacy also stress upon the need for the libraries to opt for the consortia approach. Consortia and are enthusiastic to give the best possible offers. Another reason for the eagerness of publishers to enter the Indian market, which holds very high future potentials.
- **Willingness of publishers:** This approach has helped to get attractive discounted rates and most of publishers responded positively to the call of 5.
- **Diversity of user needs:** The technology has changed expectations of researchers, their patience, and their willingness to accept services that are available on demand. The Web-based electronic resources are an apt answer to the expectations of users. Library users want to have access to that material as quickly as possible, and many of them want information at their computer screens.
- **Quick Access:** The technology provides an unparalleled media for delivery information with greater speed and economy. Academic and Research users can now hope to have access to their learned journals articles in electronic form as the electronic access is comparatively cheaper. Users are beginning to expect electronic delivery that is speedy and accessible at remote.
- **Improving quality standard of research:** The research productivity of all institutions is expected to improve with increased access to international e-databases and full-text resources, so libraries are willing to add electronic resources to their collection and opting for consortia approach.
- **Professionalism of Library Science:** This concept has tremendous influence on the consortia initiatives. The changing role of librarian as a conservator to a navigator/disseminator of information has enhanced the value of library consortia.
- **Future developments:** One of the important issues related to technology is stability of the systems that they deploy to store, retrieve and deliver the electronic resources. Consortia help to have a watchful eye on coming latest technological changes in publishing industry and associated legislations which can affect the libraries directly or in Which can affect the libraries directly or indirectly. Integrated operation procedures consist of the four stages: preliminary procedures, digitization procedures,

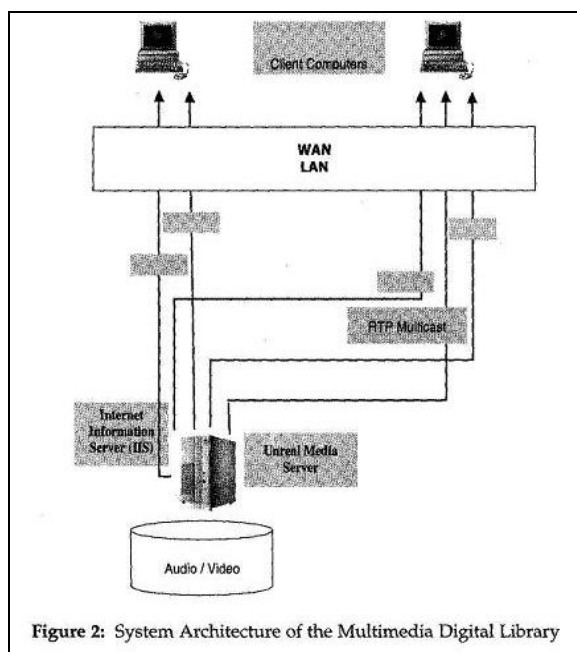


Figure 2: System Architecture of the Multimedia Digital Library

Figure 2

2.11. Consortia Approach to Harness Electronic Resources in India

The Library and information Centers, in India, are increasingly being called upon to provide more relevant, up-to-date and timely information to a wide range of users. To satisfy the varied user needs, libraries require availability and accessibility to a variety of electronic resources. Users expect their libraries to build and maintain a collection of electronic resources while simultaneously maintaining and growing traditional print collections. To cope with the advent of e-journals and e-databases coupled with high speed data communication facilities has paved the way for the present form of library consortia. Cooperation in form of e-consortia has emerged as an essential facet of modern library management in most developed countries of the world, but in our country it is still in the normative stage

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