E-Books and Materials Preservation in Digital Library

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Abstract

The introduction of digital technology into the process of production, distribution and storage of information has made the libraries to go digital. Libraries all around the globe have responded to various challenges posed by the preservation of digital information and have encountered the technical, organizational, resource and legal issues associated with it. Although, the libraries have been experimenting with various preservation strategies such as technology preservation, emulation, migration etc., the need for a technologically feasible, financially affordable and widely acceptable strategy for preservation is still there. The paper discusses various issues and challenges associated with digital preservation and examine different strategies of digital preservation. The paper highlights initiatives undertaken at international level to develop workable approaches and best-practice preservation strategies for digital resources in libraries.

Introduction: Over recent years, libraries have grown increasingly reliant on digital materials. Libraries as information service providers have come to rely increasingly on digital information both as supplements to and parallels of print materials. Libraries are also encountering new resources, which are "born digital" and have no print or analogue equivalent- they exist only in digital form. The introduction of digital technologies into the processes of production, distribution and storage of information challenges the capacity and abilities of libraries, archives, and other cultural institutions to carry out their responsibility for preservation. The purpose of preservation is to ensure protection of information of enduring value for access by present and future generations. Libraries, that traditionally have assumed the responsibility for preserving information, face technical, organizational, resource, and legal challenges in responding to the new demands for digital preservation

Definitions

- Digital preservation combines policies, strategies and actions that ensure access to digital content over time.
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- Digital preservation combines policies, strategies and actions to ensure the accurate rendering of authenticated content over time, regardless of the challenges of media failure and technological change. Digital preservation applies to both born digital and reformatted content.
- Digital preservation policies document an organization's commitment to preserve digital content for future use; specify file formats to be preserved and the level of preservation to be provided; and ensure compliance with standards and best practices for responsible stewardship of digital information.
- Digital preservation strategies and actions address content creation, integrity and maintenance.

What Is Digital Document Preservation?

Digital preservation as "A process by which data is preserved in digital form in order to ensure usability, durability and intellectual integrity of the information contained therein is called digital preservation". It is a challenging task to any library and information centre, because the future of the library lies with preserving both 'born digital' and 'digitized materials" for the present as well as future users. The new technologies, which facilitate to create, store, preserve and access facility to distant users poses serious of challenges and issues in preserving the rare documents such as storage, Optical Character Recognizer (OCR) for editing languages, migration, cost and so on. Cultural resources like manuscripts, paintings, historical records, photographs, rare books have limited access and daily usage of these documents poses serious challenges like security and damage of books. India has about five million manuscripts, which is perhaps largest collection in the world are scattered across the country as private and institute's collection. The only way to allow the documents to access the present as well as future users, is digitization. "Digital document preservation is a process by which digital data is preserved in digital form in order to ensure the –

- Usability,
- Durability and
- Intellectual integrity of the information contained therein
- Library users responsibilities:

Need for Digital Preservation

- Tremendous amount of born data, especially in the field of science and Technology.
- Physical deterioration
- Digital obsolescence: Digital technology is on a fast track.

Digital Preservation: Issues

- Data is maintained in the repository without being damaged, lost or maliciously altered;
- Data can be found pinpoint, extracted and served to a patron
- Data can be interpreted and understood by the patron; and

- The above can be achieved in the long term.

Digital Preservation Process

The following four steps are involved in the process of digitization:
Document Image processing (DIP)

- Electronic filing system (EFS)
- Document management System (DMS)

Issues and Challenges of Digital Preservation : The main objective of the digital preservation is preserving the intellectual output irrespective of the format and application used for creating the information and ensuring the hardware and software for long-term preservation of digital documents.. any library in this digital environment has to cope with the new technology for preserving the digital information for its users and to sustain. The major issue with digital preservation is, hardware and software obsolescence, which poses challenges of maintenance as well as safeguarding the digital resources for keeping long term. Preservation should ensure the records to be available, usable, created by hardware and software applications, even after the hardware and software used for creating the resources is no longer available.

Planning of Digital Preservation: Digital preservation is complex and takes time to develop and success, which needs long term commitment. According to the following items should be kept in mind before proceeding for digital preservation.

- Does the library have resources necessary to preserve the information?
- Necessary man power, Institutional commitment and involvement of every staff in the Library
- Technical staff for maintenance of server, programming, to create metadata, standards and implement the project
- Budget provision by the parent organization
- Recommended platform
- Selection of software (Open source or commercial)
- Other items include, proper guidelines, copyright issues
- Selection of file formats. Simply, the server can store digital files, it is better to restrict the files, which occupies less space than others.
- Though the server allows to store the documents in any number of versions, it is better to limit with single version to all documents to avoid space limitation.

Importance of Digital Preservation: The importance of digital preservation comes from a number of factors associated with the nature of Library Materials. The growth of digital resources in libraries of all kinds summons a new era in their development. Historically, libraries have always been concerned with the management and preservation of 'atoms', today they must be increasingly concerned with preservation of 'bits'. The conservation of the physical book and journal issue has its own problems, but national libraries and university libraries have copies of books are centuries old and which, in many cases, have

been preserved in pristine condition. The big question of libraries today, however, is how to preserve library materials.

Nature of Digital Preservation: Clearly, digital preservation is about more than simply maintaining data. The view of digital preservation so far discussed encompasses:

- Preservation of data as a stream of bits;
- Preservation of information about the data (usually called *metadata*);
- Ensuring that data can be found;
- Ensuring that there are workable ways of retrieving and accessing the data; and
- Providing means to re-create or re-present the experience of using the data.

Demanding that preservation managers define the experience that must be re-presented seems to take us far beyond what is expected of the conservator of books or paper records. On the other hand, the best preservation programmes have probably taken a similarly holistic approach in dealing with non-digital materials.

Digital Preservation Strategies and Methods: Many digital preservation strategies have been proposed, but no one strategy is appropriate for all data types, situations, or institutions. Some of them are:

1. **Bit stream copying:** The lowest digital material exists as a stream of bits. It is current practice for digital data to be stored in bytes, Bit stream copying is more commonly known as "backing up your data," and refers to the process of making an exact duplicate of a digital object. The today's storage hardware operates in bytes, and the packing of 8 individual bits into a byte is hidden from the user — not only the end-user, but the system level user as well. Libraries allow copying digital publications to preserve them. Copyright law restricts the uses that may be made of copyright materials..

2. **Refreshing:** Refreshing means copying information without changing the original file format. However, while refreshing will overcome the problem of media instability, it, offers a short-term solution for reserving access to digital material by ensuring that information is stored on newer media before the old media deteriorates beyond the point at which the information can be retrieved. Copy protection measures to limit access to copyrighted material or to inhibit the copy process itself. To be fully effective these require the protection measures to be included not only in the media (CDs, DVDs, etc.) but also in the devices that read them (players, computer drives, etc.).

3. **Persistent media:** It may reduce the need for refreshing, and help diminish losses from media deterioration, as do careful handling, controlled temperature and humidity, and proper storage. Durable media has the potential for endangering content by providing a false sense of security. Copyright protection - inserting copyright information into digital media. This information can be extracted to identify the rightful owner; such systems can only track unauthorized copying, they cannot prevent it.

4. Technology Preservation: Technology preservation is based on preserving the technical environment that runs the systems. Solution maintaining obsolete technology in usable form requires a considerable investment in equipment and personnel. The most obvious way of ensuring that the object is preserved as it was created is to preserve the environment used to create and use resources, that is preserve the software and hardware environment that was used to access the resource when it was created. For some digital objects this may be the best solution-at least in the short-run because it ensures that the material is accessible by preserving the access tools as well as the object itself.

Significance and Scope of Digital Preservation: Preserving digital content entails far more than making backup copies and storing them in disparate location. Digital preservation is to extend the usable life of machine readable files and protect them from media failure, physical loss, and hardware and software obsolescence, these activities include:

- Ensuring the long-term maintenance of a bit stream (the zeros and ones):
- Backing up files and keeping a copy at an offsite location
- Running checks to track the deterioration of storage media, files or bit streams
- Providing continued accessibility of the contents:
- Viability – making sure that information is intact and readable from the storage media
- Render ability – making sure that information is viewable by humans and able to be processed by computers
- Understand ability – making sure that information is able to be interpreted by humans.

Precautions of Digital Documents:

- Handle library materials carefully:
- always handle library materials with clean, dry hands
- Never pull head cap
- Safeguard library materials for future users.

Digital Preservation Problems

- Copyright: Digitization is the process of converting a work into a binary language that can be read by a computer. Digitization involves storing in an electronic medium such as the hard disk of a computer or a floppy disk of a CD-Rom. The copyright act classifies such storage as reproduction,
- Speed of Access: Speed of the accessible information is in higher side. Networks connected through worldwide ,so easy to access
- Digitalization Cost is high: cost of digitization of the library is very higher side.
- Band width: Digital library will require high bandwidth for transfer of multimedia resources, but the band with is decrementing day by day.

- Efficiency: Due to digitization access and retrieve information efficiently.
- Environment: Digital libraries cannot provide a traditional environment, people would like to read printed materials; it is not possible in a digital environment.
- Preservation: Due to technological developments, a digital library can rapidly become out-of-date and its data may become inaccessible.

Conclusion: Preservation of library material is most serious problem in today's librarianship. Libraries are more concentrating on dissemination of information than the preservation of library materials Many libraries are still experimenting with the existing and various other options for access to material provided by electronic means. The future of research and scholarship depends on the ability to preserve digital resources into the future. The preservation and long term access to digital materials will be an era of concern for libraries and other organizations involved in the preservation of our scholarly and cultural heritage well into the new millennium. Although the technical challenges are great, there are lot of other nontechnical issues that will need to be addressed like: building up a legal framework and bringing out consensus on widely accepted standards relating to digital preservation. . Techniques for organizing and disseminating information are developing fast, but conservation field is still neglected. If due attention is not given for the conservation of library material, then there is every possibility that our cultural heritage and "nations collective" memory may disappear. The cultural heritage of the nation in the form of old books and manuscripts the knowledge contained in it may be permanently lost if it is not properly preserved for future generation.

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