
Digital Preservation

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Abstract

Defines the concept of Digital Preservation . Explains the need for Digital content Preservation. Describes the Various requirements for Digital content Preservation. Discusses digital Longevity. Elucidates the challenges to Digital preservation. Enumerates the preservation strategies. Fixes the responsibility for digital preservation. Signifies the role of preserving the integrity of digital information. speaks about the coordinated efforts for digital preservation . States the present status of Digital Preservation in India.

Keywords : Digital Library, Preservation.

0. Introduction

We are living in the digital age and information is recorded, stored, retrieved and disseminated in the digital form. Digital media has emerged as one of the most powerful media of information. The Libraries and Information centres have come to rely more on digital information. Librarians exploit the facilities of information Technology with the aim of sharing their resources for providing right information to the right user at the right time. Today our capacity to record information has increased and the longevity of the media to store information has decreased.

1. Concept of Digital Preservation

The Process of maintaining materials produced in digital formats in a condition suitable for use is a real challenge. Problems of physical preservation are compounded by the obsolescence of computer equipment, software, and storage media. These problems also refers to the practice of digitizing materials originally produced in non digital formats (print, film, etc.) to prevent permanent loss due to deterioration of the physical medium.

Digital preservation is a process by which digital data is preserved in digital form in order to ensure the usability, durability and integrity of the information contained there in. Digital preservation comprise the planning, resource allocation and application of preservation methods and technologies necessary to ensure that digital information of continuing value remain accessible and usable. The main purpose is to ensure protection of information of enduring value for access by present and future generations.

2. Need for Digital Content Preservation

The Preservation and archiving of digital information is one of the greatest challenges for the library professionals these days. The main problem with digital preservation is that digital technology is an extremely fragile medium for the cultural memory of the world.

Digital information has two main weaknesses. They are:

1. Digital storage media, whether magnetic or optical, are subject to relatively rapid decay.
2. Digital information is machine dependent, and to be read accurately it needs specific computer hardware and software. Unfortunately, hardware and software become obsolescent and otherwise unusable.

Preservation of digital materials involves a number of basic requirements. Digital documents possess a unique collection of core digital attributes that must be retained.

The use of computers keeps changing the way information is created, managed and accessed. The ability to create, amend and copy information in digital form, to search texts and databases and to transit information over networks has led to a drastic growth in the application of digital technologies.

Digital resources will not survive or remain accessible and hence pro-active preservation is needed. Digital preservation is needed to increase the nation's investments in digital resources to secure the intellectual and cultural records that exist only in digital form.

3. Requirements for Digital Content Preservation

Preservation of digital material is more complex. Digital contents are less like artefacts and more like signals – signals that must be continuously refreshed or they disappear. To preserve digital materials with mass storage capabilities some fundamental requirements are necessary. They are:

1. The uses of digital materials – from the view of Libraries, archives
2. Maintenance, preservation and dissemination of information.

Before going for digital preservation, it is essential to understand the basic characteristics of an electronic publication. Let us see the following two elements:

- a. A formatted bits streams
- b. A programme to interpret the format.

Potential users may seek the documents which are easily retrieved and disseminated. Preservation of digital materials will require long term maintenance of structural characteristics, descriptive Meta data and proper display.

Storage system should be capable of handling the digital information in a wide variety of formats such as:

- | | | |
|--------------|-----------|-------------|
| a. Text | b. Data | c. Graphics |
| d. Video and | e. Sound. | |

4. Digital Longevity

Information stored in digital format does not last forever due to the fragility of digital works. The life of data written to optical media such as CD-ROM or DVD may be measured in years. We have not yet achieved much stability in data storage technology. There are administrative, procedural organizational and policy issues surrounding the management of digital material. Digital materials are to be :

- | | | |
|--------------|--|----------------|
| a. Generated | b. Captured | c. Transmitted |
| d. Stored | e. Maintained, accessed
and managed | |

Many efforts have been taken for survival of digital data for longer duration. This concept is known as retention - intension.

5. Challenges to Digital Content Preservation

The purpose of digital preservation is to ensure protection of information of enduring value for access by present and future generations. Many Libraries and Information centre have established formal preservation programmes for traditional materials in digital format which remains experimental. Digital preservation is a global issue and requires a global solution. It is a means of ensuring longevity for digital resources.

6. Preservation Strategies

Digital preservation is the storage, maintenance and accessibility of a digital object for a long time by applying one or more digital preservation strategies.

The following are the main issues of preservation of Digital materials

- ✍ Access to digital materials depends on the software and hardware used
- ✍ The medium upon which digital materials are stored.

There are four main strategies for preserving digital resources.

- a. Intellectual Preservation which includes printing of digital material on paper and recording it on microfilm.
- b. Technology Preservation aims at preserving the software and hardware environment.
- c. Emulation refers to creating new software that mimics the operation of older hardware or software in order to reproduce its performance.
- d. Data migration is a set of organized tasks designed to achieve the periodic transfer of digital materials from one hardware/software configuration to another. The main purpose is to preserve the integrity of digital objects and to retain the ability for users to retrieve and display.

To perform digital preservation Libraries and Information centers must retain the ability to display, retrieve, manipulate and use the digital information in the face of constantly changing technology.

6.1 Responsibility for Digital Preservation

Responsibility for preservation is closely associated with the ownership. In the case of digital material the ownership is diffused. Libraries or Information centers often pay license fee for accessing the digital material, which is hosted at the server of the publisher. The Libraries will have to get permission from the right owner which may be the author himself or the publisher or any other intermediary.

6.2 Preserving the integrity of Digital Information

The digital information objects with long term cultural and intellectual value should be preserved with their integrity. The integrity of the information objects in the digital environment is so fragile. One of the greatest threats to the long life of the digital information is the ease with which it can be abandoned and then destroyed. One of the mechanisms against this danger might rest in enacting laws covering preservation of digital material.

A depositary system might serve the purpose. Under this system, publishers could be legally bound to place with the National Library a copy of their published digital works in a standard archival format. In turn it would put responsibility on the National Library to protect the integrity of the digital materials over the long term and retain them in an accessible form for future use.

6.3 Coordinated Effects for digital Preservation

The Librarians and archivists must join together to develop active steps and policies for preserving digital information. Coordinated efforts are a must for developing solutions to digital preservation. The acceptance of shared responsibility and shared funding commitments will ensure that no valuable digital information is lost to future generations.

7. Digital Preservation in India

Digital technologies enabling information to be generated, manipulated, disseminated, located and stored with increasing ease, preserving access to this information poses a significant challenge in India. Unless preservation strategies are actively employed, this information will become inaccessible.

The state of development in digital preservation remains largely experimental. Only a few Libraries/archives have established digital preservation programs. Preservation of digital documents may require new investments and commitments by the organizations. Preservation and management of digital records involves interrelated, technical, administrative, procedural, organizational and policy issues.

The mixture of machinery and media of the digital world increases the need for responsible preservation activities in Libraries and Information centres in India. Unfortunately, digital Libraries in India have little market control over the changing technologies.

8. Conclusion

Preservation of digital material is indeed a very challenging task for Library and Information Science professionals. The future of Library and Information services is closely associated to the preservation and the new technologies will create, collect, store, process and retrieve the information and deliver across the globe.

9. References

1. Amritpal Kaur – Archiving / Preserving Digital Information.-(Murthy, TAV... [et al.]ed. - Second International CALBER 2004).- Ahmedabad: INFLIBNET Centre, 2004, PP.283-287.
2. Banumathy, G and Gnanasekaran, D.- Digital Preservation: How can the process be designed in new different way?.- (Murthy, TAV... [et al] ed.- Second International CALIBER 2004).- Ahamedabad: INFLIBNET Centre, 2004. PP.276-282.
3. Parmar, PP and Zaved Khan ed.- Encyclopedic dictionary of computer and Library Science. Vol.2.- New Delhi: Anmol Publications, 2003, P.470.

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