

Preservation Issues of Scholarly Literature in Digital Era

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Abstract

Today library and information centers play an important role in Preservation of information sources through digital preservation. Digital preservation can be seen as all those processes aimed at ensuring the continuity of digital material for as long as they are needed. Digital preservation is the method for keeping digital material alive and digitalization technology brings with it hidden benefits for preservation access. This paper describes digital preservation objectives, importance, problems, strategies, standards and issues.

Key Words: Digital Preservation, Digitalization, Preservation Strategies, Library and Information services, Preservation issues.

Introduction

Digital Preservation is a set of activities required to ensure digital objects can be found, utilized & comprehended later on. It refers to conservation of materials that are made initially in digital form and never exists in print form and the utilization of imaging and recording technologies to make digital materials for access and preservation purposes. Preservation is an important function of any library to utilize the preserved materials for today and tomorrow. Generally, preservation of materials has been done in light to the threat of destruction of the materials for future use. Presently more of that knowledge is stored in electronic file, databases, Web pages etc. Digital information is progressively vital to our culture, learning and knowledge. Difficulties to saving access to these advantages are as much identified with hierarchical procedure, strategy and culture issue as to specialized issues. LIS (Library and information services) have played an important role in the continuation learning: it has caught & composed the resources of information made previously, so they it may be accessed by the user network. They have played a key role in preserving the library sources to easy access by the coming generation of user.

Definition

A process by which digital data is perceived in digital form in order to ensure the usability, durability and intellectual integrity of the information contained therein is called Digital Preservation. (Russell, 1998) Digital preservation as "the preservation of digital materials and the preservation of paper based materials and other artifacts through their digitization. AHDS (The Arts and Humanities Data Service). Digital preservation technology provides long term maintenance of a byte stream (including metadata) sufficient to reproduce a suitable facsimile of the original document. Jantz and Giarlo (2005)

Objectives Of Preservation In Libraries

Digital preservation is to protect the value of information for present and future use. Traditional concept of preservation of documents is changing due to digital technology. Some important objectives of digital preservation are as follows:

- ❖ To keep historical value of information.
- ❖ To reduce the deteriorating factors effects.
- ❖ To save the time and space.
- ❖ To make information whole life.
- ❖ To provide worldwide access.
- ❖ To keep the collection backup.

Significance Of Digital Preservation

The significance of digital preservation originates from various factors related with Library Materials. In all types of libraries the growth of digital resources is a new epoch. Verifiably, libraries have dependably been worried about the management and preservation of 'atoms', today they should be progressively worried about conservation of 'bits'. The preservation of the library resources issue has its own issues. Hundreds of years old duplication of books is preserved in perfect condition in libraries. The unavoidable issue of libraries today, however, is how to preserve library material. There has been a spectacular development and educational improvement after the 2nd world war. Many of people were eager to grow their knowledge and awareness with the advent of technology in various fields. A library contains materials having inborn esteem, vital for the sound development of society. As the years past, estimation of a portion of the uncommon books, compositions, artistic creations show upward gratefulness and it turns out to be practically difficult to supplant them in their unique structure, since they are transient in nature. It's the obligation of the Librarians that correct data should contact the perfect individual at the opportune time and for that it is significant that the library materials are appropriately and cautiously saved.

Digital Preservation Need

The digital world is a place of fast technology & organizational changes, which impacts ongoing utilization of digital resources. A wide range of digital resources need preservation including:

- ❖ Digital resources that have no analogue counterpart. (Born Digital)
- ❖ Web sites, e-journals, wikis, catalogue, etc. (Collective resources)
- ❖ Email, instant messages, etc. (Communication records)
- ❖ Digitized versions or surrogates of physical items (Digitally Reformatted)
- ❖ Scientific and cultural data comprising multiple individual pieces of data. (Data Sets)
- ❖ Texts still and moving images sound recordings, etc. (Individual resources)

Digital camera, Scanner plays a crucial role to preserve the photographs and reading materials in the digital scenario.

Problems In Digital Preservation

Society's heritage has been presented on many different materials, including stone, vellum, bamboo, silk, and paper. Now a large quantity of information exists in digital forms, including emails, blogs, social networking websites, national elections websites, web photo albums, and sites which change their content over time. With digital media it is easier to create content and keep it up-to-date but digital technology appears to offer few problems in preservation. Bits and bytes are easy to copy, so there should be no problems in developing an unending chain of copies into the future and having copies all over the globe in case of the cup and the lip and there are very significant technical and management problems. Preservation functions will have to much more concentrate on digital collections than they have been so far. Libraries that have a custodial function will need to bring preservation perspectives to bear on the ways they control digital information from the beginning. The world of changing websites, unstable floppy disks and individual computer system is not a place where any particular digital resource is secure for very long. Long-term preservation of digital information across generation of technological change is a daunting challenge. As well as interest in developing standards which do not be affected by either technological change or the forces of media deterioration, most attention is being to two approaches: migration (in which files are copied to new operating systems and converted to so they can be accessed in each new technical environment), and emulation (in which files are maintained in their original formats and accessed using emulation software that recreates their original operating environment.)

Strategies For Digital Preservation

Online Computer Library Center developed a strategy for the digital preservation objects in 2006 that consisted of: Assessing the risks for loss of content posed by technology variables such as commonly used proprietary file formats and software applications. Evaluating the digital content objects to determine what type and degree of format conversion or other preservation actions should be applied. Determining the appropriate metadata needed for each object type and how it is associated with the objects. Providing access to the content. There are various additional strategies can be use to actively combat the loss of digital information.

REFRESHING: It is the transfer of data one physical storage medium to another storage medium so there are no changes of data. Refreshing will always be necessary due to the deterioration of physical media.

MIGRATION: Migration includes changes in the arrangement of the basic information without change in intellectual content. Migration may be a very useful strategy for preserving data stored on external storage media as floppy disks, CDs, USB flash drives.

Replication: Replication means duplication of data on one or another system. Replicated data may introduce difficulties in refreshing, migration, versioning, and access control since the data is located in multiple places.

EMULATION: Emulation does not focus on the digital object, but on the hard- and software environment in which the object is rendered. It aims at recreating the environment in which the digital object was originally created.

ENCAPSULATION: Encapsulation method is usually applied to collections that will go unused for long periods of time. Encapsulation maintains that preserved objects should be self-describing, virtually "linking content with all of the information required for it to be deciphered and understood".

PERSISTENT ARCHIVE CONCEPT: The preservation of the organization of collection as well as the objects that make up that collection, maintained in a platform independent form. San Diego Supercomputing Center developed the concept of Persistent Archive and funded by the National Archives and Records Administration.

METADATA ATTACHMENT: Metadata is data on a digital file that includes information on creation, access rights, restrictions, preservation history, and rights management. Metadata attached to digital files may be affected by file format obsolescence.

Norms Of Digital Preservation

To standardize digital preservation practice and give a lot of suggestions to preservation program usage, the Reference Model for OAIS (Open Archival Information System) was developed. The reference model (ISO 14721:2003) includes the following duties that an OAIS document must submit to:

- Consult for and accept appropriate information from information Producers.
- Acquire adequate control of the information provide to the level expected to ensure Long-Term Preservation.
- Decide, either without anyone else or related to different parties, which networks should turn into the Designated Community and, along these lines, ought to probably comprehend the data gave.
- Ensure that the information to be preserved is autonomously justifiable to the Designated Community. At the end of the day, the network ought to almost certainly comprehend the information without requiring the help of the specialists who produced the information.
- Follow documented policies and strategies which ensure that the information is preserved against every single sensible possibility, and which empower the information to be spread as confirmed duplicates of the original, or as recognizable to the original.
- Make the saved information accessible to the Designated Community

Policy And Issues

The major issues of building a sustainable digital preservation program are as follows:

- Inadequacy of funding models to address long-term access and preservation need.
- Confusion and/or lack of alignment between stakeholders, roles, and responsibilities with respect to digital access and preservation.
- Inadequate institutional, enterprise, and/or community incentives to support the collaboration needed to reinforce sustainable economic models.
- Complacency that current practices are good enough.
- Fear that digital access and preservation is too big to take on.

In the analog world, the rate of degradation or depreciation of an asset is usually not swift, and consequently, decisions about long-term preservation of these materials can often be postponed for a considerable period. The digital world affords no such luxury, digital assets can be extremely fragile and ephemeral, and the need to make preservation decisions can arise as early as the time of the asset's creation. Digital preservation solutions are partly technical, and partly organizational and procedural, and therefore digital preservation relies on the interaction

between the digital preservation environment and wider organizational objectives and procedural issues. The Digital Preservation policies study report provides an outline model for digital preservation policies for Higher and Further Education Institutions in the UK. The report proposes that an institution can take one of the following two preservation strategies: a life-cycle approach by going through "each implementation stage in the following order: selection, conversion, receive, verify, determine significant properties, ingest, metadata, storage, preservation techniques, and access"; or From libraries to preservation research the OAIS approach that includes: "Preservation Planning, Ingest, Archival Storage, Data Management, Administration, Access, Deletion, and possibly a description of the different archival packages: Archival Information Package, Submission Information Package, and Dissemination Information Package". The digital preservation activities at The National Archives of UK are based on two sets of activities: "passive preservation, which provides secure storage, and active preservation, which ensures the continued accessibility of the stored records over time, and across changing technologies".

Conclusion

Digital Preservation in one such activity, the library needs to take up reacting to the developing use and flexibility of information technology to library related activities. Digital Preservation can, in this manner, be seen as the arrangement of procedure and activities that ensure the proceeded with access to information and a wide range of records. A promise to preserving digital information requires a legal environment that empowers preservation. It additionally implies that association must take liability for preservation by raising new policies and making the economic way to verify survival of this generation's information into future. Information has turned into the fourth essential need of our life and our nation can't be too lagging behind from the changing if information world. The libraries are capable to collect, spread and preserve the printed heritage of our nation.

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