
PRESERVATION AND MANAGEMENT OF DIGITAL RESOURCES: POLICIES, ISSUES AND CHALLENGES

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Abstract

Preservation, access and management of digital resources in twenty first century have been a great challenge for library and information professionals for which the digital and web technologies provide the best possible solutions. The present paper discusses the policy formulations, issues, challenges of access, technological obsolescence and possible solutions associated with preservation and management of digital resources. The author concludes that preservation, access and management of digital resources require a long-term strategy and appropriate technology adoption.

Keywords: Digital Preservation; Digital Archival; Interoperability; Preservation of Information Integrity

1. Introduction

The exponential growth of web resources both in quantity and quality has necessitated both users and information professionals to preserve and manage for posterity. Digital technology, digital library and digital information resources not facilitated easy access but with huge and variety of contents with less cost as well. Digital information resources

not only provided effective dissemination of information as one of the missions of an organization but preserving the same is quite another. Preservation and management of electronic resources are concerned with three types of problems such as (a) preservation of artifact or medium on which the information is stored (e.g. tape. disk, optical disk, CD-ROM/DVD) and which may decay (medium preservation), (b) preservation of software and storage formats, which can become obsolete and create access problem (technology preservation) and (c) preservation of the information content from being corrupted from its original form (intellectual preservation). Although many of the libraries and information centers have given a serious thought and effort to building digital collections but very little thought to preserve these digital resources.

2. Preservation and Management of Digital Resources: Policy Formulations

While implementing the policies with regard to preservation and management of digital information resources, the libraries should regularly:

- Monitor the preservation implications and priorities for preservation of different information resources,

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- Store and manage these resources to ensure high security, automated checking, archiving and back up with adequate disaster preparedness and recovery procedures,
 - Document collections including file formats, software and hardware dependencies,
 - Classify these resources based on its content and functionality
 - Record preservation of metadata that facilitate effective and efficient management, and
 - Develop appropriate pathways to access these resources in conformity with its authenticity, intellectual property rights (copying, storage, modifications and use of specific resources) and cost effective as well.

Careful management from the content creation and proactive policy and strategy approach are very much essential to secure its long term preservation.

3. Issues Concerning Preservation of Digital Resources

Preservation and management of digital resources faced to address some conceptual issues which refers to:

- **Digitizing for Preservation** that leads to process of converting print materials (e.g. brittle books) in to digital form due to every possibility of its deterioration,
- **Digitizing for Access that converts** the artifactual information (such as manuscripts, original art materials and printed materials) in to digital form so that it may be viewed by a larger community and from distance,
- **Preserving Digital-only Information** which aims at long term archiving of information that exists only in digital form such as research Data and e-journals with no print counterpart.

There are other elated issues like:

- Whether anything or everything could be preserved? What to retain and which portion to be retained,
- Who owns the information and thus can acquire copyright protection,
- What about information privacy? If some one insists certain Internet information not to be retained for posterity,
- What provision should be made in deleting information from the Web
- How much archived web material are valuable and what about the rest.

The selection of digital resources is based on five criteria to ensure that the institution selects are worthy of preservation.

3.1 Scope Policy: Considering Your Users

- Information Coverage
- Access
- Cataloguing Policy
- Geographical Issues

3.2 Content Criteria: Evaluating the Information

- Validity

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- Authority and Reputation of Source
 - Substantiveness
 - Accuracy
 - Comprehensiveness
 - Uniqueness
 - Composition and Organization
 - Currency and Adequacy of Maintenance

3.3 Form Criteria: Evaluating the Medium

- Ease of Navigation
- Provision of User Support
- Use of Recognized Standards
- Appropriate Use of Technology
- Aesthetics

3.3 Process Criteria; Evaluating the System

- Information Integrity (Work of the Information Provider)
- Site Integrity (Work of the Web Master/site Manager)
- System Integrity (Work of the System Administrator)

3.4 Collection Management Policy: Considering Your Service

- Collection Coverage and Balance
- Availability of Internet Resources
- Availability of Library resources

4. Access to Digital Information Resources: Challenges

The preservation and management of digital resources is threatened by many challenges like:

- large amount of information resources to be maintained,
- constant changes in the hardware, software and other technologies required for access
- frequent changes in file formats and standards,
- uncertainty in maintaining the valuable and different digital resources,
- complexities in addressing strategies, techniques, timely and cost effective actions.

The increasing amount of web resources that are being created and saved in digital data storage systems need to expedite the access and use of this data through different formats such as images, video, audio, tables, arrays, graphics, algorithms and procedures and documents. The data structure standards are needed so that information does not simply exist in a repository as first created but accompanied by complimentary information associated with and describing it. Some of the standards for describing, encoding, and archiving electronic data have been established to date like Dublin Core Metadata Element set, Platform for Internet Content Selection (PICS), Resource Description Framework (RDF), Government Information Locator System (GILS), Text Encoding Initiative (TEI), Encoded Archival Description (EAD) and Universal Preservation Format (UPF).

5. Technological Obsolescence and Possible Solutions

Technological obsolescence is another major hurdle in the preservation and management of digital resources particularly for long-term access. Data storage technology from Floppy drive to CD drive to Pen drive are gradually becoming obsolete and many are depending on web resources. Several options are being explored to deal with this cycle of obsolescence that falls in to three main categories.

- a. **Refreshing:** Refreshing is copying digital files from one storage medium to another storage medium of the same type to prevent media obsolescence. Copying files from old diskette to a fresh, new diskette of the same kind is an example of this type of media refreshing. Refreshing does not solve the problem of backward compatibility if the software changes.
- b. **Migration:** This process is periodic transfer of digital materials from one hardware/software configuration to another, or from one generation of computer to another and is the most current strategy for preserving electronic resources. Media refreshing is a part of migration but migration involves the transfer of the entire digital environment, not just the physical storage medium.
- c. **Emulation:** The third digital preservation option is emulation. In this process the software performs the functions of obsolete hardware and software and the strategy proposes that the digital documents be store in their original forms, along with original software in which they were created

6. Conclusion

Preservation and management of digital resources require a long-term strategy and appropriate technology adoption. The twenty first century is still confronting with the problem of universally accepted technology for preserving our digital heritage but institutions world over are seeking out the best paths to long-term preservation of digital resources. The responsibility of digital preservation and archiving is a combination of number of stake holders like Creators (authors), Libraries, Publishers, Distributors, Archive Centers, IT Suppliers, Legal Depositors Library Networks and Consortia, Networked information Service Providers. What unites these stakeholders is their interest in adding to or making use of the value of digital information objects. While using, recreating and disseminating digital information can easily, inadvertently, destroy information. The stakeholders who perform archival functions such as digital archives that builds and maintains reliable collections of well-defined digital objects with integrity to provide them in safe net.

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