

Digital Preservation in Academic Library

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ABSTRACT

Libraries have managed their information in various analogue formats (hard copy) including parchment, paper, videotape and photographic film, and they now need to preserve their digital resources for as long as they are needed. The preservation of digital resources in academic institutions in India is an imperative because of the proliferation of digital resources and the realities of the digital revolution. The study focused on digital preservation practices within academic libraries in India. In India they are focused on the preservation of cultural heritage, preservation of electronic government and preservation of public digital information. Academic libraries are changing dramatically by adopting new means of technology in all activities and have so far evolved from focusing on managing physical resources and related services to transforming resources and services into digital formats. The paper discovers to facilitate digital preservation goal can be achieved by the implementation of several technologies but on the other hand managerial environment and nature of the materials are also the study points before adopting techniques involved in digital preservation. It is also find out that the Digital preservation of documents restores it from loss, theft and decay also it explains the overview of technological approaches and strategies to digital preservation and challenges on information resource centre (IRC). There is a need to understand the extent of preservation of digital resources in various contexts in order to guarantee access to them for future generations. This will improve our understanding of the preservation of digital resources in academic libraries in the wake of the digital revolution.

KEYWORDS

- Digital Preservation
 - Documents Preservation Planning
 - Digital resources
 - Preservation Initiatives
 - Preservation strategies
 - Information Resource Centre (IRC)
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Date of Submission: 19-09-2021

Date of Acceptance: 04-10-2021

I. INTRODUCTION

Digital preservation is becoming a necessity for academic institutions. However, as digital technologies become more sophisticated, it is likely that they are going to trigger more changes in the way academic institutions practise and deliver on their mandate. These changes provide compelling reasons for academic libraries to rethink their structures, operations and services to remain relevant in this digital era. Wawrzaszek and Wedaman (2008) emphasized that the libraries must actively embrace the changes in the information environment in order to fulfill its traditional mission and to stay relevant in the digital world. Academic libraries have now expanded their scope to include generating, collecting, organizing, capturing and preserving digital materials. However, digital preservation has become a significant problem facing academic libraries today and it poses immense challenges for libraries attempting to preserve their digital materials and data repositories. Human past is splendid and full of wonders. The past is known by records, archives, books, and other library materials that constitute documentary sources. There are also other things like monuments, buildings, art objects, and other artifacts. All these constitute human heritage. They need conservation and preservation. Librarians, archivists, curators, chemists, and archaeologist the world over are concerned with the problems of conservation and preservation. Preservation is a part of conservation. Preservation is concerned with problems like there pair, dusting, fumigation, de-acidification, air-conditioning, lamination, binding, and storage of manuscripts, books, films, disks, and optical materials.

OBJECTIVES OF DIGITAL PRESERVATION IN ACADEMIC LIBRARIES

Objectives of Digital Preservation in Academic Libraries: There are multiple objectives of digital preservation of materials in academic libraries. The first and foremost objective is to save the study materials for the prolonged periods to provide them to present and forthcoming generation. It is important for both; born digital and digitized material. In order to ascertain the authenticity of the text, such preservation is must and true ways and means of safety. Preserve physical media to avoid damage or deterioration by ensuring an environmental control. Changing the digital information in to newer and fresher format it is highly important, if it is required. Achieving co-coordination of all efforts that are undertaken for preservation globally in order to achieve more synergy, to avoid redundancy and reduce cost.

Such source of preservation provides an effective infrastructure as the wonderful platform; related to universities, colleges and individuals that have connected internally and globally. Focus the stakeholders on issues that desperately need attention in this concern. It takes direct action at outset instead of secondary stage.

PRINCIPLES OF DIGITAL PRESERVATION IN ACADEMIC LIBRARIES

In the digital world, the preservation of study materials of the various fields has now been possible that is being brought in practice across the globe. It is being practiced to preserve analogue media that are also applicable to preservation in the digital domain. The information stored in digital format does not live forever because of soft fragility of digital functioning. There are numerous replications, adoptions and redundancy of hardware and software. Computer's software, hardware and data formats that are readable and interpretable in the present scenario will be subject to use for long term in future.

Selection: If we talk of selection, it is multi-staged process. Each stage is capable to go ahead with different options through different processes. Whether it is an issue of material-selection for digital preservation or the selection of equipments, tools, and machinery, it is useful.

Quality: There are three stages of quality maintaining; first is the work-flow during the planning and preparation of preservation, second, it is important to be careful while the selection and handling digital tools and third, at the delivery or access time to evaluate download time and user friendly formats. Consistency is the key to ensuring the quality of digital files.

Integrity: Integrity is a very important function. It is required to protect the preserved data and storage. It protects the access of digital content even when we discard the storage of original material and storage medium, hardware and software which comprises the contents which were created, maintained and approached to access. The second functioning of this process of integrity is preserving the digital integrity that is meant for digital contents. It also involves in the work of developing all sorts of techniques in order to verify its alteration from the original format.

Access: This is again an important part of preservation through digital process when we are prepared to put valuable material, resources, especially for online access. It is considered to be a policy matter of any academic library to give facility of accessing its digital contents.

DIMENSIONS OF DIGITAL PRESERVATION IN ACADEMIC LIBRARIES

There are two components on which digital preservation is based to be divided. ; First, those activities that work to promote the long-term maintenance of digital image and second, those activities that give continuously accessibility of contents.

Long-Term Preservation: Continued access to digital materials or at least to the information contained in them indefinitely.

Medium-Term Preservation: Such type of preservation relates to that process of preservation which continues to protect digital materials over the change of technology for a defined period of time but not indefinitely.

Short-Term Preservation: This is meant for accessing to digital materials for the both purposes; for defined period or for uncertain period. It is also used for the predicted time; means when one needs to use and access it. It works because of changes in technology.

PRESERVATION STRATEGIES

Digital preservation involves choosing and implementing an evolving range of strategies to achieve the kind of accessibility discussed above, there are so many preservation strategies in order to addressing the preservation needs of the different layers of digital concerns.

Refreshing: Refreshing is the transfer of data between two types of the same storage medium so there are no bit-rate changes or alteration of data. For example, transferring census data from an old preservation CD to a new one.

Migration: Migration is the transferring of data to newer system environments which includes the conversion of resources from one file format to another -e.g., conversion of Ms Word to PDF or Open Document, from one

operating system to another e.g., Windows to Linux or from one programming language to another for e.g., C to Java.

Replication: Emulation is the replicating of functionality of an obsolete system. Examples include emulating an Atari 2600 on a Windows system or emulating Word Perfect 1.0 on a Macintosh. Emulators may be built for applications, operating systems, or hardware platforms.

DIGITIZATION EQUIPMENTS

- Wide format scanner which can scan document width up to 42 inches.
- High resolution of Digital Cameras and Scanners.
- Book scanners with V shaped cradle.
- Dark rooms with lighting equipment.
- Servers: IBM server with an installed storage of 20TB, Calculable up to 48TB.
- Backup equipment: LTOP Tap drives, hard drives, DVD writers.
- Computers: Desktop, Laptops, Palmtops, Android Apps etc.
- These are required based on the available documents which are going to be digitized.

PRESERVATION PLANNING

The purpose of the Preservation Planning function is to monitor threats to accessibility, and to specify action to pre-empt or respond to them.

1. Relevant threats mostly relate to changes in the technology that underlies access, so this function looks for such changes and takes action to maintain accessibility despite these changes.
2. The action will involve changing the information package: transforming the digital object itself to a different coding (as happens in migration)
3. Changing the meta-data that describes the means of access and links to current access tools.

BENEFITS OF DIGITAL PRESERVATION

- To ensure and reinforce the accountability.
- To plan coherent digital preservation program.
- To develop a digital preservation strategy.
- To demonstrate such funds and will be used responsibly and consistently.
- To ensure digital materials available for current and future use.
- To define the significant properties that need to be preserved for particular class resources.
- To assist agencies in designing digitization program.
- To provide a comprehensive statement on the digital preservation.
- To provide security measures that ensures the protection of digital materials during use.

DEMERITS OF DIGITAL PRESERVATION

- Initially no one can understand what digitization is, and so everyone was hesitating in submitting his or her scripts for digitization.
- There is no doubt that in present times more than 27 million documents from the government universities, and data from personal collections are to be digitized but initially they used to send requests to the public to send their scripts for digitization but now the scenario has changed and the request is being sent by the public.
- It will take approximately ten years to fulfill the requests which are pending before. There is a great need to create awareness among the masses about the preservation of the archives so that this heritage can be handed over to the future generation.
- Digitization requires a huge amount of money. Therefore, they have introduced a new scheme of 'adopt one book' for digitization.

II. CONCLUSION

Digital preservation has come a long way since 1990. There are now international standards, formal and informal for many of the essential digital preservation tasks and for digital archival repositories. Institutional support has increased, and administrations have acknowledged the importance of preserving digital objects as part of their cultural heritage missions. All future efforts in digital preservation will build upon the work of the past. We can now make information easily available to communities worldwide via the Internet. Decisions about preserving information should consider the costs. We can use current technology to determine the costs of retaining information but there are no proven techniques for estimating the costs of long-term digital information preservation however, both expenditures and technology will evolve. We, however face the challenge of preserving digital information with its paradox of short media life, obsolete hardware and software, slow read times of old media, and defunct Web sites. Failure to address these digital preservation problems is

analogous to squandering potential professional, personal, and economic gains, contributing to cultural and intellectual poverty, and resulting in exorbitant costs for recovery. There are numerous challenges before us, but also enormous opportunities to contribute to the development of a national infrastructure that positively supports the long-term preservation of digital information. Despite the wealth of accumulated, technology-generated information, we currently lack proven methods for preserving this information or for using optimal technology tools to access it and determine its authenticity. Most importantly, the milestones presented in this chapter reinforce the need for collaborations between institutions and across nations when undertaking the task of preserving digital objects.

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PART I • History and Theories: What Is Digital Preservation?

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Dr.Devendra Kumar Gautam. "Digital Preservation in Academic Library." *IOSR Journal of Humanities and Social Science (IOSR-JHSS)*, 26(09), 2021, pp. 33-36.