# Digital Preservation in Academics Libraries

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***Abstract -*** *In the age of information technology everything merged with the new technologies. In the field of preservation technology made a huge change and gives a new dimension to it. Digital preservation helps us to store and keep our information resources safe and secure for future purpose. In the academic library digital preservation plays important roles which make secure and give longevity to the information resources.*

Keywords: Information technology, digital preservation, academic library, digital libraries, preservation of libraries, digitization

## Introduction

Today in the era of information and communication technology, digital preservation plays a vital role in the field of preservation of information resources. Preservation may be described as process of involving information technology to preserved information resources preventing them from deterioration.

Information Technology world that plays an important role in the field of preservation.  It is not a new concern: it started when the first computers were introduced. Preservation may be described as involving all those library activities aimed at preventing, retarding, or stopping the deterioration of materials, so that the intellectual content may be saved for future users. In the past, libraries were mainly concerned with taking steps to preserve the physical artefact (or a photocopied or microfilmed facsimile of the artefact) that contained the information, rather than preserving the information itself. Traditional library preservation strategies have therefore long been established for physical objects, but these strategies do not always transfer neatly to the preservation of a digital object.

## What is Digitization

Digitization is the process of conversion of  written  documents  into  electronic  form. The digital  scanner captures an image of  the original analog  item,  whether  it is a photograph,  a word-processed  document,  or  a  handwritten  letter,  stored  in  numeric  form.In the modern libraries, digitization plays a very important role to replace the conventional libraries. No physical limit for storage is one of the advantages of digitalization.

## Meaning of Digital Preservation

Digital libraries are a library where a large numbers of documents are made available on the internet in electronic form while preservation means to achieving those ancient things in digital  format.  The  term digital preservation is the process to store the  information  assets  in digitized form that  never  existed  in print or  analogue form as  well  as  those converted from printed    documents    or physical objects    into images using scanners, digital cameras,   or

other imaging technologies  for preservation purposes  for  the future users. In  other words, it is the activity of selection, storage, conservation and preservation of the information, which is available in different formats for the access of future generation and provides longevity to the digital content.

## Definition

According to Cornell University Library, "Digital Preservation encompasses a broad range of activities designed to extent the usable life of machine readable computer files and protects them from media failure, physical loss and obsolescence".

According to Russell(1998), "Digital Preservation is a process by which digital data is perceived in digital form in offer to ensure the usability, durability and intellectual integrity of the information contained therein".

## Importance of Digital Preservation

As we know that the word digital preservation plays an important function of any library, collection, information organization, etc., in using preserved materials for the present and future generations. It is important to start thinking about digital preservation at the beginning of the life cycle of a digital object because although traditional print objects can last relatively untouched for decades without being touched, this is not the case for digital objects, which have a useful life significantly shorter. Historically, libraries have always been concerned with the management and preservation of 'atoms', today they should be concerned with preservation of 'bits'. There are some of the rare books, manuscripts, paintings which have value till now in modern generations. It becomes impossible to replace them in original form since they are perishable in nature. In order to keep those materials alive librarians should take some necessary steps to preserve them in digital form.

## Challenges Faced on Digital Preservation

In every work there must be some challenges. In the field of digital preservation there are also many challenges explored at many years over the last few decades. Few challenges are summarised below
  i)   Obsolescence in the terms of technology
  ii)  Continuous migration
  iii) Lack of  legislation, policy, strategy and awareness
  iv)  Lack in the sense of collaboration and partnership
  v)   Deterioration of the digital media
  vi)  Disaster planning and recovery

i) Obsolescence in the terms of technology: Due the rapid change in the hardware and software format, this may cause the loss of the access to the digital preservation. Which make the digital preservation meaningless.

ii) Continuous migration: it arises from the challenge of rapid technological obsolesces therefor continuous migration needed.

iii) Lack of legislation, policy, strategy and awareness: it is one of the major challenges of digital preservation of materials. Legislators may not be aware with the requirements of

digital preservation, as a result legislation either ignore or imperfectly cover preservation issues. This further makes additional challenges in terms of copyright. The UNESCO draft on the digital preservation clearly emphasized to raise awareness and advocacy in favour of digital preservation.

iv) Lack in the sense of collaboration and partnership: there is a lack of clearly assigned responsibilities and collaboration for the long term preservation of digital materials.

v) Deterioration of the Digital Media: it is one of the major challenges of the digital preservation. This is the cause for the disappearance or inaccessibility of the digital material.

vi) Disaster Planning and Recovery: due to the absence of disaster planning and mitigation measures, it affects to the digital material which results in unnecessary and permanent loss of valuable digital resources.

**How to Proceed: Different Methods and Strategies of Digital Preservation**

Let's discuss about the different methods and strategies adopted in the process of digital preservation.

i) Technology preservation: it focused on preserving the software and hardware environment that run the system. This is more of a disaster recovery strategy for use on digital materials that is not subject to a suitable digital preservation scheme.

ii) Intellectual preservation: it mainly involves printing digital material on paper and recording it on microfilm.

iii) Migration: it is basically copying data or converting data from one technology to another. The purpose of the migration is to preserve the integrity of the digital material and retain the ability of customers to retrieve, display and otherwise use them in the face of constantly fluctuating technology.

iv) Refreshing: it is to achieve digital information from one storage medium to another type without changing bit stream. For example copying a CD-ROW to another CD-ROW.

v) Emulation: It is a combination of software and hardware to reproduce the performance of another computer of a different design in all important features, to operate programs or media designed for a specific environment in a different, usually new environment.

vi) Replication: this term describes many things. Bit stream copying is a form of replication. LOCKSS (Lots of Copies Keeps Stuff Safe) is a consortia form of replication. The durability of digital documents while maintaining their genuineness and reliability through the use of copying and multiple storage places.

vii) Analog Backups: this process combines the conversion of digital material into analog form with the use of durable analog media. An analog copy of a digital object can, preserve its content and protect it from becoming useless, while sacrificing any digital qualities, including accessibility and lossless transferability.

**Preservation of Digital Objects**

There are various types of digital media to be archived and preserved for both current and future use includes the following:

- Digitally reformatted works that are scanned or digitized versions of physical items.
- Digital documents, and so on, that do not have an analog or print counterpart because they are born digital.
- Individual resources such as texts, images, audio recordings, and so on that are from a single individual source.
- Collective resources such as websites, blogs, wikis, e-journals, and so on.
- Data sets that consist of numerous individual pieces of scientific, computer, and other cultural data that makeup a comprehensive set of materials.
- Communication records such as emails, instant messages, tweets, Facebook postings, and other similar online activities that comprise an individual's or group's record of communication.
- Metadata that assist in long term storage and retrieval by being included with the different digital media resources. Metadata record the different features such as format, version and what devices or software is needed to access the saved information.

**Reasons for Developing &  Implementing Digital Preservation**

There are two critical reasons for developing and implementing digital preservation practices:

**Physical deterioration:** The storage media of digital contents are more prone towards deterioration as compared to analogue traditional media like paper, films etc. Even a small deterioration or damage of the media might lead into catastrophic loss as it can cause file corruption and complete loss of data. This is not the case with traditional media which is comparatively more robust physically, Due to these traits of digital formats, preservation decisions and actions need to be taken quickly.

**Technological obsolescence:** The changes in the digital world are taking place exponentially, which is marching towards more efficient, quicker and smaller solutions. This has resulted in a rapid change in hardware, software and file formats. Obsolescence creeps in pretty fast in this space. Digital content created at a point of time has the fear to be rendered inaccessible and invalid in the near future.

Setting up of universal standards, protocols and proven preservation methods is the call of the hour in order to make digital preservation a more enduring and effective solution. Proprietary technology and file formats needs to be minimal to ensure retrieval and usability of data when required.

**Advantages & Disadvantages**

Advantages on digitalization preservation in library as follows:
- It makes possible for future generation to use the data
- It ensures an unbroken chain of evidence in research data
- It helps to reuse the library materials
- It is a long term view

- It helps in legal obligations of record retention
- It helps to improve the possibilities for developing competence and reduces the human factor.

## Disadvantages

Some of the disadvantages on digitalization preservation are given below:
- Copyright regime.
- Speed of the accessible information is very high.
- Cost of the library digitization is very high.
- Digital libraries will require high bandwidth for transfer of multimedia resources, but the band is decreasing day by day.
- Digital libraries cannot provide a traditional environment because people would like to read printed materials.

## Conclusion

Modern day academic library should focus more and more on digital preservation so that users take most benefits from it. Digital preservation is very much essential in academics libraries because it is impossible to keep all documents or recorded materials in their original format so in order to store those materials should convert to the electronic format. The need for digitization has been fundamental to ensure the durability, usability, intellectual integrity of the data / information contained in the materials to be preserved for the current and future generations.

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