

Planning for Digital Preservation of Special Collections in Gujarat University Library

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Abstract

Digital Preservation has been critical issue since long time. With the increasing production of information in digital form, its protection from vulnerability and threats are also becoming equally important. This paper discusses all these aspects with the practical approach planned for digital preservation of its rare books and other collections. The paper also discusses strategies and methods for digital preservation with future challenges involved.

Keywords: Digital Preservation, Digital Archive Gujarat University Library, Rare Book, Manuscript Preservation

1. Introduction

In information technology era, Library and Information Centers are moved to acquiring, maintaining and providing resource in digital form or digitizing existing non-digital material. So that digital preservation is global information management problem for library and information centres. The preservation of digital information is now an important and urgent area of discussion and activity. At one time, fire and water were the two major threats to a library's collection and records, now they have been joined by other, more insidious, but just as disastrous threats: computer viruses, file format obsolescence, storage media degradation or obsolescence, platform dependence, catastrophic system failure, natural disasters, terrorist attacks and simple neglect.

Digital preservation is an issue of huge importance to the libraries and information centres right now. With the wide-scale adoption of the internet and the rise of the WWW, the world has been overwhelmed by digital information. Digital data is being produced on a massive scale by individuals and institutes: some of it is born, lives and dies only in digital form. Digital preservation is a

complex issue involving many different aspects and views. Considering many aspect for special collections of Gujarat University Library, strategies has been formulated for long term digital preservation.

2. Rare Book Collection of Gujarat University Library

The Gujarat University was established on 23rd, September 1949. After couple of years in 1951, Gujarat University Library was established with 1700 books and 170 periodicals. At present there are 3,42,453 books in printed form, more than 6000 in electronic form, 950 periodicals in print form and more than 5000 e-journals through UGC-INFONET, are available. The Gujarat University Library is one of the oldest and richest libraries of Gujarat State.

The current situation is that there are many old books which are not available or out of print. As quite a long time has gone, bugs have eaten the pages of book as well as some classics books have been turned. The books collection of Gujarat University library is vast and there are many useful rare books available in the library. This rare collection must reach to users for benefits of society.



At present Gujarat University Library has following special collections, which are considered as rare book collections.

2.1 Mahavir Jain Collection

This is a special collection on the Jainism with more than one thousand documents. This collection was created by the library under the guidance and recommendation of special committee appointed by Govt. of Gujarat on the occasion of 2500th anniversary of Lord Mahavir. The collection consists of multilingual books on Jain religion and philosophy. There are documents in English, Hindi, Sanskrit, Prakrit, Persian, Pali and Gujarati language.

2.2 Manuscript Collection

The library has another very important collection of manuscripts of thirteen to nineteenth century. There are 42 manuscripts and other old printed materials of ancient time are kept with proper cloth-cover protection.

2.3 B R Desai Books Collection on Law

This collection was donated by Late. Bhulabhai Jivanaji Desai and it has more than 2000 international books on law subject.

The collection was donated in 1958 to the library thus it is collection of rare book on law subject.

2.4 Theses and Dissertations

Gujarat University has large number of PhD Theses and Dissertations submitted by researchers of the university since its inceptions. At present there are 2,952 PhD Theses and 13,039 Dissertations submitted to the University is available in the library.

2.5 Other Rare Books

There are many other old rare books, which are out of print and not available with any nearby library, are also considered valuable resource of the library.

3. Digitization and Digital Preservation

Digitization is the process of converting paper documents (text, graphics, images and pictures) into digital images. These digital images can be made accessible over the electronic networks using Internet and web technologies. The term “digital preservation” refers to preservation of materials that are created originally in digital as well as those converted from legacy documents and artifacts (printed documents, pictures, photographs or physical objects) into images using scanners, digital cameras, or other imaging technologies for access and preservation purposes.

4. Why We Need Digital Preservation?

Gujarat University being central state university, serves highest number of students and researchers throughout the state. Collection which has been developed by the central library is unique and rare nature. After digitizing these collections, it requires stable and strong preservation strategy to be implemented so that resources available with the library can be made accessible for longer period. This requires not only implementation of latest available technology but also future of that technology with its transforming into newer one.

The traditional preservation characterizes activity that is concerned with “rescuing the decaying organic materials of value” or with longevity of physical qualities of document. As a result, access to documents often become limited or, in some cases, excluded. Digital Preservation shifts primarily concern away from source and its direction towards supporting the sources’ usefulness, or longevity of the access them. The method of digital preservation include the use of emulation, or re-creation of original hardware and software to interpret the source, encapsulation, technology preservation, refreshing, migration and reformatting, data archeology, and output to the analogue media.

Digital data do not have a long enough natural lifetime for us to wait for better media to come along. The life of data written even to optical media, such as CD-ROM or DVD, may be measured in years rather than decades. Finding machinery to read the bitstream might become tricky within few years, very hard after a decade and require some very serious computer archaeology after 15-20 years.

Long-term preservation of digital information is plagued by many factors. Following are some of them which require prior attention for preservation plan:

- ◆ Short media life
- ◆ Obsolete hardware and software

- ◆ Slow read times of old media
- ◆ Defunct Web Sites
- ◆ Virus threats
- ◆ Hacking

To reduce all these threats, libraries require proper planning for digital preservation.

5. Project Planning and Outline

There are many things come under consideration while planning for digital preservation. Preservation strategy varies from library to library and it widely depends on organizational policy and objectives. So far Gujarat University Library is concern, following chart covers major consideration from technical point of view.

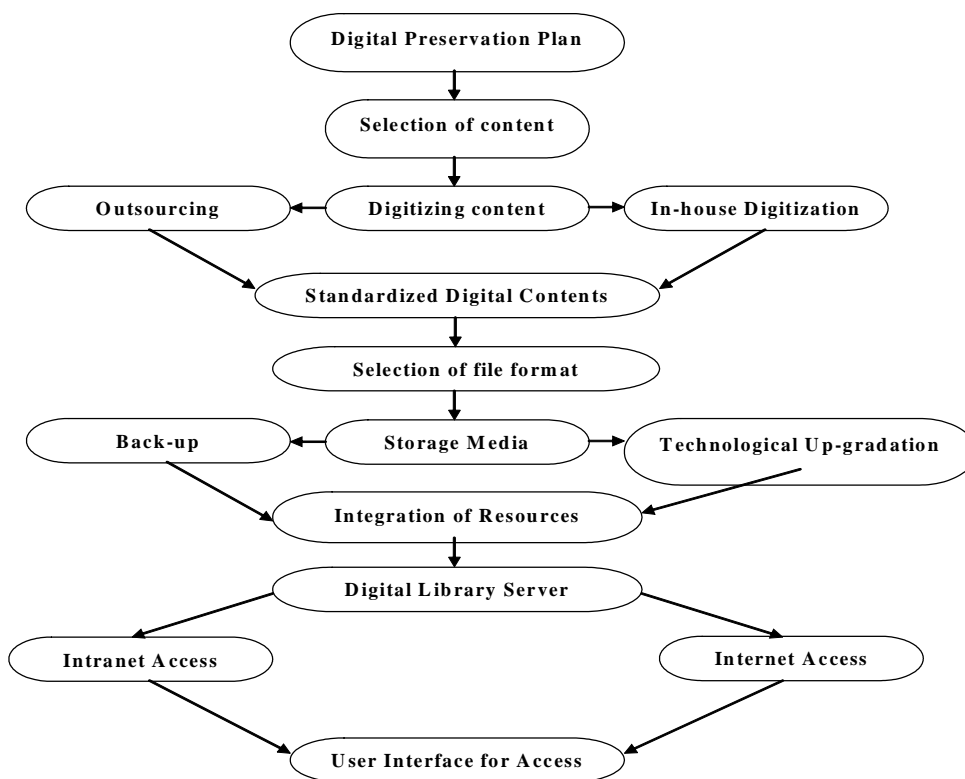


Diagram showing Digital Preservation Planning at Gujarat University Library

6. Principles of Preservation applied to Digital Preservation

The basic principles of preservation that are being practiced for preservation of analogue media are also applicable to preservation in the digital world:

6.1 Longevity

Information stored in digital format does not live forever because of fragility of digital works. There are replication adoptions and redundancy of hardware, software and data formats which implies that what is readable and interpretable today will be usable long into the future.

6.2 Selection

Selection is here multistage process. Each stage has possible ways to go ahead with different options. Either it is a Selection of materials for digital preservation or selection of tools and technology or selection of media and formats. Each selection plays very important role in the success of preservation plan.

6.3 Quality

The quality of digital content is required at three stages. First, during the preparation of the specification for workflow; second, when selecting and handling digital capturing; 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. So it is necessary to develop a consistent series of processes to ensure that there are no variations in quality in regardless of different devices used for different stages and time.

6.4 Integrity

Integrity is required to protect the access of digital content even we discard the original storage medium, software and hardware on which the digital content was created, maintained and

accessed. Preserving the digital integrity of digital content also involves developing techniques for verifying its alteration from original format.

6.5 Access

Access to digital content is again major factor of consideration when we are putting valuable resources for online access. It is a policy matter of any library to give access to its digital contents.

7. Methods of Preservation

Digital data derived from different sources differ greatly in the amount of storage needed. Electronic text, even with complex encoding, is compact but images, pictures, sound, video etc occupy huge space to store. While file size can be reduced to some degree by compression on the data, the compression techniques which offer the greatest economies have the disadvantage of the loss of information. There is also a great variety of media on which digital materials can be stored, from punch cards and tapes which represent the patterns to the wide range of electronic recording materials i.e. floppy disc, hard drives, tapes, CD-ROMs, and DVDs. Following are the main factors are to be considered as a method of preservation.

7.1 Technology preservation

Technology preservation is the maintenance of hardware and software platforms which support a digital resource; if adopted as a preservation strategy it would be need to be accompanied by a regular cycle of media refreshing.

7.2 Refreshing

Digital storage media have short lives, the length of which can be estimated but which is ultimately unknown. Data therefore have to be moved periodically to new media to ensure their survival. Sometime this involves a change of media; CD

ROMs will be copied on to hard disc in digital data store, floppy disc may be copied on to CD ROMS at other time refreshing may take place because a particular substrate has become unstable, and the files may be copied to a newer more stable version of the same medium.

7.3 Migration and Reforming

Migration involves change in the configuration of the underlying data, without change in their intellectual content. This is necessary when hardware and software changes mean that the data can not be accessed unless they are migrated to the newer machines and programme.

7.4 Emulation

Emulation is the process of the recreation of the hardware and software environment required to access a resources. Its approach mainly focused on the application of the software rather than files containing information.

7.5 Data Archaeology

Data archeology has also been proposed as a preservation strategy. Sometime it may be necessary to rescue a digital resource which has not been migrated and which contains vital information, or to which some unforeseen disaster has occurred. Occasionally data discovered on old disc or tapes that have been accidentally preserved and data archeology has successfully rescued them. A wide range of techniques can be employed for this, with varying degree of success.

7.6 Output to Analogue Media

This provides a preservation copy in an analogue format. It is fact that microfilm can not capture all of features of original digital object that satisfy the access needs of majority of users. The method employed in this process is termed as computer output to microfilm and so on.

8. Challenges for Preserving Digital Contents

It is a great challenge for libraries and information centres to cop up with the transforming technology involved in digital preservation. In-depth analysis of the risk factors associated with the digital preservation should be performed at an early stage to identify them and scope their potential impact. Expert advice and expertise with experience in the area is equally important for consideration. Following are some major challenges we can found before digital preservation.

- ◆ Dynamic Nature of Digital Contents
- ◆ Machine Dependency
- ◆ Fragility of the Media
- ◆ Technological Obsolescence
- ◆ Shorter Life Span of Digital Media
- ◆ Formats and Styles
- ◆ Copyright and Intellectual Property Rights (IPR) Issues
- ◆ Technical know-how

9. Conclusion

Digitization is starting of the show and not the end for libraries. To keep digital collection live for long time, we require proper strategy and policy *ab-initio*. Major challenges are active in the form of threats and passive in the form of transforming technology. Considering both simultaneously, possibility of success in digital preservation remains favorable.

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