



Technical Approaches to Conservation –The Challenges of Digitization of Manuscripts

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Abstract:

At the turn of the 21st century, libraries, cultural preservation institutions, and image repositories confronted a new reality in the way visual information was gathered and disseminated. For decades, analogue technologies such as traditional photography and microfilming had served the needs of institutions needing to store visual information and individuals needing to access it. This changed as digital technologies for the storage and distribution of information matured and became more affordable. The Library's transition to digital imaging in 2003 required a complete reassessment of its procedures. This paper provides us a glimpse of the user's behavior about the use of manuscripts, their satisfaction level and impact of age on their use. This study will help us to know the users behaviors about the use of manuscripts and digitization of these resources. manuscripts contain an important part of research development .These represent the intellectual growth since ages. They give us a wide glimpse into their age of inscription, encompassing the culture, history, art, script, calligraphy, language, social, political and economic states of the time possesses more than five million manuscripts, probably the largest collection in the world. These cover a variety of textures, themes and aesthetics, languages, scripts, calligraphies, illustrations and illuminations. These are scattered in across the country in numerous institutions as well as private institutions

Keywords: ICT, Digitization, Manuscript, Archives, Behaviors, Users.

Introduction:Traditional libraries were only store house of books. The books were kept in locked cupboards and access to them was limited. The traditional libraries were static in the aspect of development. Open access system and preparation of catalogue cards revolutionized the library and its services. Computers were used in the early sixties by the libraries for

their various operations. Libraries currently have experienced technological change in information storage and its retrieval. The medium of information storage has changed from clay tablets, palm leaves to paper and now to electronic and optical media.

Digitization is synonymous image capture through scanning and photography; digitization is



transforming data, information, knowledge or physical object into digital files, i.e. computer format. In this process the original is represented as a picture that can be displayed on a computer screen or reproduced on any media

2. Need of Digitization of Manuscripts:

Like any materials, manuscripts are prone to ageing and deterioration. Most of the manuscripts are paper based, which has a naturally limited life despite preservation practices. Manuscripts are affected by myriad factors such as time, weather, temperature, humidity, fire, water, insects, bugs and human negligence or destruction. Although the exact spirit and techniques of the originals cannot be genuinely replicated in physical form, the information contained in the form of text and graphics can be preserved in the digital form. The practice of digitization transforms the physical analog data into a virtual digital equivalent of the same that can be displayed on a computer screen or reproduced on any other physical material through printing. This allows for the information contained in a manuscript to survive long after the original is gone, while also increasing the ways in which anyone can access and utilize that information. This is where the digitization has the most important role to play.

3. Technology Developments in Digitization:

According to Becker, seven technological advances have created the environment for digitization.

- PCs are much more cost effective and powerful in comparison to a few years ago.
- Scanning technologies have become cheaper and better, allowing computers to convert manuscripts, pictures and color photos into digital files.
- Storage technologies have improved in terms of price and physical space required.
- The rapid growth of internet, which provides ever widening access to the digitized information.
- The emergence of more widely accepted standard protocols.
- The increased use of standards like SGML and

4. Tools for Digitization:

The Hardware and Software tools for digitization are as follows.

Hardware:

- a. Computer with the following Minimum Configuration Pentium 4 class processor running at 2.0 GHz or higher
512MB minimum memory
160GB Hard drive
18" or larger monitor
128MB video card
CD-RW and/or DVD-R optical drive
- b. Scanners are of various types. Flat bed scanner is the most commonly used.



c. Digital camera a digital camera uses a light sensitive processor chip to capture photographic images in digital form on a small diskette inserted in the camera or on flash memory chips. Digital cameras snap pictures by providing a real digital bit map to read directly into application.

Soft ware the soft ware required is as follows

- HTML editor
- XML editor
- OCR software
- Image editor
- Page layout and design software
- PDF software
- OCR:

The most important software is optical character recognition. OCR or text recognition is the process of electronically identifying text in a bit mapped page image or set of images and then creating a file containing that text in ASCII code or in specified word processing format. OCR is performed in order to make every word in the scanned documents computer readable and fully searchable without having to key everything into the computer manually. OCR technology successfully permits the reading of documents containing a mixture of fonts in different sizes and styles.

Image editor

This program allows saving images in multiple file formats, resizing images, cropping etc. The best example of this

software is adobe Photoshop. PAGE layout and design software. This software has more design features than word processors. Adobe page maker is one of the software available for this purpose.

PDF software

PDF is a widely used format .It provides a quick and easy solution for viewing and downloading the online files. This software is freely available on internet. This formats popularity can be gauged from the files available on internet . There are three fundamental tasks: first of all, transferring all the catalogues, bibliographies, documentations, factual and material studies as well as historical text editions into the virtual, i.e. electronic, digital environment; second of all, creating many information communication technologies tools for the mass processing of historical documents

5. Digitization process:

Renaming Files

The stored digital images in the computer for each manuscript were renamed. Renaming is done by using the accession number of the manuscript. Due to non-availability of author and title name, accession number was used for identifying a manuscript.

Merging files- When the files were ready after renaming, a new folder was created and the files were merged in this folder up to 700MB containing manuscripts varying from 5to 6 in numbers.



Storage of documents on CD-ROM - the MNSXDEF.INF file

The digital copies of documents are usually stored on CD-ROM media. A CD-ROM can contain even several documents or only one document can be placed on several CD-ROM. Every CD-ROM must contain in its root directory the MNSXDEF.INF file with the below described information.

- [Disc] - Mark-up of the section with information about the CD-ROM. Mandatory.
- Version -The version of the MNSXDEF.INF file. This version has the no. 2.1. Mandatory.
- No Of Documents -The number of documents on the disc. The default value is 1.
- Mark-up of the section with information about the digital copy no. 1. Mandatory.

DocID -Unambiguous identification of the digital copy. Mandatory. It consists of 2 characters defining the country as in ISO 3166, 1 - 5 numbers defining the telephone code of the town, 3 - 8 characters for identification of the producer, slash, and 8 - 32 characters for identification of the digital document. Doc ID can contain only visible ASCII characters except surplus '/' character. No two documents in the universe may have the same DocID. Thus structure enveloping the digital data and enabling access to it through WWW browsers or special software.

There are general rules for the creation of such a structure, while the concrete applications for various types of digital documents will be published as individual proposals and they will respect fully the structure described. At present, concrete applications for digital copies of old books and manuscripts, modern books, periodicals, sound recordings, and collections are available.

6. Challenges to Digitalization:

Any methodology for digitization represents a compromise between quality (image resolution, color space, bit depth, etc.), efficiency and cost. Efficiency and cost are of particular importance to manuscript preservation goals involve operating multiple digitization sites employing local technicians. This work often takes place in remote locations and under challenging environmental conditions. What was needed was a system that:

1. Would produce full-colour digital images of sufficient resolution and quality.
2. Would stand up to heavy daily use without breaking down, and be easy to maintain.
3. Was able to provide excellent productivity.
4. Would be priced so that multiple digitizing sites could be operated simultaneously.
5. Was easily transported and assembled.



7. **Conclusion:** We can conclude that manuscripts contain an important part of research development. These represent the intellectual growth since ages. They give us a wide glimpse into their age of inscription, encompassing the culture, history, art, script, calligraphy, language, social, political and economic states of the time possesses more than five million manuscripts, probably the largest collection in the world. These cover a variety of textures, themes and aesthetics, languages, scripts, calligraphies, illustrations and illuminations. These are scattered in across the country in numerous institutions as well as private institutions. Digitization of manuscripts is essential because it contains valuable information about society and culture. Digitization will prove beneficial to the users as well as it will be supportive in saving the original manuscript too.

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