History of Digital Documentation of Indian Museums

Syed Mudassir Ali[1]

[1]Research Scholar, Department of Museology, Indian Institute of Heritage, Noida, Uttar Pradesh, India
E-Mail: mudassirsyed678@gmail.com
DOI: **https://doi.org/10.5281/zenodo.17317360**
Accepted on: 20/09/2025 Published on: 10/10/2025

Abstract:

This paper's goal is to define the history of digitization of Museum documents in India by the initiatives to examine the endeavors of the Government of India's Ministry of Culture (MOC) with the use of technology for computing within museums and archival organizations and how they have developed to survive in today's digitally driven society. This automation revolutionized how experts retrieved, evaluated and administered collections, eventually leading to the use of technology as a means of connecting with several other institutes and the wider public. It is critical to comprehend the changes that occurred as a result of the introduction of technology into museums and archive institutions. Digital technology was first perceived as a conflict for cultural organizations focused on their tangible collections; nevertheless, digitalization now complements and improves every aspect of the work that museums do. Despite its link with online displays, digital technology has proven crucial in collection management. The Ministry of Culture (MOC) established the "National Manuscripts Mission" (NMM) in 2003 and the "National Monuments and Antiquities Mission" (NMMA) in 2007 to construct an extensive record-keeping system adaptive to digital technology in the form of a national database of all Indian monuments. The "Museum digitization" Transformation Mission is a brand-new program that intends to develop a national database of museum holdings at all levels while also improving accessibility for visitors. Another new initiative is "Capacity building and training," that aims to meet a major need in our museums for skilled professionals in various aspects of museum administration, including paperwork. The Centre for Development of Advanced Computing (C-DAC) in Pune has selected JATAN: Virtual Museum Builder as the standard software for all MOC-accredited museums. MOC recently cooperated with C-DAC to develop "Museums of India," a virtual national portal and digital resource center that provides access to historical artifacts from national museums via the usage of JATAN software. Collections are the cornerstone of every museum, and they must be recorded in appropriate ways to fulfill the present and increasing expectations of professional practices and a significant number of users, utilizing systematic methods and contemporary communications and information technology.

Keywords: *Digitization, National database, Comprehensive documentation, Digital heritage, and Indian museums.*

Introduction:

The Museum has a lot of collections that are required to be displayed for the people. It creates an image of our past and future by the espousal of their vast and preserved artifacts and services. According to the International Council of Museums, the museum acquires, conserves, research and communication and subsequently displays humanity's visible and intangible legacy as well as its surroundings for the sake of education, study and enjoyment. (ICOM 2007) The introduction of the digital realm has altered how the public and museums interact and it affects how cultural and archive organizations will maintain their collection in the future. Technological innovation was first perceived as an obstacle for cultural organizations focused on their physical collections; nevertheless, digitalization now complements and improves every aspect of the work that museums do, despite its association with online exhibitions, digital technology has proven critical in the general administration of collections. India is known for its vast and diverse collections but the bulk of them have had their paperwork tainted for a long time. Hopefully, the Indian government recently took some proactive moves to digitize the record keeping method used by its museums. The Ministry of Culture (MOC) has previously formed the "National Mission for Manuscripts" (NMM 2003) and the "National Mission on Monuments and Antiquities" (NMMA 2007) to construct an extensive documentation system that is compatible with digital technologies. These missions are in the role of securing Indian texts and physical legacy, like antiquities inside our museums and other cultural organizations. The Ministry of Culture (MOC) in its 12th Plan period has established new plans for the expansion of certain sectors in accordance with the 14-point Museums Reform Agenda.

Reform Strategy. "Museum digitization" is a fresh initiative that aims to create a national database of collections from museums at all levels while also enhancing user accessibility. Collections are the pillars of museum organization and must be recorded in appropriate ways to fulfill the present and developing demands of professional practices and numerous users, utilizing systematic methods and modern information and communication technology. According to Stone (1984, p.127), effective collection management includes storage, security, auditing and insurance as well as developing acquisition procedures that outline the extent and constraints of the collection and facilitate the study and publishing of the collection. The value of publications and collections displayed through exhibits and educational activities are proportionate to the level of documentation.

A number of professional bodies, including the International Council of Museums' International Committee for Documentation (ICOM-CIDOC), Paris (International Guidelines for Museum Object Information: The CIDOC Information Categories; 1995), the Museum Documentation Association (MDA), London (SPECTRUM: The UK Museum Documentation Standard; 1994, 1st ed. and on), and the J. Paul Gethin Foundation, have established guidelines and norms to enhance museum documentation. The "Capacity Building and Training" programme is another new initiative that attempts to address the pressing demand for professionals with training in all facets of museum administration, including documentation, in our museums.

JATAN: Virtual Museum Builder, a comprehensive piece of software developed by the Centre for Development of Advanced Computing (C-DAC), Pune, was recently selected as the recognized standard for all museums under MOC control. MOC and C-DAC recently launched "Museums of India," an online national portal and virtual repository that makes cultural artifacts from national museums available using JATAN software.

Initiatives by the government to digitalise museum collection:

The Ministry of Culture (MOC) established the National Mission for Manuscripts (NMM) in 2003 with the goal of safeguarding and disseminating our unique cultural past, which is contained in over five million manuscripts in multiple languages scattered across the nation and abroad. On March 19, 2007, the National Mission on Monuments and Antiquities (NMMA) was founded to construct a comprehensive documentation system compatible with digital technology in the manner of a national database on our country's physical heritage. The NMMA intends to begin operations throughout the country, with a distinct functional approach in every state and union territory. It creates guidelines for documenting our country's built the past, as well as its locations and artifacts. To maintain overall consistency, NMMA has established specific criteria for the creation of National level digital databases, like digital photography of goods in unprocessed TIFF (Tagged Image File Format) at 300 dpi resolution. For better output, antiquities ought to be captured with appropriate backgrounds, documentation of historical building sites and antiquities ought to be computed in MS Excel format and the availability should be made for offering pictures both in documentation sheet and independently as master image among other things. MOC introduced several new schemes in the 12th Plan period (2012-2017) to improve museum functioning by removing basic hurdles and creating certain specialized management areas as outlined in the '14 Point Museum Reform Agenda', 2009. A new scheme is being introduced called "museum digitization" that aims to establish a national database of all artifacts and antiques accessible through various levels of museums, such as national,

state, regional and native museums while offering improved accessibility to various people such as academics, researchers and educated visitors. This strategy consists of two parts: one related to infrastructure creation by linking a central server with a museum-level server and PCs through specialized channels and the other to artifact digitization.

Regardless of a museum's physical or geographical location, the National Virtual Archive of Museums in India provides comprehensive and unified access to theme-based collections and artifacts. The portal reveals India's rich history through a diverse collection of digital sculptures, paintings, manuscripts, firearms, coins and other artifact types. Virtual museums provide a repository of information to students, teachers, researchers, as well as visitors from anyplace and at any time. For the very first time in history, 10 national institutions are accessible via a single platform. This effort is supported by the Government of India's Ministry of Culture. The most ambitious goal of the project is to create a national database that includes all Indian manuscripts maintained in the country and abroad, either within a museum, library, temple, madrassa or personal collection. The National Database of Manuscripts, Kriti Sampada, is available via the internet through the NMM's website. The NMM has undertaken research on several digitization efforts on the national and global levels in order to apply best practices. It has created a new application called 'Manus Granthavali,' which relies on Dublin Core Metadata Standards with the IGNCA electronic format. Another new significant project launched by the museum center under the MOC during the 12th Plan period is "Capacity building and training" which has been created to satisfy a pressing need for competent employees in museums at all levels across the country, including national, state, regional and local museums. In collaboration with well-known national and international museums as well as institutes, the purpose of this scheme is going to help institutions in delegating employees for concentrated training and capacity-building programs to improve their skills in specific areas of museum administration like handling collections such as records, preventative maintenance and preservation and a lot other areas of operation etc. Recognizing that capacity growth takes time consistent efforts in all museum-related fields will be necessary during the 12th Plan term to accomplish comprehensive enhancement of museum procedures in accordance with the highest worldwide standards.

This strategy emphasizes scientific records for museum collections and includes the following components (Ministry of Culture, Scheme and Digitization).

1. Digital transformation of the museum's holdings administration system through the procurement and implementation of appropriate standard software used by notable institutions around the country.

2. Digitally photographing museum art pieces.

3. Creation or improvement on a museum's website.

4. Creation of an online catalog of works on exhibit in a museum for public dissemination through the institution's website.

5. Purchasing equipment for museum digitization initiatives including servers, clients, LAN, scanners, cameras, etc.

6. Establishment of a virtual museum library.

7. Design and development of dynamic museum data booths.

MOC has built "Museums of India" a nationwide portal and digital library of Indian museums that can be accessible online at www.museumsofindia.gov.in in collaboration by the Center of Development of Advanced Computing (C-DAC) in Pune. It was officially inaugurated on October 21, 2014. Under the Ministry of Culture's JATAN; Digital Museum Builder, the platform provides the ability to browse historical artifacts from 10 national institutions.

Museum Digital Preservation:

The growth and improvement of museums around the country is an essential responsibility of the Ministry of Culture. Museums are a repository of the cultural heritage of a nation as they include particular examples of the progression of a nation's heritage and culture across time. Thus, improving the country's museums is an essential requirement managed by the Ministry of Culture. The National Museum in New Delhi, the Indian Museum and Victoria Memorial Hall in Kolkata, the Salar Jung Museum in Hyderabad, the Allahabad Museum, the Indira Gandhi Rashtriya Manav Sangrahalaya (IGRMS) in Bhopal, and all three National Galleries of Modern Art in New Delhi, Mumbai and Bengaluru are all overseen by the Ministry of Culture. Aside from these, the Archaeological Survey of India runs site museums in 44 locations around the country that are near to significant sites of archaeology. The National Digital Repository of Museums (Data Acquisition Tool) is operated by Sanskriti Digitalaya (Open Archival Information System) and e-Sangrahan. The C-DAC organizes particular training programs for museum curators and workers involved in the documentation operations of these institutions, where they receive instruction on how to utilize JATAN software and technological advances.

Digital Preservation Benefits:

- Administrative consistency

- Digital intellectual property protection
- Reuse
- Long-term perspective
- Legal responsibilities
- Litigation protection
- Future generations' digital legacy.

Specifications and Technical Information:

- Framework enabling historical scholars to interact in order to enrich the information.
- Assistance for incorporating antique materials into multimedia formats.
- Integration of 360-degree panoramas.
- Specialized information formats for museums of anthropology, antiquities, textiles, and science.
- Searching and retrieving.
- DARSHAK data package export functionality.
- QR Code Generation for Mobile Apps.

Why Digitalize, And How Do You Begin?

The idea to use a computer and associated technology to digitize collections was not taken lightly by museums and archive institutions. There were crucial circumstances in place that pushed those institutions that took on the complex process of digitizing to accept the necessity of automation and to see how technology might favorably benefit all parts of their organization. One of the motives was the realization of the role of technology throughout the cultural and data revolution, which led to considerable gains in integration and cooperation across all sectors of life as well as business (Smith, 1999). As people became increasingly inundated by technological advances in their daily lives, museums and archives recognized the need to keep up with the most cutting-edge technologies. This technological growth in institutions that preserve cultural heritage not just allowed them to thrive during the technology revolution, but it also altered how these institutions engage with others, including resource and research-oriented organizations and the general public. Cultural institutions recognized the substantial advancements they might make in collections management by employing technology to organize collection operations and make them accessible as computer technologies progressed with regard to of physical electronic devices and software accessibility. While the costs of purchasing both software and hardware, in addition to paying for the staff time necessary to digitize were prohibitively expensive, granting organizations began to aid museums and archives institutions

by funding open and better access programs (Reilly, 2000). Accessibility to a broad spectrum of possibilities was made possible through computational data collection and processing.

As previously said, museum and archival materials were created primarily to conserve, research, teach, as well as if the institution so wants, display, but as things got digitized, access and the potential of what people might do and learn grew endless. There was a better sense of connection and inclusion of the sponsor institution when collections became accessible to everyone through websites and software apps that allowed individuals to engage with the digital items. Not only were big museums and archive organizations granted online access, but so were small and, in many cases, unrecognized cultural heritage institutions, personal collections, and private research repositories. This digital footprint enabled users of the internet to learn about a variety of cultural and archival organizations as well as the numerous learning opportunities they offered. As Internet connection expanded and became more readily accessible in wealthy nations across the world, these possibilities raised awareness both inside developed nations and worldwide. In the 1960s, the application of technology for computers to digitize collections began with primitive handling of files and readable by machines catalogs (Matassa, 2011). Libraries were among the first cultural institutions to adopt technological advances, and they helped disseminate the notion of automated collections (Parry, 2007). Digitization techniques have evolved greatly since then, but the procedure still demands careful examination as well as dedication to detail.

To "digitize" things, artifacts, specimens, and archival papers, a number of steps must be followed, starting with capturing or scanning the materials. Because artifacts, historical and cultural artifacts, and scientific specimens may be delicate and may only be treated in particular ways, this technique is limited in terms of digitizing choices. Because some substances are sensitive, only one image or scanning can be taken to minimize further damage of the item due to treatment or exposure to the light generated during imaging. As a consequence of this knowledge, it is usual practice of scanning or photographing an object just once in order to avoid strain on the object (Kenney, 2000). Despite the fact that it is an extra file or document for managers to care for and manage, the creation of an electronic surrogate aids in ensuring the longevity of fragile items and artifacts. Such substitutes are able to "replace or reduce the use of deteriorated or fragile originals" as previously indicated, to prevent any unnecessary stress on the object from any movements it might experience (Kenney, 2000). After capturing an item via one of these techniques, the picture or "master file" which has been generated with the most stringent standards to be utilized over the years can be posted to the computer systems through camera or scanner, permitting the image to be altered and added to a file

with related details and information (Kenney, 2000). This uploading technique necessitates close attention to detail. The development of customized digital files and folders offers a variety of options for organizing and organizing the uploaded digital content. The essential idea of digitization allows for the construction of a replica of the original object for use in an internal database or online. This allows the institution to improve internal management access to the archives digitally while simultaneously displaying the item to others online, expanding collection usage choices (Kenney, 2000).

Digitally preserved collections offer several opportunities for both internal and external use within museums and archives. The most apparent uses for automated gathering are administration of records, research, and have access (Reilly, 2000). With a well-tagged and large collection, the institution will be able to establish significant and previously undetected links between objects and interpretations. These options allow for more in-depth research and comprehension of both widely recognized and lesser-known items, artifacts, and specimens. Making collection available to people of all ages through online databases and websites fosters worldwide information generation and provides new concepts and instances from both the sciences and the arts to anyone having a web connection (Hughes, 2004). The introduction of online collecting databases not only improves and expands access to existing collections, but additionally allows people of all ages to learn and explore new material. One way that digital collections engage the public is through the development of personal displays and collections. Users may "store" their favorite artifacts and establish their particular galleries to retain or display to other users by using specific institution websites, such as the Art Institute of Chicago. Digital collections may, of course, be utilized for study, analysis, and advertising. If the funding organization's web-based software allows it, the computerized photography process can produce very high-quality images with zoom capabilities. This zooming-in capability allows users to see the smallest aspects of items, artifacts, and samples they would not otherwise be able to examine. These alternatives provide access to a wide range of educational possibilities and allow users of all ages to study cultural and archive institution collections digitally in a number of settings. Opportunities like this show the fascinating modern alternatives that heritage-based institutions are offering to develop their audiences and enhance their approachability and accessibility to other institutions and the general public. In India, the Ministry of Culture has begun an ambitious project to digitize the collections of museums under its jurisdiction, with a dual objective of maximizing the use of technology in museum governance and carrying these museums' collections nearer to the public through online viewing via the internet. Thanks to the technical knowledge of the Centre for Development of Advanced Computing (C - DAC) in Pune and the Art Institute of Chicago,

the Ministry of Culture was able to get standardized software named "Jatan" for installation in its museums.

Conclusion:

This research article has emphasized the many plans and efforts implemented by the Indian government Ministry of Culture towards the digital preservation of museum artifacts, documentation, and the multiple benefits offered to cultural organizations. Since 2003, there has been a "National Mission for Manuscripts" (NMM) as well as a "National Mission on Monuments and Antiquities" (NMMA). As detailed in its '14-point Museum Reform Agenda', 2009, MOC recommends different new schemes in the 12th Plan period (2012-2017) to improve museum operation by removing basic barriers and developing certain specialized areas of administration. Kriti Sampada's National Database of Manuscripts is accessible over the internet via the NMM's website. The NMM has researched several national and worldwide digitalization programs in order to adopt best practices. It has developed a new program named 'Manus Granthavali,' which relies on the IGNCA electronic format and Dublin Core Metadata Standards. Digitization of archive material and items, artifacts and specimens is today's most current and widely utilized management technology in museums and archival organizations. The immense opportunities provided by having a web presence via websites and digital media highlight the importance of the use of computers in cultural organizations as they progress and struggle to survive in the midst of the continuous technological transformation. Museums and archive organizations have been and continue to be quite astute in the application of computer-based technology for organizational and collections management tasks, including cultural asset digitization to ensure that the process runs as smoothly as possible. Innovation and technological advances will continue to improve, allowing people to devise new ways to connect and distribute information. Our global history is a fantastic resource, and by digitizing objects, artifacts, and specimens, we are going to able to preserve past and present civilizations for generations to come to enjoy and learn from. Digital heritage has grown into a vital component of society as a whole and museums and archive organizations that use computers and technological devices strive to supply those who use them with a wealth of information regarding different civilizations, peoples and their synthetic and natural surroundings. A diverse museum documentation system is a crucial help to museum management in molding a thing into a functional artifact, communicating a meaningful message or messages on many parts of our culture, like aesthetical, historical, religious, and so on. As a result, the comprehensive and different Indian history and culture kept in our nation's museums should not only be documented digitally, but also studied, analyzed, and compared to comparable

collections held somewhere else, as well as partnerships created with other best museums that reflect and shed some illumination on our cultural resources. A few steps implemented by the Ministry of Culture of the Government of India to digitize the records of museums and other comparable institutions in India have been highlighted in the preceding paragraphs; undoubtedly, more planning activities for comprehensive museum documentation will also be tried in the near future.

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