

## **Rich Cultural Traditions to Be Preserved Through Digitization- A Task of Great Responsibility**

**Anirban Dhar**

Department of Fine, Graphic Era Hill University, Dehradun, Uttarakhand, India 248002

### **Abstract**

The pros and downsides of using digital technology to preserve cultural artifacts are discussed in this study. Technology has been pioneering in the field of digitalization, allowing for the creation of digital manuscripts and e-books. Manuscripts and documents covering words and pictures are being digitized and archived using digital cameras & scanners as an entry point to the use of technology. Participation in the Next Generation requires an emphasis on cutting-edge digital technologies. The culture and tradition depicted in these manuscripts must be preserved together with the texts themselves. Physically preserving objects, texts, and artworks in past communities and libraries using ancient ways has limits. The inability to secure goods and the ease with which the general public may get access to them are two of the most prominent limitations. Chemical preservation procedures seldom capture the original orientation of papers and manuscripts. By digitizing priceless cultural heritage texts and manuscripts, we can readjust for these factors and smooth out many of the wrinkles. This study discusses how digitalization may be used to better conserve cultural objects in the future via the use of natural language processing and indexing.

**Keywords:** digital technologies, cultural heritage, virtual reconstruction, communication, virtual museum

### **Introduction:**

Modern information technologies are constantly developing, and they have a profound effect on people's daily lives. As a result of increased communication made possible by globalization, people all around the globe now essentially live the same lives. As a result, young people today are losing their cultural and historical roots and, with them, their individual identities. The younger generation seems to be slowly but surely discarding their traditions and adopting just the bare minimum of their forebears' principles. The conservation movement's goal is the preservation of cultural and historical artifacts. It is important to pass on the histories and ephemeral worth of tangible objects to the next generation. A civilization's legacy is preserved through its written and recorded works, archaeological sites, and monumental architecture. Cultures' pasts are also piled high in magazines, paintings, and other forms of art. Even the testimonies of today's live witnesses must be preserved for future generations.

Technologies like digitisation may help protect and preserve cultural traditions. Documenting, organizing, maintaining, investigating, and disseminating knowledge and information are all

essential steps in the process of digitizing culture and history. There has to be an accurate digital cataloging of the cultural variety of different civilizations. The demographics, languages spoken, and intergroup dynamics all contribute to this variety. Books, records, paintings, and manuscripts are all examples of the ways in which a civilization's forefathers have preserved its culture and history for future generations. Differences in urban planning and design may have a significant impact on a civilization's history, art, and architecture.

One definition of digitization is the process through which analog sources are converted into digital data for usage in electronic contexts. Digital cameras and scanners are common tools for this kind of data collection. Technology advancement necessitates cutting-edge preservation methods. Recently, electronic equipment has been the wand with which conservation and preservation efforts have been conducted. From the expensive, labor-intensive, and centrally kept mainframe machines of the 1940s to the launch of micro and small computers of the 1970s and 1980s to the creation of improved, cheap processors and memory that influenced the personal calculating revolution of the 1990s [5], the evolution of computing has had a profound impact on our daily lives and the way we conduct business.

Safeguarding art forms and manuscripts should be accorded equal priority with the preservation of literature. According to Cassar M., "efforts to preserve and enhance cultural resources not just reduce the risk of an irreversible loss of diversity among the immovable and movable heritage," but they can also "provide important advantages and possibilities for more cohesive society, reinforcing a common identity, and strengthening economic and social aspirations" [15]. Cultural legacy transmits a civilization's traditional setting and the skilled artisans' accumulated knowledge. Culture is also a reflection of a civilization's development. Due to time and technological restrictions, the preservation of historical monuments and architecture has not been carried out effectively. The deterioration of such an important historical artifact has been contributed to in part by natural catastrophes and general wear and tear. Integrating digital tools into preservation procedures would result in the construction of a repository of preserved civilisation, which could then be used to portray the culture and legacy of the civilization in question. Most of what we know about the past comes from ancient texts that have been carefully preserved in museums and libraries through tried-and-true practices like chemical treatment. However, there are restrictions on public and scholarly access that come with such preservation.

In the beginning stages of digitization, there will be a focus on selection, evaluation, ranking, project management, and monitoring. In the next stage, you'll collect and create metadata, prepare the originals, and digitize them. After the digitizing process is complete, other steps such as quality control, data collection and management, uploading the digitized images to a database, and analysis and evaluation will be carried out. Planning the whole procedure, then digitizing the manuscripts and documents, and finally maintaining and preventing errors, will make up the methodology or stages. The stages of the digitalization process are interleaved to guarantee consistency and high quality. Digitization, information processing and storage, archiving and administration, representation and reproduction are all discussed in the study article by George P. and team [10].

The sheer magnitude of the digital preservation context is the vitality that sets it apart from the analog one [17]. Based on factors like demand, copy right, finance, etc., we will choose which artifacts and texts to digitize. Data capture, creation, access, and distribution, as well as collection management, will all be key to the digitization's framework. The techniques for retrieving data are

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an integral part of the digitization process, which may be thought of as the first stage towards preservation. However, as Sporleder points out, "the primary justification for most of the large-scale digitization initiatives is the fact governments globally have come to view cultural assets as a valuable asset, either ideationally and economically." Art and Historical Relics It is possible to define culture as the sum of a society's shared linguistic, religious, behavioral, and artistic norms.

Culture and cultural heritage are at odds with one another since the latter is the legacy left by the ancestors in the form of items and monuments for the former to study and emulate. Strong varieties frequently have cultural heritage, which is an essential consideration. Journal of Theoretical and Applied Information Technology Books and ancient manuscripts document the built environment, ornamental elements, items and collections, infrastructure and towns, agriculture, and historical remnants of humans on land and in water. In his own words, Hadi, O argues that "culture may be justified for tourism, for industry, and for jobs, but it must also be viewed as a crucial aspect in sustaining and increasing national pride and spirit"[4]. All of these places hold important pieces of a civilization's history, and they must be protected for the sake of future generations. When it comes to protecting our planet's natural and cultural treasures, heritage preservation and interpretation are crucial [4]. Despite the widespread adoption of new technologies, it is imperative that the culture, history, and ongoing traditions of the people be preserved. The environment and architecture represent a special collection of rare, old-world marvels, and it is essential that they be preserved for future generations. Ancient civilizations created works of art such as literature and architecture. Modernization and time have undoubtedly added intricacy to both literature and architecture. Ancient documents and buildings provide invaluable insights into human development. The preservation of historic buildings is crucial to preserving our culture. Cultural legacy is best described using a combination of historical place and time [16].

A civilization's culture is heavily influenced by its physical surroundings. Most literary and artistic representations vividly depict the chasm between the two cultures. While public buildings and sites from the past reveal a more straightforward cultural expression, private homes reveal a more gendered approach to design. Manuscripts and literature are the primary means by which an advanced civilisation transmits its cultural legacy and way of life to subsequent generations. Tourists are often quite impressed by the uniqueness of a civilization's art, culture, folklore, artistry, and architecture. The digitalization of books and documents is an important step toward preserving cultural heritage since it facilitates the retrieval of cultural knowledge. Communities may understand their cultural past more accurately and in order with the help of a well-preserved heritage.

### **Digitization as a Promotional Tool**

Cultural institutions and governments throughout the globe have been focusing on the preservation of existing collections and the production of new assortments since the advent of diverse technological solutions. The most up-to-date practices in the creation and management of digital archives have unlocked a hitherto inaccessible avenue for protecting national cultural assets in the digital era. As a means of advertising, digitization is useful since it brings historically significant things closer to the general population. The digital material might also be presented and shown using a wide range of technological mediums. Digitization gives formerly inert resources a new lease of life, transforming them into powerful tools for users and fundamental components of the digital economy. By digitizing their collections, cultural heritage institutions may make them

available 24/7/365, in real time, to everyone in the globe. This includes items that would be too fragile or too difficult to show in a traditional museum setting. Because of the non-linear nature of the digitization process, choices made concerning technical standards will effect all potential applications of digitized pictures, including their viability as historical materials amenable to digital preservation. Digitization is the process of creating digital copies of analog sources. The digitization technique has shown to be quite effective in keeping digital copies of the originals safe for the long term.

The digital format classifies items as addressable and retrievable data chunks. There isn't much of a clear explanation or definition of the process, but it seems to include a wide range of administrative and technological procedures and routines. The digitization process includes tasks such as selecting artifacts and materials for digitization, processing the resulting files, storing and maintaining them, and distributing and retrieving them. This is a time-consuming procedure that calls for a detailed set of settings and instructions. The complex technological procedures required to compile a digital archive of physical things depend on the kind of archive being compiled. Some of the many tasks involved in digitization include document management, metadata creation and management, scanning, image processing, and indexing. The catastrophe recovery capabilities will be disabled as a result. Choosing the right technology (sensor, hardware, software), methods, workflow design, and assurance that the final product is in agreement with the set of technical standards is always a complex subject in cultural heritage documentation. After data has been digitized, it can be delivered or stored in a repository.

### **Virtual Technologies**

The scientific community has engaged in extensive discourse on the role of virtual technologies in the preservation of cultural material, and in particular, museum heritage. Researchers in cultural studies, museum studies, psychologists, who investigate the forms of perception, art historians, etc., weigh the pros and disadvantages of using virtual means to preserve cultural material. A Charter for the Safeguarding of Digital Heritage was approved by the UNESCO General Conference in 2003. In the latter part of the twentieth century, museums and galleries started to digitize their collections. Analyzing, assessing, and evaluating [11] systems, data collecting and administration, and the availability of digital copies and accompanying information.

Natural When it comes to protecting our cultural history, digitizing languages is simply the beginning. Once the scanning is complete, the data must be saved and given descriptive metadata such as file names and identifiers. Metadata is only useful because it helps people find what they're looking for. The linguistic ambiguity and definition of the human-created information will be a challenge for robots to grasp. Furthermore, it may occasionally result in subpar outcomes when retrieving data. It is possible for data retrieval to provide inaccurate results depending on the nature of the search query in question. Possible explanation: the query contains ambiguous words. Data concerning digital material must be refined and enhanced so that it may be accessed from the database. Establishing a set of information and naming rules may help decrease lexical ambiguity.

There may be no universally accepted terminology for the procedure's usage. Multilingualism in ancient languages is possible and would need a high level of education and experience to decipher. Furthermore, there may be difficulties due to the manuscripts being in different formats. Metadata regulation to certain words is one approach to limiting this linguistic ambiguity.

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Automatic query expansion [2] is aided by controlled vocabularies, which are often arranged hierarchically as a thesaurus or knowledge base. This may result in the need that the generated object's meaning exactly matches its physical shape. Metadata derived from this language may be used to improve data retrieval efficiency and precision. Errors in metadata recording may be mitigated by data cleansing. Errors may be reduced with the help of normalization since it divides the data into manageable chunks. Thanks to NLP, we can now make the leap from text files to comprehensive knowledge repositories. Data must be saved and stored in a knowledge base in a structured, organized format to facilitate precise data retrieval. Each label in the catalogue may be turned into a database field in a sequence labeling job since the artifacts are tagged and catalogued beforehand. In order to facilitate data retrieval of specific artifacts, when made accessible in digital format, the metadata development process must sometimes be quite exact. The majority of scanning software makes this possible via automated metadata generation throughout the digitizing process.

Since we're talking about old books here, it's possible we'll need to do some research into how words were typically spelled and used. When searching for information via database queries, it's important to use precise language because the ambiguity of spoken languages can slow down the search. Thus, it is necessary to convert the queries to ancient spellings, or alternatively, to convert the index or metadata of these ancient manuscripts to modern equivalents. Tokenization and parsing are two steps in the language processing process that will be clarified by this digitalization effort. Metadata tokenization is the process of reducing metadata to meaningful units. It is possible to create a linguistic component that links digital picture and textual analysis by digitizing and archiving digital material. During the retrieval process, precise data may be extracted with the help of the language analysis feature. The procedure will center on a service platform with the importance of preserving cultural treasures in mind. The digitization project will also focus on creating tokens, taggers, recognizers, and extractors that might be useful during information searches. Computational statistics and cognitive science are two fields that might be used to improve the digitization endeavor in the future.

### **Digitizing an Entire Cultural Heritage**

The shared values and ideas of a civilization may be understood via literature and cultural traditions. People are attracted to the rituals and customs of their ancestors because they are part of their cultural history. It's possible that fostering national unity via the study of classic literature may be fruitful. In addition, it helps us learn more about our ancestors and the generations who came before us. In a roundabout way, we may protect our cultural history by archiving our literary works. The goal of cultural heritage preservation is to protect irreplaceable items including historical documents, artifacts, monuments, and buildings. Community support is one of the many clear advantages of cultural preservation.

The forefathers of a community have recorded a great deal of information, both monumental and minute, in the form of manuscripts that make up the community's cultural history. The texts provide information about the ancestors' way of life, their architectural accomplishments, and their ancient past. Farming and the natural environment are also important parts of the historical record. Many of these have been discussed and documented in published works. The goal of this digitization effort is to ensure the continued accessibility of these historical papers and manuscripts for the benefit of future generations. The primary goal of cultural preservation is to save historical records in a way that prevents or at least mitigates their physical and chemical degradation. The primary objective of

such a procedure is to ensure the survival of these priceless artifacts for future generations. Values and ambitions of current generations are influenced by the culture of previous civilizations.

Another benefit of digitization is the ability to generate resources for future, maybe unanticipated, purposes [5]. Inherent cultural values are crucial to what set individuals apart from one another. The demand for integration and educational proficiency will also rise as a result of digital preservation of cultural heritage.

### **Economic Impact of Digitization**

By digitizing these works, we can transform them from priceless cultural relics into sustainable economic building blocks. When made accessible through technologies like the internet and intranet, all of cultural heritage's digital resources may encourage and improve the possibilities of tourism and education. Spreading culture from one country to another may also have an effect on building styles elsewhere. The profile of a civilisation may benefit from the increased cultural and historical variety that this might provide. Digitization will improve tourism since more people would be able to access the digital collections. In addition, this tourist activity will have an effect on the local economy. The digitization of technology has the potential to affect the economy of a nation in two ways: directly and indirectly. The expansion of employment opportunities may serve as a catalyst for advancing cultural diversity. Many organizations and individuals working in the field of international development have come to realize the critical importance of assisting developing countries in protecting their cultural assets and resources, and drawing connections between cultural values and progress.

### **Social Impact of Digitization**

If everything were digitized, people all around the globe might easily share and learn from one another's cultural practices. The antiquated texts and manuscripts would attract more attention and introduce you to more people. In a nutshell, it would serve to better connect people throughout the world via increased access to information and communication. The public and the international community alike will benefit from this endeavor because of the elevated profile it will give the country's cultural traditions. There will be a need for cross-industry and cross-organizational cooperation throughout the digitalization process. Research, recording, protection, and promotion of cultural heritage depend critically on the involvement of civic structures. It is obvious that there is a rising interest in the connections between heritage preservation and major social issues including development, environmental protection, health care, education, information availability, building materials, and the economy.

### **Academic, Scientific and Innovation Significance**

The development of a nation's economy, improvement of social conditions, and efficient administration are all enhanced by the use of digital technologies and their applications [20]. The very nature of the digital world is modernity, and digitalization is slowly but surely altering the face of higher learning. Words and letters are changing in significance as a result of technological advancements. The shift from print to digital format, prompted in part by the proliferation of digital technologies, will undoubtedly usher in new developments in the fields of publishing and education. The process of digitizing the collections might be seen as a step forward in the country's technical progress. For tourism to thrive in the long-term, technological advancements must

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continue to foster multichannel, multimedia destination management systems for not only the distribution, planning, and fulfillment of travel information, but also for the dissemination of relevant educational and entertaining content. As a result, communication and the spread of knowledge will be facilitated. A digital economy may be seen as the end result of digitization's long-term effects. The initiative will also infuse gasoline into the advertising and tourist industries while increasing public access to historical and academic materials. The quality of instruction and assessment are also crucial for digital materials to succeed. Information can be discovered more rapidly and the curation process may be automated in part because to digitalization, which benefits both academics and curators at cultural heritage institutes. Digitization activities are being driven by the promise of networked technology to create a dynamic reading and scholarly environment, which has benefits for academic research and advanced scholarship as well. Digitizing old manuscripts, maps, books, and papers, which were previously only available to a select few, will resurrect and restore their former glory. The digital content's data discoverability will also be improved. Historical relics will allow researchers in fields as diverse as archaeology and typography to explore new connections between their fields. Moreover, establishing a digital collection will make it possible to forge connections with cultural organizations. Data will be exchanged based on standardized protocols, knowledge databases, and digital formats. For the purposes of mass education and preparing students for academic study, digital resources are ideal. In addition to these implications, digitisation will guarantee the survival of the nation's cultural legacy.

### **Challenges in Digitization**

The museums and other collections' determinations, descriptions, geographically locality information, gathering information, images, and other data are digitized when they are transferred from paper to digital formats such as ledger books, catalog cards, and specimen labels. The original objects, which are historically significant, must be handled with great care throughout the process to prevent damage and degradation. Data capture methods, such scanning, are difficult and exactitude is required to convert analog data to digital representation. More problems, such as where to keep the artifacts in their analog and digital forms, will arise as a result of the aforementioned. Considering that the dissemination of information and expertise is the driving force behind many digitization projects, it is imperative that careful consideration be given to how the resulting digital assets will be evaluated and made accessible. In order to accomplish the project's goal, the software and hardware used must provide results of the highest quality and accuracy.

### **Conclusion**

Digitization can effectively archive history and give the means to preserve the cultural wealth of even the most impoverished community. When archives and surrogates are made accessible, it not only encourages study but also motivates people to want to learn more about technology. By digitizing our archives, we can guarantee its preservation while simultaneously ensuring its abduction in the years to ahead. The digitization procedure will save artifacts and papers for the future and make them available to authorized professionals 24/7 from anywhere in the world. Due to the reduced handling that digitization allows, fragile physical documents may be preserved without sacrificing accessibility. Use overhead scanners that don't touch the papers, saving you time and maybe not having to unbind the documents. Some of these relics are quite ancient and valuable, and this helps to protect them. This method might be used by cultural institutions such as museums to make digitized photographs of historical landmarks and objects readily accessible to the public.

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