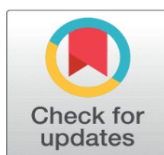


SUSTAINABLE PRESERVATION OF KERALA MURAL ART THROUGH OPEN DIGITAL ARCHIVE

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DOI

[10.29121/shodhkosh.v5.i4.2024.6250](https://doi.org/10.29121/shodhkosh.v5.i4.2024.6250)

Funding: This research received no specific grant from any funding agency in the public, commercial, or not-for-profit sectors.

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ABSTRACT

Kerala mural art is unique and known for its detailed depictions of stories from mythology and spiritual folklore. Despite of being such a beautiful art it is in a neglected and vulnerable state. These age old cultural heritages of Kerala is rooted in architectural structure of the temples and distinguished by use of organic pigments and traditional techniques. The art faced a decline due to degradation lack of awareness and no institutional support. This study examines the current state of Kerala murals and carefully probe efforts towards digital preservation. The study pin points open access and nonprofit digital platforms like Google Art and cultural, and European as opportunities for Kerala mural art to be preserved as heritage. The findings highlight the urgent need for collaborative digital conservation plan involving government bodies, technology partners and cultural institutions.

Keywords: Kerala Murals Art, Digital Preservation, Open Source, Public Access

1. INTRODUCTION

Kerala mural art is one of the most dynamic and fine tradition of wall paintings in India. It emerged during the 9th century CE on the outer of walls the temples in synchronisation with its architecture. Later it extended from temples to palace walls. These paintings illustrate short tales from Ramayana and Mahabharata, regional legends converting the architectural spaces into a colourful canvas of knowledge (Ramachandram 2005).

However though these murals have historical and cultural value they are facing an unfair future. Many of the murals are deteriorating due to environmental conditions vandalism lack of awareness and proper maintenance. In some cases, infrastructure adjustments affect the murals to an extent where they are lost forever. Adding on to these challenges is the remoteness of many temples and is not appreciated due to lack of awareness. As a result of all these factors there is

a significant decline of this art and very little concerns about its restoration have arisen. The decline of art has limited the scope of intergenerational transmission of its techniques and stories narrated (Mini 2010).

To address such issues digital technology has developed as a blessing for preservation of art and culture. Digital documentation using high resolution images, virtual reality and interactive online platforms have magically helped museums and cultural organisations across the world to conserve, share and educate people about various beautiful unique and endangered art forms. Digital platforms like Google Art and Culture have set an example of how digital galleries can bridge the gap between interested audience worldwide and various local heritages offering a new way of engaging the people. In contrast, digital preservation of Kerala murals is not done even to a satisfactory extent. Few combined efforts have been taken to create a brief use of digital archives but they have missed opportunities to preserve and promote mural art in contemporary formats. Hence has very limited footfall due to its restricted access on the archive.

Figure 1



Courtesy <https://www.abirpothi.com/mural-painting-colorful-history-and-aesthetics-beyond-walls/>

Figure 1 Kerala Mural Painting

This study tries to address this gap by evaluating how digital galleries and free open online platforms can be used effectively for preservation documentation and public sharing of mural art. The study will identify and note current challenges faced in mural conservation, check best practices of similar global platforms and explore how digital media can help to create public awareness. While the study does not aim to suggest a technical digitalisation framework, it rather focuses on putting forth the potential effects of digital preservation on society and culture. Pinpointing successful digital archiving models and identifying scope for development this research extends a helping hand to ongoing conservations in reference to heritage sustainability public access and formation of digital cultural infrastructure in India.

The paper highlights the importance of preserving Kerala mural art and its value not merely as artefacts but as a living cultural transmission canvas. In doing so it raises voice for committed efforts to digitally preserve this art form.

Restoration and preservation of traditional art forms is a point of concern in cultural research domains. Kerala mural is one of the most intricate and spiritual legacy of India however existing literatures are fragmented and preservation topic is marginalised in many academic works. The study explores key cases and sources across 4 thematic areas: the historical and cultural importance of Kerala mural, art challenges faced in its preservation, role of digital technology at managing cultural heritage and the impact of public facing digital archives on awareness and accessibility. Together these themes will form a base for judging how digital galleries can contribute to sustainable preservation and create a bright future for Kerala mural tradition.

1.1. POST OCCUPANCY EVALUATION

1.1.1. PICTURE CATALOGS

Many publications have contributed to the documentation and understanding the tradition of Kerala mural art. In his book "Painted abode of gods: mural tradition of Kerala" artist R. Ramachandran has studied its techniques, iconography, stories narrated, pigments used and architectural structure of temples. The book also presents over 400 high resolution images captured from various temples and palaces across Kerala. A. Ramachandran has included a chronological timeline and classification of murals based on the stylistic difference

(Ramchandran, 2005).

Mira Seth's "Indian Paintings: The Great mural Tradition" published in 2006 has selected Kerala murals which were well preserved. She also explained the stories in detail. Dr. M. Nambirajan and Dr. S. Suresh from Archaeological Survey of India undertook survey of seven temples which are protected by ASI and documented the murals using high resolution cameras in 2015. Apart from these three books there are no ethical high-resolution Catalogs of Kerala murals. But all these three books do not share the images on web, so they are not available as open sources for everyone to see.

1.1.2. CHALLENGES IN PRESERVATION OF TRADITIONAL ART FORMS

In 1972 a fire broke at Guruvayur Temple and damaged its age old mural which was a great cultural loss. To restore the damaged murals, the temple board sought for muralists who could restore the murals in its authentic and technically correct way, but could find only a few muralists with necessary expertise. The restoration was led by renowned artist Mummiyur Krishna Kutty Nair, M.K. Srinivasan and K.K. Warriar, who painstakingly created the murals in its traditional style. Awakened by this incidence Guruvayur Devaswamy board established the Institute of Mural Painting in 1989 with the sole purpose of preserving the tradition and reviving it by passing it on to new generation in its traditional method.

Several restoration methods have faced various challenges and have instead caused damages to various extents. Murals at Ettumanoor and Madhur temples suffered de coloration and deterioration due to use of shellac and varnish (Mini, 2010). Harsh chemical cleaners were used in mid 19th century to clear the soil surfaces of noodles but it led to removal of original pigments which further damaged the previous art works. 20th century created a silent awareness about mural restoration but the local temple authorities did not think about technical restoration and in a pure intention, wronged the approach and over painted the murals which resulted in loss of original artwork without any proper documentation causing irreversible losses in some cases (Menon, 2012).

Recent Restoration attempts also do not align with traditional methods. Examples of such restoration are Shri Vaddkumanathan temple and Ettumanoor Mahadev temples.

Lastly environmental factors like humidity, fungal growth and insect hives further degrade the murals and worsen the situation. Anantshayanam restoration at Ettumanoor temple in 2010 was a controversial restoration project, caused due to excessive retouching, altering the original art work and causing more damage (The Hindu, "Retouching Sparks Debate"). All these examples highlight the risk of over restoration and loss of originality. But thanks to various failed attempts and setbacks of techniques, modern conservation practices now prioritize scientific study of material used and surface combination before finding appropriate restoration technique. They include non invasive techniques like laser cleaning and micro emulsion methods (Mini, 2017). Digital preservation is focused before physical restoration to safeguard the authenticity and heritage of the artwork. (Katre, 2016)

To learn in depth into government approaches towards mural preservation and restoration in India, face to face interview was conducted with Dr. Vilas Lahane Director at Directorate of Archaeology and Museums Pune division. From his experience with Ajanta cave murals, Dr. Vahane explained the intricate methodology involved in restoring murals physically. He stressed that conservation of even a small part of mural requires extensive background research; this includes study of environmental conditions, analysis of the original wall base preparation, careful consideration of edging details and examination of traditional colour schemes. Once this preparatory work is complete, a final motif or visual interpretation is selected to seamlessly integrate with the original work.

According to Dr. Vahane, mural restoration is not a one-time activity but a recurring cycle, as ongoing exposure to various natural and anthropogenic factors continuously affects the condition of the artwork. From an administrative standpoint, he clarified that such restoration initiatives are generally the responsibility of state archaeological

departments, rather than the Archaeological Survey of India (ASI), which only oversees sites under central protection. State governments possess the authority to initiate independent preservation efforts; however, digital preservation or the creation of virtual galleries has not yet been undertaken independently by any state government, including Maharashtra. While permissions for digital documentation may be granted to individual researchers, these initiatives are typically not supported with funding. Dr. Vahane also addressed the sensitive issue of heritage sites managed by local trusts or community bodies, as is the case with many temples in Kerala. There is often hesitation to engage with ASI-led projects due to concerns that administrative control may shift. However, he asserted that if the state government recognises the potential sites and undertakes preservation projects along with clearly communicating to temple's local trusts or authorities that conservation efforts will not interfere with local governance, then such collaborations are possible. Public support and demand were emphasized as crucial factors for initiating preservation projects at non-government-protected sites.

In February 2022, the Kerala State Government, under the direction of then Cultural Affairs Minister V. N. Vasavan, initiated a structured conservation and restoration project for the murals at the Shiva Temple, Ettumanoor. In recent years, several murals at the Shiva Temple in Ettumanoor have suffered damage due to human negligence and acts of vandalism. Notably, staff members of the Travancore Devaswom Board (TDB) were responsible for installing an electrical control panel directly beneath the 'Ananthasayanam' mural—one of Kerala's largest mural paintings. Additionally, electrical conduits were affixed by nailing over the surface of the mural, causing further harm. Acts of vandalism by unidentified individuals have also been reported, including the deliberate scratching of the 'Vasthrapaharana' mural, which has resulted in visible surface damage exposing the white under layer. Renowned mural Restoration institution Vastu Vidya Gurukulam collaborated with government for this project the entire project was sanctioned a budget of rupees 54 lakhs the faces of implementation was set rupees 18 lakhs were assigned on the Restoration of Anantashynam mural in first face in second phase mural of Nataraja was restore and the final phase to care of lord Krishna's Vastraharan and Venugopal (The New Indian Express, 2025).

Figure 2



Courtesy <https://www.welcomekeralaonline.com/news-articles/rebirth-traditional-murals-purameri-temple>

Figure 2 Restoration of temple wall mural

1.1.3. ROLE OF DIGITAL TECHNOLOGIES IN CULTURAL PRESERVATION

In an effort to modernize museum management and increase public accessibility to cultural collections, the Ministry of Culture initiated a large-scale digitization project. With technical expertise from C-DAC Pune and support from the Art Institute of Chicago, a standardized software solution named JATAN: Virtual Museum Builder was developed specifically for museums. The software was conceptualized in 2001 by Dr. Dinesh Katre at C-DAC Pune and officially launched in 2004. It was initially deployed at key institutions such as the Chhatrapati Shivaji Maharaj Vastu Sangrahalaya in Mumbai, the Raja Dinkar Kelkar Museum in Pune, and the Baroda Museum & Picture Gallery in Vadodara.

In 2013, JATAN was adopted as the standard software for national museums under the Vivekananda Memorial Museum Excellence Program. Since then, it has been implemented in ten major national museums across India, including the National Museum in New Delhi, the Indian Museum in Kolkata, and the Salar Jung Museum in Hyderabad.

JATAN supports comprehensive digitization and collection management functions, including image processing (cropping, watermarking), unique object identification, and multimedia integration. The software enables the creation of interactive 3D virtual galleries and is accessible via web platforms, mobile devices, and touch screen kiosks. Furthermore, it aids in the development of digital replicas of artefacts and monuments, which are integrated into the National Digital Repository for Museums of India, ensuring public access and long-term preservation. To expand this effort, the Ministry has also introduced a grant scheme to assist state-run museums and private cultural trusts in digitizing their collections (National Portal and Digital Repository).

Project Digital Ajanta is an ambitious initiative aimed at preserving the 2,000-year-old mural paintings, sculptures, and architecture of the Ajanta Caves through advanced technologies such as 3D digital scanning, 3D filming, and virtual reality. Funded by the Science and Heritage Research Initiative (SHRI) of the Department of Science and Technology, the project has dual objectives: to support scholarly research through detailed digital documentation and to present India's cultural legacy in immersive, engaging formats for current and future generations. Led by researcher and photographer Prasad Pawar, who has spent over three decades documenting the site, the initiative seeks to reduce physical foot traffic, enhance visitor experience, improve accessibility for those unable to travel, and serve as an educational and cultural exchange tool (Pawar 2021).

The Arctic World Archive project in Svalbard, Norway, serves as a prime example, where digital records of these ancient artworks have been securely stored. An initiative spearheaded by Sapio Analytics, a data management company, employed an AI model known as Ancient AI, which utilizes mathematical inference and pixel-level scanning to digitally reconstruct and preserve damaged sections of the murals. Art historian Benoy Behl contributed to this digital preservation effort by capturing the murals using specialized low-light photography. His images were later enhanced using nanotechnology and converted into ultra-high-resolution films, preserved with silver halide to ensure protection against cyber threats, terrorism, and natural disasters.

An article by Julie Binswanger highlights a significant initiative by Art UK, a United Kingdom-based organization, which has launched a three-year mission to document and archive street murals across the UK. The objective of the project is to raise awareness about street art and its vital role within local communities. Given the temporary nature of these artworks—often created on buildings and housing estates that are later demolished for redevelopment—many murals have already been lost.

Renowned mural Restoration institution Vastu Vidya Gurukulam collaborated with government for this project the entire project was sanctioned a budget of rupees 54 lakhs the faces of implementation was set rupees 18 lakhs were assigned on the Restoration of Anantashynam mural in first phase in second phase mural of Nataraja was restore and the final phase to care of lord Krishna's vastraharan Venugopal.

1.1.4. PUBLIC ACCESS AND ENGAGEMENT IN DIGITAL ARCHIVES

Warli Art – Google Arts & Culture + INTACH

Warli painting, a traditional tribal art form originating from Maharashtra, India, is characterized by its intricate geometric patterns and figures. In collaboration with the Indian National Trust for Art and Cultural Heritage (INTACH), Google Arts & Culture has digitized and made Warli art accessible to a global audience. This initiative has not only contributed to the preservation of this cultural heritage but has also played a key role in educating the public about its cultural significance. The increased global visibility of Warli art has led to its inclusion in school curricula, international exhibitions, and collaborations with designers, further cementing its place in the global artistic landscape.

Chhau Masks – Digital Empowerment Foundation, India

The Digital Empowerment Foundation (DEF) in India has undertaken efforts to document and promote various traditional art forms, including the Chhau masks, which are integral to the Chhau dance of Purulia in West Bengal. These masks, known for their intricate designs, hold deep cultural and ritual significance. DEF's initiative has provided digital platforms for artisans to display their work, thereby reaching a broader and more diverse audience. This effort, which included the creation of digital marketplaces and storytelling platforms, led to international recognition by UNESCO, the

development of tourism around the art form, and economic empowerment for artisans through enhanced global exposure.

Indian Miniature Paintings – British Library Digitization Project

The British Library houses an extensive collection of Indian miniature paintings, including the Mewar Ramayana, which has been preserved through digitization projects. These artworks, now available online, allow for detailed study and appreciation of India's rich artistic heritage. The impact of this project has been profound, as it has made these paintings accessible to scholars and researchers worldwide. Additionally, the digitized collections have been incorporated into government-led initiatives such as MOOCs (Massive Open Online Courses) and public exhibitions. This exposure has not only contributed to academic research but has also provided material for reinterpretations of traditional designs in fields such as fashion and textiles.

Digital Dunhuang: A Digital Preservation Initiative (China's Mural Caves)

The Digital Dunhuang project, launched in the 1990s by the Dunhuang Academy, aims to digitally preserve and globally disseminate the cultural treasures of the Mogao Caves in China. These caves, dating from the 4th to the 14th centuries, are home to one of the most extensive collections of Buddhist mural art, sculpture, and manuscripts in the world. The project employs high-resolution imaging, 3D modelling, and virtual tours to document and recreate the intricate interior spaces and artworks of the caves. (Dunhuang Academy, n.d.) Key objectives of the initiative include long-term digital preservation, public and scholarly accessibility, and educational outreach. As of late 2022, the project has digitized 289 caves, completed panoramic visual tours for 162, and reconstructed several sculptures and ruined sites in 3D. The launch of the Digital Dunhuang Open Material Library has further democratized access by offering free downloads of digitized content, with over four million views and 30,000 downloads recorded shortly after its launch. This project not only preserves cultural heritage in a high-risk environment but also sets a global standard for integrating digital technology into heritage conservation and education.

INTACH Projects in Kerala

The Indian National Trust for Art and Cultural Heritage (INTACH) is a non profit organization set up in 1984 in vision to protect and conserve India's vast natural, built and cultural heritage. INTACH has undertaken several significant projects in Kerala aimed at preserving both tangible and intangible cultural heritage. The INTACH Calicut Chapter has documented several intangible cultural heritage (ICH) elements of Kozhikode, focusing on ritualistic traditions, indigenous medicinal practices, and traditional crafts.

Kannur and Kasargod – Listing of Intangible Cultural Heritage Elements

The Kasargod Chapter of INTACH undertook a project to list ICH elements across Kannur and Kasargod districts. Under the coordination of Dr. V. Jayarajan, the project documented traditional performances and rituals that are on the verge of extinction. The initiative aims to promote these cultural elements among newer generations (icharchive.intach.org)

2. METHODOLOGY

This study employs a qualitative, descriptive approach to explore how digital galleries might support the preservation and promotion of Kerala mural art. Drawing on case-study analysis, document review, and expert interviews, the research seeks to integrate insights from both national and international digital preservation initiatives with the specific needs of Kerala's mural tradition.

To assemble a comprehensive evidence base, secondary data were gathered from scholarly monographs (Ramachandran; Seth), government reports (Ministry of Culture), and digital archive platforms (Google Arts & Culture; Digital Dunhuang). These sources were analyzed to identify prevailing strategies in digitization, stakeholder engagement, and public access. Primary data were obtained through semi structured interviews with practitioners such as Prasad Pawar (Project Digital Ajanta), officials from the Directorate of Archaeology & Museums, Pune Division (Dr. Vilas Vahane), and representatives of INTACH's Kerala chapters. Interview questions focused on technical challenges, institutional support, and community responses to digital preservation efforts.

Finally, the study acknowledges its limitations: it does not develop a technical digitization prototype, nor does it undertake field based digital scanning; instead, it critically reviews existing models and synthesizes best practices. Restricted access to proprietary project data and the availability of key informants also constrain the research.

Nevertheless, the combined use of document analysis, expert testimony, and comparative case study provides a robust foundation for recommending sustainable, culturally sensitive digital archiving frameworks for Kerala mural art.

3. RESULT

Kerala Mural Art is an age-old tradition that evolved its unique style of illustration and composition, closely integrated with the architectural forms of temples. Executed using the secco technique—painting on prepared dry walls—these murals rely solely on five naturally derived colours. The tradition flourished alongside the Bhakti movement and reached its peak during the 16th century. However, it began to decline in the 19th century due to the influx of Western artistic materials and the popularity of Raja Ravi Varma’s more realistic painting techniques.

Currently, there are approximately 150 known mural sites across Kerala. Unfortunately, most of these are in a state of neglect. Only a limited number are protected by the Archaeological Survey of India (ASI) or state heritage departments. Sites like the Mattancherry Palace and the Thrissur Rama Temple receive ASI protection, whereas others—such as the Kottakkal Viswambara Temple—remain largely ignored.

A significant cause of mural damage is the lack of public awareness and appreciation for their cultural importance. In some cases, temple authorities themselves have inadvertently contributed to deterioration. For example, the Travancore Devaswom Board installed an electrical control panel directly below the ‘Ananthasayanam’ mural—one of Kerala’s largest—while also nailing electrical conduits over its surface.

While certain well-preserved murals have been documented in published books—such as *Painted Abode of Gods* by A. Ramachandran, *The Divine Mural Paintings of Kerala* by C.P.R. Nair, *Kerala Murals* by Dr. Nambirajan and Dr. S. Suresh, and *Indian Paintings* by Mira Seth—there is still no unified, high-resolution, digital visual repository. The last significant pictorial archive, *Kerala Murals* by Dr. Nambirajan and Dr. S. Suresh, dates back to 2015. Though textual documentation on wall preparation and pigment techniques is substantial, comprehensive visual digitization remains inadequate.

Efforts for physical restoration have been initiated by the State Government in collaboration with local institutions such as Vasthuvidya Gurukulam. For instance, the Ettumanoor Shiva Temple restoration was completed in 2024 with a project cost of Rs.54 lakhs. However, such projects often face challenges in ensuring authenticity, and they are time-consuming and resource-intensive.

This challenge is not exclusive to Kerala murals. Many traditional Indian art forms face similar threats. Recognizing this, several semi-government and non-profit organizations have begun digital documentation initiatives, inspired by international examples.

For instance, the Sarmaya Arts Foundation is a private digital museum that showcases underrepresented Indian art forms, such as Pichwai and Warli, although Kerala murals are not yet included. The Virtual Museum of Images and Sounds (VMIS) by IGNCA offer extensive digital archives across domains and include a 30-minute documentary on Kerala mural heritage. However, this video is not publicly accessible as open-source content.

Across India, many states have implemented digital preservation initiatives. Table 1 outlines prominent state-level mural archiving projects:

Table 1 Mural Archive Projects in India

Project Name	Medium	Year	Art/Heritage Preserved	Link
IDH Vijayanagara Murals Project	Short Film	2011	Vijayanagara murals in Karnataka and Andhra Pradesh	https://youtu.be/w21eKpFvwwU?si=i7oPHna9kQj2hEfS
Digital Hampi Project	Book	2011	Hampi’s mural paintings, sculptures, inscriptions	http://www.digitalhampi.in/
Endangered Temple Art of Tamil Nadu	Web Archive	2013	Tamil Nadu murals incl. Madurai Meenakshi Temple	https://eap.bl.uk/project/EAP692

The Central Government of India has also contributed to national digital heritage preservation.

Table 2 Government Digital Archive Projects Related to Art

Project Name	Type	Year	Art/Heritage Preserved	Link
National Digital Repository for Museums of India	Web Archive	2014	Antiquities from national museums	https://www.india.gov.in/spotlight/national-digital-repository-museums-india
Digital Cultural Heritage India	Web Archive	2014	Over 200,000 images of Indic heritage	https://nationalmuseumindia.gov.in/en/collections/index/30
India Heritage in Digital Space (IHDS)	Web Archive	2015	Indian monuments, art & architecture	https://www.pib.gov.in/PressNoteDetails.aspx?NoteId=154233&ModuleId=3

Globally, digital preservation has seen pioneering projects that serve as reference models. Table 3 presents such examples:

Table 3 International Archive Projects

Project Name	Type	Year	Art/Heritage Preserved	Link
Venice Time Machine	Web Archive	2012	Venetian cultural heritage	https://www.timemachine.eu/ltms/venice/
International Dunhuang Project (IDP)	Dedicated Archive	1994	Silk Road manuscripts, murals	https://idp.bl.uk/

There are also non-governmental digital archive projects in India that successfully documented major art forms and continue innovating. Table 4 details such efforts:

Table 4 Non-Governmental Web Archives in India

Project Name	Type	Year	Art/Heritage Preserved	Link
Digital Ajanta Murals	Dedicated Web Archive	2020	High-res digital archive of Ajanta murals	https://iitmpravartak.org.in/project_digital_ajanta
Sarmaya Arts Foundation	Web Archive	2015	Folk art, photography, numismatics	https://sarmaya.in/

Organizations can now use open-access digital platforms to create archives without developing their own websites. Table 5 highlights some of these hosting platforms:

Table 5 Non-Profit Open Host Platforms for Digital Archives

Platform	Description	Access Type	Who Can Upload?	Rights & Licensing
Google Arts & Culture	Global platform for museum partnerships	Free	Cultural institutions	Rights retained; some open access
Artstor (now JSTOR)	Educational image library	Subscription	Academic institutions	Rights with contributors
The Met Collection	490,000+ works of art online	Free	Internal curators	Many under CC0
MoMA Collection	Modern and contemporary art	Free	MoMA curators	Rights reserved; some open access
Artcyclopedia	Index to museum artworks	Free	Index only	No hosting; links only
Europeana	Pan-European cultural content	Free	Heritage institutions	Mostly Creative Commons
Digital Public Library of America	American cultural content	Free	Libraries, archives	Rights by contributors

These platforms make it possible for registered institutions to build digital repositories efficiently while maintaining copyright protection. Most operate on a collaborative model, aiming to make art more accessible and preserving heritage for future generations.

4. FINDING AND DISCUSSION

The investigation into the current state of Kerala mural art and its digital preservation efforts reveals several critical insights. Firstly, while Kerala mural art is a rich cultural tradition with deep religious and aesthetic significance, it remains under-documented and vulnerable. Despite the existence of approximately 150 mural sites, only a few enjoy the protective umbrella of heritage bodies like the ASI. The majority suffer from neglect, physical damage, or inappropriate restoration practices, often due to lack of awareness or institutional oversight.

The study found that textual documentation and print archives (e.g., books and manuals) are more prevalent than systematic digital efforts. While several titles explore the techniques and philosophy of Kerala mural art, a unified, high-resolution digital archive of all mural sites is notably absent. The last significant pictorial publication was in 2015, indicating a considerable gap in updated visual documentation.

Digital restoration and preservation efforts by the state and central governments have gained momentum in recent years, but they are sporadic and uneven in their focus. Notable projects such as the restoration of murals in Ettumanoor Temple and initiatives like IGNCA's VMIS platform provide valuable models, but Kerala murals are either underrepresented or documented in limited formats like short films.

The analysis also highlights global best practices through international case studies such as the Venice Time Machine and International Dunhuang Project, both of which have employed advanced technology and open-access models for preservation. These serve as benchmarks for what India could aim for in terms of accessibility, documentation quality, and public engagement.

Importantly, the research uncovers a significant opportunity in leveraging open host digital platforms (e.g., Google Arts & Culture, Europeana, DPLA), which enable institutions to create their own digital archives with robust copyright protections. However, Kerala murals remain absent from these platforms, indicating an untapped potential for visibility and conservation.

5. CONCLUSION AND OBSERVATION

Kerala murals are living evidence of India's rich culture spiritual Heritage and age of architectural tradition however this legacy is facing multiple threats like physical deterioration, vandalism, neglect and lack of public awareness. The physical restoration projects have been undertaken but their scope remains limited as it is expensive and often the authenticity is at risk. This research underlines an important gap in the digital documentation of Kerala mural art and public footfall. Despite the availability of global platforms, success cases of national and international archives, Kerala murals remain under presented on such platforms. The finding of the study put froths that, all the textual literatures and visual publication exist, but interactive centralised and high quality digital galleries are absent in case of Kerala murals. By studying both Governmental and nongovernmental efforts the research stresses the urgent need to add Kerala murals into accessible digital repositories. Open host platforms like the Google arts and Culture, European provides ready digital infrastructure and a sustainable solution to preserve and present the treasure of Kerala mural art to the world. This study also suggest the collaboration between academic institutions, art historians, State Government and digital technology start-ups' collaboration can lead to development and creation of authentic high resolution digital archives that will not only preserve the art but also rekindled the interest of community educators and future generation.

CONFLICT OF INTERESTS

None.

ACKNOWLEDGMENTS

I thank Dr. Vilas Lahane for giving his precious time and insights about digital restoration procedure.

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