DESIDOC Journal of Library & Information Technology, Vol. 43, No. 4, July 2023, pp. 226-233, DOI : 10.14429/djlit.43.4.19228

A Survey of the Metadata Element Sets Used for Digital Art Objects in the Online Collections of the Museums of India

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ABSTRACT

Digital technology advancements have had a significant impact on how people learn, search for information, and evaluate it. Indian cultural heritage institutions like GLAMs (Galleries, Libraries, Archives, and Museums) have also embraced a number of digitisation initiatives to increase access to their wide-ranging art collections. Digital paintings and other cultural heritage information artifacts can facilitate digital humanities research in multiple ways. Using an online content analysis and observation method, this study looks at how metadata elements are used to describe the different art collections in five national museums in India. The study finds that 13 categories of art objects are made available by all the museums. Each category is described by a different number of metadata entry elements. The study also finds the metadata elements that different museums prefer for different types of art objects, as well as the common elements. The findings highlight the need for standardisation in metadata practices to improve the discoverability and accessibility of cultural objects and show how crucial metadata is in facilitating access to cultural objects. The results could help GLAMs create metadata guidelines and strategies for their digital collections, which would make digital art objects more discoverable and accessible.

Keywords: Digital heritage; Cultural heritage; Indian museums; Digitised collection; Cultural objects; Metadata elements

NOMENCLATURE

AM	Allahabad Museum
CCO	Cataloguing Cultural Objects
CDWA	Categories for the Description of Works of the Arts
CHIs	Cultural Heritage Institution
FADGI	Federal Agencies Digital Guidelines Initiative
GLAMs	Galleries, Libraries, Archives, Museums
IM	India Museum
JPEG	Joint Photographic Experts group
NAI	National Archives of India
NARA	National Archives and Records Administration
NCF	National Culture Fund
NISO	National Information Standard Organisation
NM	National Museum
PDF/A	Portable Document Format/Archive
SIM	Salar Jung Museum
VMH	Victoria Memorial Hall
VRA	Visual Resources Association

Received : 25 February 2023, Revised : 17 May 2023
Accepted : 30 June 2023, Online published : 04 September 2023

1. INTRODUCTION

All of the customs, mindsets, environments, artifacts, artistic expressions, and values that were prevalent in earlier times are referred to as "cultural heritage." The tens of thousands of different artistic creations and other cultural remains that exist include architecture, landscape architecture, other built works, paintings, sculptures, drawings, prints, and photographs, as well as furniture, ceramics, tools, costumes, textiles, and other decorative or utilitarian items. These artifacts and relics are collected, housed, and preserved by Cultural Heritage Institutions (CHIs), such as Galleries, Libraries, Archives, and Museums (GLAMs), as cultural heritage resources.

Thus it is the responsibility of GLAM institutions to preserve the cultural heritage of a community, society, or national and support digital humanities research. Due to technological advancement, however, the work of GLAMs is no longer restricted to the collection, storage, and preservation of heritage materials. It also includes enhancing access to cultural materials, making art objects more discoverable to a broader audience, allowing multiple users to access the information simultaneously, and promoting collaboration for resource sharing. To achieve these goals, the majority of GLAMs enable end users to search for and view digitised portions of their collections via online catalogues. By converting their analog materials to digital format, CHIs can gain a variety of benefits, such as increased accessibility, physical space savings, simultaneous use of multiple documents, and a reduction in the fragility of their holdings. This digitisation initiatives have also helped the digital humanities researchers in easy availability of primary source for research.

Digital humanities research is an interdisciplinary fields that combines computational methodologies with traditional humanities disciplines to study cultural heritage objects such as paintings, sculptures, and manuscripts. Digital paintings and other cultural heritage information artifacts can facilitate digital humanities research in multiple ways. Digital paintings and other cultural heritage information objects can serve as primary research sources. These objects can be used to investigate the past's history, culture, and society. For instance, digital paintings can be utilised to examine the art history of a specific period or region. Manuscripts can also be used to examine the literature and language of a specific time period or region. Second, digital paintings and other cultural heritage information artifacts can be used to train machine learning algorithms. These objects can be used to train machine learning algorithms to recognize various painting style and manuscripts varieties.

It is imperative that physical documents and artwork be converted to digital formats. Nonetheless, this method is insufficient for users and professionals who are interested in cultural heritage collections, as they also require knowledge of the artwork's background history and current culture. In addition to the digitised images of the art objects, the GLAMs also create descriptive, technical, and administrative metadata for each record to provide a more accurate description of the art objects that are available in digital formats. National Information Standards Organisation (NISO)[1] defines metadata as "structured information that describes, explains, locates, or otherwise makes it easier to retrieve, use, or manage an information resource". Descriptive metadata, which is essential for cataloguing, greatly improves the management and accessibility of digital collection items. In addition, it adds semantics and more information, which can increase the resource's value as cultural heritage. Metadata consists of metadata elements that record information about objects in a structured manner, thereby enhancing their utility, educational value, and accessibility. GLAMs use a number of metadata entry elements, including the object's title, accession number, museum name, gallery name, object type, manufacturing technique, main material, component material, primary author or artist, country, origin place, provenance, patron or dynasty, brief description, and detailed description. With these descriptions, users can get better answers to their queries about the bibliographical, managerial, cultural, and historical aspects of digital objects. The distinctive local characteristics of a cultural heritage resource determine the information that should be included in its catalogue record. This distinction can be found in the types of materials available, the role and purpose of the cataloging activity, the level of expertise of the cataloguing staff, the design of information systems such as collection management systems or an online catalogue, the expectations and needs of end users, and the local conventions observed by the institution.

In the present study, the researcher intends to investigate the various types of heritage resources commonly found in the online collections of museums in India, as well as the preferred set of metadata elements used to describe cultural objects. Additionally, the study compares the metadata elements used by museums with comparable collections of the same works of art.

2. REVIEW OF LITERATURE

There are a lot of studies out there that study the aspects associated with cultural heritage resources and the metadata elements that GLAMs prefer to use to describe art works. Some were selected for the present study:

Nam & Lee[2] proposed a set of metadata components in South Korea for small-scale art museums and to accomplish its objectives, it relied on globally accepted metadata standards like CDWA, VRA Core, and Dublin Core. In the study, the researcher combined all three standards' metadata elements for the study and then categorised them according to what they had in common. The study produced a plan for the U-Museum, a museum for Korean cultural artifacts, after looking at all the components.

Darvishi & Abam[3] in their study used data from earlier studies and conduct an in-depth analysis of the metadata elements used for carpets in various standards and determined that 44 elements of the CDWA standard, 13 elements of the CDWA Lite standard, 18 elements of the CIDOC standard, 15 elements of the MUSEUMDAT standard, 13 elements of the CCO standard, and 13 elements of the LIDO standard were shared elements and provided information about the significant elements used to organize information about carpets in museums. In order to facilitate access and provide relevant information about carpets, these elements were further divided into two groups, such as managerial and descriptive elements.

Salse, *et al.*[4] found in their study that 68 % of university museums in Spain used their own metadata schema for cataloguing the museum objects, while 4 %

of university museums were unaware of the schemas being used. However, in European nations, 36.84 % of university museums prefer their own metadata schema, while 21.05 % are unaware of it.

Pandey & Kumar[5] identified the various challenges in digitisation and digital preservation of cultural heritage resources and divided the barriers into four categories, i.e. technical, economical, legal and managerial. According to the study, technical aspects involved storage or digital media deterioration, variation in file format or storage format, and a problem in assessing digitised documents. On the other hand, in the context of the economic problem study discussed two aspects namely insufficient initial funding and financial sustainability. In the context of the managerial problems, results showed that the problem of selecting materials to be digitised or criteria of selection of documents, absence of national digitisation policy, lack of proper motivation and leadership, lack of competent staff, lack of training, lack of support from administration, lack of expertise, equipment shortfall, missing standards and guidelines and negligence towards metadata standards were the problems.

Porte & Higgs[6] investigated the digitisation of cultural heritage material in memory institutions in the Western Cape province in South Africa. The study used a survey method and collected data from 28 memory institutions and found that 94 % of institutions were engaged in digitisation activities. It was also seen from the findings that 53 % of the institutes used a hybrid of in-house and outsourced digitisation and 47 % did their own digitisation activities. The majority of the libraries reported that their most popular resource to be digitised was handwritten manuscripts (18 %), followed by newspapers (14.1 %).

A study conducted by Ahmad and Sharma[7] showed that in the digitisation programme of the National Archives of India, they usually prefer 300 dpi for text and 300 dpi to 600 ppi for image capturing depending on the type of document. The derivative files for user access are in JPEG and PDF/A for images and text, respectively. For the digitisation of collections, NAI prefers the well-known guidelines of the National Archives and Records Administration (NARA) and the Federal Agencies Digital Guidelines Initiative (FADGI) for the scanning and digitisation of cultural objects.

Rafiq, *et al.*[8] investigated the hindrances to digitisation projects in universitie jpegs in Pakistan and found that lack of established digitisation plans, policies and procedures was the most acceptable obstacle by the respondents, with a mean score of 3.86, followed by other projects that have higher priority (3.59) and lack of financial resources (3.58).

Kuswara[9] discussed the efforts taken in the digital preservation of manuscripts in the Indonesian heritage digital library. The study involves various aspects, such as how to collect material to be digitalised, digitisation processes, storage, and the overall workflow of digital preservation of manuscripts. It was found from the study that the national library of Indonesia has approximately 9870 titles of manuscripts, and, due to the limited number of copies, it was difficult for the users to use these manuscripts to fulfil their requirements for information. No study could be found surveying the metadata elements used by various museums in India to describe digital art objects, hence, the study was undertaken by the researchers.

3. OBJECTIVES OF THE STUDY

The objectives of this study are as follows:

- To identify the types of art objects available in the museums of India.
- To assess the common art object categories available in the museums of India.
- To analyse the number of metadata elements used by museums to describe the art object categories.
- To examine the common and unique metadata elements used by museums for different art object categories.

4. SCOPE AND METHODOLOGY OF THE STUDY

The present study covers the tangible cultural heritage working under the Ministry of Culture, Government of India.[10] There are 13 cultural heritage sites that fall under the purview of the National Culture Fund (NCF), which includes museums, galleries, and national missions. For the purposes of this study, the researcher selected museums because of their nature and shared goals. The national missions and the galleries are not included in the study due to the variation in objectives and types of art works available. The study encompasses the five museums currently working to preserve cultural heritage under the supervision of the Ministry of Culture, Government of India. The selected museums are: National Museum (NM)[11], Indian Museum (IM)[12], Victoria Memorial Hall (VMH)[13], Salar Jung Museum (SJM)[14], and Allahabad Museum (AM).[15]

The study followed a content analysis and observation method to collect data. The data was collected from the National Portal and Digital Repository for Museums of India.[16] This portal was inaugurated by the honorable Minister for the Ministry of Culture, Government of India, on October 21, 2014. The data was collected only from the art object categories of each museum, which are available on the National Portal and Digital Repository for Museums of India. This is because the purpose of the research was to investigate the different kinds of art objects that can be found in Indian museums as well as the metadata elements that are used to represent the information that is associated with each object. It is possible that the museum houses additional categories of art objects; however, the portal does not contain any information pertaining to these additional categories. A researcher went to the official website of each museum and counted the number of metadata elements for at least ten records in each art object category. This was done to get information about the metadata elements

that are used to describe a certain object. However, this study only takes into account the four categories of art objects that were found in all the selected museums. It does not take into account any other art object categories because the number of art objects in each category varies from museum to museum, which makes it impossible to compare the categories. The collected data were recorded in Microsoft Excel and checked for errors and omissions. The collected data was further tabulated as per the objectives of the study.

5. ANALYSIS

5.1 Availability of Art Object Categories in Museums

The collections held by Indian museums are very extensive and diverse, encompassing many different kinds of art object categories. There is something special and essential about each collection housed in a museum. Among the collections of these museums, some categories of art objects were available in all museums, whereas others were exclusive to two or three museums. Table 1 provides a detailed description of the art object categories and their availability in museums. The presence of the art object in the museum is represented as 1 while the absence is represented as 0.

Table 1 shows that the five museums of national importance have thirteen types of art objects. The AM has the most types of art objects (12), followed by the IM (11), SJM (10), NM (6), and VMH (5). The table also reveals that, out of thirteen categories, only four (painting, coin, manuscript, and arms and armour) were shared by all five museums' categories for art objects. In contrast, textiles are available in four museums, sculpture, jewellery, decorative art, seals, and sealing objects in three, and beads, bronze collection, terracotta, and toy art objects in only two.

Table 1. Art object categories available in museums

Art object category	Abbreviation	Museums (1 = presence, 0 = absence)				
		AM	IM	NM	VMH	SJM
Painting	PT	1	1	1	1	1
Coin	CN	1	1	1	1	1
Manuscript	MN	1	1	1	1	1
Arms and armour	AA	1	1	1	1	1
Textile	TX	1	1	0	1	1
Sculpture	SC	1	1	0	0	1
Jewellery	JW	1	1	1	0	0
Decorative art	DA	1	1	1	0	0
Seals and sealing	SS	1	1	0	0	1
Bead	BD	1	1	0	0	0
Bronze collection	BC	1	0	0	0	1
Terracotta	TR	1	0	0	0	1
Toy	TY	0	1	0	0	1
Total		**12**	**11**	**06**	**05**	**10**

5.2 Choice of Metadata Elements for Art Objects

Metadata plays a crucial role in facilitating the accessibility and discovery of digital objects. In the context of museums, the metadata element is crucial and useful for organising and classifying the data associated with a particular work of art. Using a variety of metadata elements, each museum describes the information associated with specific categories of art objects. Painting, coins, manuscripts, sculptures, textiles, decorative art, arms and armour, beads, bronze collection, and toys were common types of artefacts found in museums. Each museum utilised a unique number of metadata entry elements in order to provide users with information about these art objects.

Table 2 represents the metadata elements used for the paintings in various museums of India and it was found that collectively all the five museums used 28 metadata elements for the painting category and AM used the maximum number of 27 metadata elements to describe the information associated with painting objects followed by NM (19), IM (15), SJM (15) and VMH (14).

Table 2. Metadata elements used for painting category

Element	Museum (1 = presence, 0 = absence)				
	AM	NM	VMH	IM	SJM
Title	1	1	1	1	1
Accession number	1	1	1	1	1
Museum name	1	1	1	1	1
Gallery name	1	1	0	1	1
Object type	1	1	1	1	1
Main material	1	1	0	1	1
Component material II	1	0	0	0	0
Manufacturing technique	1	0	1	0	0
Medium	1	1	1	1	0
Main artist	1	1	1	1	1
Artist's nationality	1	1	1	1	1
Artist's life date/ Biodata	1	0	1	0	1
Country	1	1	0	1	1
Provenance	1	1	1	0	1
Origin place	1	1	0	0	1
Find place	0	1	0	1	0

Period/Year of work	1	1	1	0	1
Patron/Dynasty	1	0	0	0	0
Style	1	1	1	0	0
School	1	1	0	1	0
Culture	1	0	0	0	0
Inscription	1	1	0	1	0
Tribe	1	0	0	0	0
Costume	1	0	0	0	0
Dimension	1	1	1	1	1
Historical note	1	0	0	0	0
Brief description	1	1	1	1	1
Detailed description	1	0	0	0	0
Total	**27**	**19**	**14**	**15**	**15**

Table 3 shows the metadata elements used for the coin category in various Indian museums. It was found that the AM used the most elements (34) to describe coins, followed by the NM (17), SJM (16), and IM (12), while the VMH used only nine elements.

Table 3. Metadata elements used for coin category

	Museum (1 = presence, 0 = absence)				
Element	**AM**	**NM**	**VMH**	**IM**	**SJM**
Title	1	1	1	1	1
Title 2	1	0	0	0	0
Accession number	1	1	1	1	1
Museum name	1	1	1	1	1
Gallery name	1	1	0	0	1
Object type	1	1	1	1	1
Main material	1	1	1	1	1
Component material II	1	0	0	0	0
Manufacturing technique	1	1	0	0	0
Medium	1	0	0	0	0
Main artist	1	0	0	0	0
Artist's nationality	1	1	0	0	0
Artist's life date/ Biodata	1	0	0	0	0
Author	1	0	0	0	0
Country	1	1	0	1	1
Provenance	1	0	1	0	1
Origin place	1	0	0	0	1
Find place	1	0	0	0	0
Period/Year of work	1	1	1	1	1
Patron/Dynasty	1	1	0	1	1
Style	1	1	0	0	0
School	1	0	0	0	0
Scribe	1	0	0	0	0
Script	1	1	0	0	0
Culture	1	1	0	0	0
Inscription	1	1	0	0	0
Mint	1	0	1	0	0
Denomination	1	0	0	0	0
Weight	1	0	0	1	1
Dimension	1	1	0	1	1
Brief description	1	1	1	0	1
Detailed description	1	0	0	0	0
Coin description obverse (CDO)	1	0	0	1	1
Coin description reverse (CDR)	1	0	0	1	1
Total	**34**	**17**	**9**	**12**	**16**

Table 4 displays the metadata elements used for the manuscript category in the five selected museums of India and it was found that the AM used the maximum 30 elements to provide information about the manuscripts followed by VMH (21), NM (19), IM (15) and SJM (13).

Table 4. Metadata elements used for manuscript category

	Museum (1 = presence, 0 = absence)				
Element	**AM**	**NM**	**VMH**	**IM**	**SJM**
Title	1	1	1	1	1
Title 2	1	0	1	0	0
Accession number	1	1	1	1	1
Museum name	1	1	1	1	1
Gallery name	1	1	1	0	1
Object type	1	1	1	1	1
Main material	1	1	1	1	1
Component material II	1	1	1	1	0
Manufacturing technique	0	1	0	0	0
Medium	1	0	1	0	0

Main Artist	1	0	0	0	0
Author	1	1	1	0	0
Artist's Nationality	1	0	0	1	0
Artist's Life Date/ Biodata	1	0	1	0	0
Country	0	0	0	1	1
Provenance	1	0	1	1	1
Language	1	1	1	0	0
Origin Place	1	0	0	1	1
Find Place	1	0	0	0	0
Period/Year of work	1	1	0	1	1
Patron/Dynasty	1	1	0	0	0
Style	1	1	0	0	0
School	1	0	0	1	0
Scribe	1	1	1	0	0
Script	1	1	1	0	1
Subject	1	1	1	0	0
No. of folios	1	1	1	0	0
No. of illustrations	1	0	1	0	0
Inscription	1	0	1	1	0
Dimension	1	1	1	1	1
Brief Description	1	1	1	1	1
Detailed Description	1	0	0	0	0
Total	**30**	**19**	**21**	**15**	**13**

Table 5 displays the metadata elements used for the arms and armour category in the selected five museums and it was found that the IM used the maximum 16 elements to provide information about arms while NM and SJM both used 13 elements while AM and VMH used 11 elements each.

Table 6 presents the number of metadata entry elements utilised by museums to describe various categories of art objects, including the maximum and minimum number of elements used by individual museums for each art object category. The table indicates that the number of metadata elements used to describe each art object category varied among the museums. Specifically, for the painting collection, AM employed the highest number of metadata elements (27), while NM used 19 metadata elements, IM and SJM both used 15 elements, and VMH used the least number of metadata elements (14). Regarding the coin collection, AM used the maximum number of metadata elements (34), followed by NM (17), SJM (16), IM (12), and VMH (09). Museums used a different number of metadata elements to describe the manuscript collection, with AM using the highest number of elements (30), followed by VMH (21), NM (19), IM (15), and SJM (13). For the arms and armour collection, IM utilised the maximum number of metadata elements

Table 5. Metadata elements used for arms and armour category

	Museum (1 = presence, 0 = absence)				
Element	**AM**	**NM**	**VMH**	**IM**	**SJM**
Title	1	1	1	1	1
Accession number	1	1	1	1	1
Museum name	1	1	1	1	1
Gallery name	1	1	0	1	1
Object type	1	1	1	1	1
Main material	1	1	1	1	1
Component material II	0	1	0	1	1
Manufacturing technique	1	1	0	0	0
Main artist	0	0	1	0	0
Artist's nationality	0	0	1	0	0
Country	0	1	0	1	1
Provenance	0	0	1	1	1
Origin place	0	1	0	1	1
Find place	0	0	0	1	0
Period/Year of work	1	1	1	1	1
Inscription	0	0	0	1	0
Tribe	0	0	0	1	0
Dimension	1	1	1	1	1
Brief description	1	1	0	1	1
Detailed description	1	0	1	0	0
Total	**11**	**13**	**11**	**16**	**13**

Table 6. Museum-wise metadata entry elements used by museums

Art object category	**No. of metadata entry elements used by museums**				
	AM	**NM**	**VMH**	**IM**	**SJM**
Painting	27	19	14	15	15
Coin	34	17	09	12	16
Manuscript	30	19	21	15	13
Arms & armour	11	13	11	16	13

Table 7. Common and unique metadata elements used by museums

Art object category	**Common metadata elements**	**Unique metadata element**
Painting	08	07
Coin	06	09
Manuscript	07	04
Arms and armour	07	04

(16), while VMH and SJM used 13 elements, and AM and VMH both used 11 elements.

Table 7 reveals the common and unique metadata elements utilised by museums to describe their artworks related to specific object categories. Based on Tables 2, 3, 4, and 5, it is evident that among the four art object categories (painting, coin, manuscript, and arms and armour), the painting category had the highest number of common metadata elements (eight), while the manuscript and arms and armour categories had six common metadata elements, and the coin category had the least number of common elements (six). Moreover, the table illustrates the unique metadata elements used by any museum for a specific art object category based on Tables 1, 2, 3, and 4. The results indicate that the coin category had the maximum number of unique elements (nine), followed by the painting category (seven), while the manuscript and arms category had an equal number of metadata elements (seven).

6. FINDINGS AND DISCUSSION

The present study investigates cultural heritage resources in Indian museums and the metadata used to describe art object categories. Table 1 shows that only four object categories (painting, coin, manuscript, and arms & armour) were common in all five selected museums. This study focuses on these categories, excluding others due to the different numbers of art object categories available in the selected museums. The study identifies a set of metadata elements used to describe these categories.

To describe the information associated with painting objects, 28 elements were used by the selected museums out of which AM used the maximum number of metadata elements (27). Further, 8 elements (title, accession no. museum name, object type, main artist, artist's nationality, dimension and brief description) were used by all five museums. These eight elements provide the basic information about painting category objects, and it can be said that these are the preferred search key terms for any object by users. It is worth noting that the painting specific metadata elements such as component material, culture, tribe, costume and historical note are provided by only AM while they should be discussed by other museums also.

In the context of the coin category, 34 elements were used by the selected museums out of which AM is the only museum that used all 34 elements. Further out of 34 elements in the coin category, 6 elements (title, accession no. museum name, object type, main material and period/year of work) were used by all five museums to describe the information related to coins. It is worth noting that the coin-specific metadata elements such as denomination which is used by only AM, whereas CDO and CDR are provided by only three museums but these should be provided by all the museums because they describe the core information associated with coins.

Manuscripts are one of the significant heritage resources which provide information about past generations mostly in handwritten form and a total of 32 metadata elements were used by museums under the manuscript category. The maximum number of elements were used by AM (30) and out of 32 elements, 7 elements (title, accession no. museum name, object type, main material, dimension and brief description) were used by all five museums to describe the information related to manuscripts. It is worth noting that the manuscript-specific element such as find place information was provided by only one museum, country and a number of illustration-related information by only two museums. The language of the manuscript is a highly significant element but out of five museums, only three museums provided information on the language of the manuscript. Regarding the arms and armour collection, 20 elements were used IM used the maximum no. of elements (16) and out of 20 elements, 7 elements (title, accession no., museum name, object type, main material, period/year of work and dimension) were used by all the five museums.

In conclusion, the findings indicate that museums do not have a common set of metadata for the same type of cultural heritage objects. The study suggests that metadata elements for describing art objects need to be set up in a consistent way to make sure that the information is correct, consistent, and easy for the public to find. The study suggests that the GLAMs use the CDWA and VRA Core global metadata standards to define the set of metadata elements.

7. CONCLUSIONS

The study highlights the significant role played by Cultural Heritage Institutions (CHIs) in preserving and connecting people to their history and cultural heritage and facilitate digital humanities research. The rich cultural heritage of India is preserved and displayed in various art forms in Galleries, Libraries, Archives, and Museums (GLAMs) across the country. The study identified several categories of art objects such as manuscripts, paintings, coins, sculptures, drawings, and beads that are available in Indian museums. The findings highlight the need for standardisation in metadata practices to improve the discoverability and accessibility of cultural objects and show how crucial metadata is in facilitating access to cultural objects. The results could help GLAMs create metadata guidelines and strategies for their digital collections, which would make digital art objects more discoverable and accessible.

The findings of this study have far-reaching implications for professionals, researchers, students, and individuals interested in exploring their cultural heritage. It serves as a valuable resource for those who wish to learn about the heritage resources available in various museums across the country. Additionally, the research highlights the significance of various metadata elements that can be used to search for and access digital objects, thereby improving access to existing heritage objects in museums.

This paper will be of particular interest to professionals working on digitisation and preservation projects and

researchers studying the digitisation aspects of cultural material in GLAMs. The study offers insights into the current state of heritage preservation and digitisation efforts in Indian museums, and its recommendations may inform future initiatives in this area. The study underscores the importance of preserving and promoting cultural heritage and the critical role of museums in this endeavour.

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His contribution towards the present study are: Formal analysis, Investigation, Data curation, Writing - Original draft, Visualisation.

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His contribution towards the present study are: Conceptualisation, Methodology, Writing-Review & editing, Visualisation, Supervision.