

State-of-the-Art Review

Digitisation of Cultural Heritage:
Methodologies, Technologies and Best Practices

Summary Report
October 2025

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This report presents the outcomes of the international survey conducted to map current digitisation practices, needs, and future aspirations within the cultural heritage sector. Designed as a multilayered outreach initiative, the survey reached institutions and multidisciplinary professionals across all continents, gathering perspectives from those directly responsible for documenting, preserving, and interpreting heritage in both physical and digital form.

In total, the survey was opened more than **1,200 times** and completed by **423 respondents**, demonstrating both the scale of engagement and the sector's strong interest in contributing to a collective understanding of digital heritage practice. The survey's reach and respondent profile confirm that the insights stem from experienced and representative stakeholders. Participants included representatives from museums, heritage agencies, universities, archives, and conservation organisations, as well as independent professionals active in digital documentation. **Collectively, these respondents form the operational and intellectual backbone of the global digitisation ecosystem.** Their feedback reflects not only the technical and institutional realities of digitisation, but also the sector's broader social mission to ensure that cultural heritage remains accessible, interpretable, and meaningful for future generations.

Across regions and institutional types, a consistent picture emerges: **the cultural heritage sector is driven by commitment and creativity but constrained by fragmentation.** While practices differ in scale and sophistication, the shared intent to safeguard cultural memory through digital means unites respondents across national and disciplinary lines. This finding underscores the importance of viewing digitisation not simply as a technical process, but as a shared cultural responsibility.

Most institutions reported that their digitisation work primarily involves artefacts, photographs, and architectural features, a reflection of traditional collection strengths, but a notable number are also digitising intangible heritage, oral histories, and contextual materials. This signals a gradual yet meaningful shift toward a holistic understanding of heritage, where stories, traditions, and contexts are valued alongside physical artefacts.

The survey confirms the sector's reliance on photogrammetry and 3D scanning as the most common tools for digital acquisition. These technologies have become essential instruments for documentation and visualisation, yet their integration into broader systems of management and dissemination remains uneven. **Despite the growing creation of 3D assets, interoperable sharing mechanisms and visualisation platforms remain limited, restricting the reuse and cross-institutional potential of these resources.**

Similarly, while a majority of respondents store data through hybrid systems combining local and cloud infrastructure, most assets are still stored primarily on local servers. This practice provides short-term control but raises long-term sustainability concerns particularly regarding data redundancy, security, and preservation. **The findings point to a need for shared standards for**

storage, metadata, and paradata to ensure that digital heritage remains both accessible and interpretable in the decades to come.

Less than 60% of respondents reported having a dedicated Content Management System (CMS), and only 17% provide full open access to their digitised assets. These figures suggest that while digitisation output is increasing, the infrastructures to support long-term access, reuse, and discoverability have not kept pace. Importantly, reuse where it occurs is predominantly educational rather than commercial, confirming that digitisation continues to serve public engagement, research, and knowledge transfer as its primary purposes.

The lack of consistent metadata and paradata practices further complicates this landscape. While many institutions use acquisition standards effectively, the documentation that accompanies digitisation, the paradata that records decision-making, technical parameters, and interpretive rationale remains inconsistently applied. This is a critical gap. **Without paradata, the epistemic and ethical transparency of digital assets is compromised**, and their interpretive value is diminished over time.

One of the most significant findings relates to the conceptual frameworks guiding digital practice. Approximately one-third of respondents were familiar with the concept of Digital Twins, but aware with the understanding of the Memory Twin model. This distinction lies at the heart of the report's broader argument. While Digital Twins focus on technical replication, the Memory Twins embody the contextual, interpretive, and historical dimensions of cultural heritage. They capture not only what an object is, but why it matters, recording the stories, environments, and decision-making that surround its digital reconstruction. **The emerging awareness of this Memory Twin model demonstrates the sector's readiness for a conceptual shift: from digitisation as replication toward digitisation as memory stewardship.**

The survey reveals that AI technologies are used sparingly, mainly for post-processing and visualisation. Their limited application reflects a broader structural issue: the absence of a unified framework guiding technological adoption. Most institutions develop their strategies in isolation, driven by local priorities and resource availability rather than shared standards. The result is a sector rich in experimentation but lacking cohesion.

This fragmentation extends to documentation practices. While 67% record digitisation settings and over half capture location data, less than half document workflow details, and only a quarter record decision-making processes. Such uneven data practices threaten long-term interpretability and interoperability, reinforcing the need for comprehensive metadata and paradata frameworks to ensure that digital heritage remains transparent, traceable, and verifiable.

The survey exposes a critical disconnect between practitioners and pan-European initiatives designed to support them. Awareness of the EU eArchiving initiative remains limited to one-third of respondents, while familiarity with the Common European Data Space for Cultural Heritage is even lower, at under 20%. Although awareness of Europeana is relatively high (over 60%), only 12% of respondents actively contribute content or maintain a working relationship with the platform. The barriers to engagement are telling: complex ingestion workflows, demanding

metadata requirements, limited technical capacity, and ongoing uncertainty over intellectual property rights.

This gap between infrastructural ambition and practical usability suggests a systemic weakness in how European frameworks communicate and serve the communities they are built for. It raises a pressing question: how can Europe's cultural data infrastructures achieve impact if their intended users remain unaware, under-supported, or excluded by design complexity?

When asked about their most urgent needs, respondents overwhelmingly identified funding and financial support (82%), followed by training and capacity building (55%), and international collaboration and networking (55%). A further 46% emphasised the need for clearer technical guidance and shared standards.

This strong consensus demonstrates a sector united by common challenges and collective aspirations. **Practitioners are not only seeking resources but a more coherent ecosystem, one that enables collaboration, knowledge exchange, and equitable access to infrastructure.** Nearly 70% expressed interest in joining an international network for cultural heritage data acquisition, and over three-quarters wished to remain informed and involved after the survey's completion.

The message from the community is unmistakable: the sector is ready to work together. What is needed now is structure: a shared, inclusive framework that aligns funding, policy, and technical innovation with the real-world practices of heritage professionals.

The findings of this survey reveal a field at a crossroads. It is one defined by creativity and commitment, but constrained by inconsistent standards, limited infrastructure, and insufficient communication between practitioners and governing frameworks. Digitisation is not an end but a living process of cultural transmission. As this survey demonstrates, the global community is already aligned in its vision for an inclusive, connected, and sustainable digital heritage future. What remains is the establishment of the mechanisms, standards, and networks capable of turning that vision into enduring reality.

INSTITUTIONAL PROFILES



Engagement: 1200
Total Participants: 423
Continents: 6
Countries/Autonomous Regions: 97
UN member states: 67

DIGITISATION PRACTICE & TECHNICAL CAPACITY



Artefacts Photos Architecture



Challenges:

- Funding
- Equipment
- Standards and Expertise



Storage Models:

Hybrid and mostly locally stored



Technologies:

Photogrammetry & 3D scanning



Use and Reuse is mainly for:

education, but the 'Why' is not defined



Data management:

58% use CMS



Access:

Only 17% are full open access

ADVANCED CONCEPTS & STANDARDS



Strategies:

Fragmented, no shared framework



Standards:

Acquisition common



Metadata:

Inconsistent

Paradata:

Partial

Low use



BIM/HBIM/HHBIM & LoD:

Growing Awareness but limited. BIM is not enough. LOD is not understood



Digital Twin vs Memory Twins:

1 in 3 know digital twins, memory twin is known but not understood fully



AI

Limited use, mainly for post-processing & visualisation

ENGAGEMENT WITH EU FRAMEWORKS



EU eArchiving:

Low Awareness

Digital Preservation Concerns:



Long term storage sustainability



Europeana:

High awareness but low use

12% Engagement

Data prep, rights, metadata complex, support challenges

EU Data Space for CH:



Low Awareness

SUPPORT NEEDS & COMMUNITY PERSPECTIVES

Top Needs:



Funding



Training



International Networks



Standards



Priority:

International Network

Majority high interest



Community momentum:

All want follow up



Feedback:

Stresses clarity, inclusivity and standards

This document presents the results of the current review of the State-of-the-Art on Techniques, Methodologies and Best Practices in the Field of Digitisation of Cultural Heritage. This work was based on the combined efforts of Heritage Malta, the UNESCO Chair on Digital Cultural Heritage at the Cyprus University of Technology, and collaborators under the HERITALISE Horizon Europe Project (Project No. 101158081).



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