

A Digital Framework for the Preservation and Presentation of Endangered Craft Heritage

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Abstract. The decline of traditional craftsmanship is a major issue for the protection of intangible cultural heritage (ICH). This paper proposes a digital framework for documenting and communicating the endangered crafts' practices through structured documentation, storytelling, and distribution. The proposed solution comprises several stages that convert craft knowledge into digital form and is based on a study conducted in Bulgaria, Italy, and Türkiye. The framework supports accessibility, community engagement, and sustainable transmission of knowledge, and can be adapted to different cultural contexts.

Keywords: Intangible Cultural Heritage, Craft Heritage, Digital Preservation, Digital Storytelling, Cultural Digitisation.

1 Introduction

Craftsmanship is an integral component of ICH, encompassing skills, knowledge, and practices transmitted across generations. The practices in question are associated with the area's identity, cultural traditions, environment, and collective memory. Due to industrialisation, globalization and population changes, traditional crafts are gradually becoming extinct.

In modern European cultural policy, digital technology has become one of the vectors for cultural heritage conservation, as it provides access, inclusiveness, interoperability, and sustainability (European Commission, 2018). Endangered crafts, therefore, are perceived not just as cultural values but also as instruments for developing tourism and supporting local economies.

Nevertheless, the digitisation of crafts cannot be reduced to recording them for the archives. It represents cultural mediation, which helps reinterpret, transmit, and engage in cultural practices. Methodological innovations reveal the importance of storytelling and community participation in maintaining the authenticity and meaningfulness of ICH (Cameron & Kenderdine, 2010; Giaccardi, 2012; Aykan, 2013; Roque, 2022).

Through the combination of multimedia documentation, narrative structures, and interactive media, digital technologies have the potential to convert craft heritage into

dynamic epistemologies. For this to occur, there needs to be an organised digital paradigm that provides a robust theoretical framework and systematisation of the methods used in the conservation and presentation of craft heritage, thus bridging the gap between traditional and technological approaches in a way that ensures that the knowledge of artisans is preserved and reinvented within the digital domain. From this perspective, digital spaces should be viewed not just as storage areas, but rather as epistemic systems. The present paper out-lines a methodological approach and framework developed by researchers from Bulgaria, Türkiye, and Italy within the international initiative “Digitisation of Endangered Handicrafts” /Digi&Handy/ (Digi&Handy, 2024) as a response to the need to reconceptualise the digitisation of craft heritage as a multi-layered process of cultural translation, integrating structured documentation, narrative mediation, and user interaction.

2 State of the Art: From Material Conservation to Intangible Heritage Systems

The development of heritage theory is indicative of how conservation shifted from being object-centred to becoming more holistic and relational in nature. Early approaches to conservation focused on material authenticity; however, modern-day theories acknowledge the importance of intangible elements such as practices and cultural expressions. (Smith, 2006; Harrison, 2013; Skrede & Hølleland, 2018).

This is illustrated by the nature of traditional craftsmanship, where the worth of such work does not derive from just the objects that are made, but rather the whole process that goes behind making such objects and their inherent significance. Therefore, preserving them requires tools that can record everything about them.

Digitisation has emerged as one of the key approaches to preserving heritage because it enables the integration of different forms of information into a single digital space, supporting processes of documentation, storage, analysis, and dissemination, while also facilitating interoperability across institutions and platforms (Gorman et al., 2015; Zhelev et al., 2021).

The digital storytelling technique is an important methodology for representing ICH, especially craftsmanship. By sequencing information into storylines, digital storytelling enables users to engage with heritage in an engaging way. In relation to craft heritage, digital storytelling facilitates bridging of the process aspect with cultural meaning by including the aspects of individual and community narratives and symbolism (Podara, 2021; Peh, 2025).

To situate the framework within current academic discussion, digital heritage must be seen not as a technique but as a structure for epistemology and the production and access to knowledge.

From the standpoint of Actor Network Theory, heritage cannot be treated as a stable concept because it is created by networks of human and non-human actors, such as communities, artefacts, technologies, and institutions (Bencherki, 2017; Latour, 2005). In this context, digital media operate as intermediaries that actively refigure the relations between knowledge, representation, and interpretation.

Likewise, within the field of digital heritage studies, digitisation is seen as a form of cultural translation, in which tangible and intangible aspects are encoded as datasets, necessarily involving selection, abstraction, and interpretation (Cameron & Kenderdine, 2010; Gorman et al., 2015). This shift creates new epistemological parameters wherein access, visibility, and meaning depend on the design of the interface, metadata schema, and algorithms. It is against this backdrop that the proposed epistemological framework becomes a tri-partite model encompassing the documentation layer, narrative layer, and interaction layer. The framework's positioning within this paradigm makes it possible to consider digital heritage environments as knowledge environments rather than mere storage facilities.

3 Methodology and Conceptual Solutions

The methodological approach is structured as a sequential iterative process comprising three interdependent phases: (1) planning and conceptualisation, (2) multimedia documentation, and (3) dissemination and interaction. This structure reflects a transition from data acquisition to interpretative modelling, ensuring that digitisation processes preserve not only technical information but also cultural meaning and contextual relationships.

The proposed approach draws from a three-phased methodological framework. In the first phase, “Planning and Preparation”, a conceptual and analytic framework for the digitisation is established. This stage comprises identifying crafts at risk of disappearing based on factors such as cultural significance, social recognition, and transferability across generations, among others. At this stage, creation of narrative scenarios, which would provide the interpretative framework for the digital portrayal, is critical. Narratives should place the craft in its cultural, social and spatial contexts.

The second phase, “Recording and Production”, involves the generation of high-quality multimedia content. Such content should capture both the technical aspects of crafting and contextual information. Such content includes videos depicting the processes of crafting, photography showing materials and instruments used in crafting, the digitisation of archival content, and audio recordings of narratives and interviewees. Narrative inclusion turns documentation into an interpretative medium.

“Publication and Dissemination” is the last phase, ensuring accessibility and engagement via digital media.

A conceptual architecture for the digital framework for preserving and presenting endangered craft heritage has been developed through analysis of the proposed methodological model. The digital framework is composed of a three-layer architecture, with documentation, mediation, and engagement as the main components in terms of epistemic design. It should be noted that the mentioned layers are considered as interconnected domains which together contribute to transforming craft heritage into a digital context (See Fig. 1). Accessibility and inclusivity are critical, requiring multilingual content, user-centred design, and adaptive interfaces (Monova-Zheleva & Zhelev, 2024).

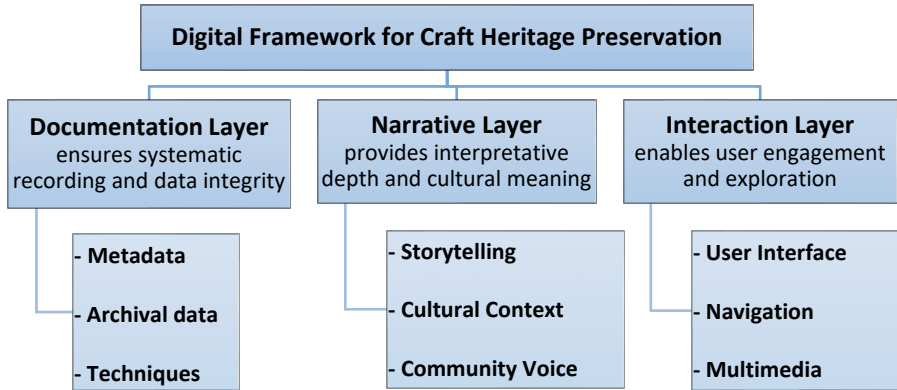


Fig. 1. Conceptual structure of the digital framework for the preservation and presentation of endangered craft heritage.

The documentation layer primarily preserves the integrity, consistency, and durability of the information. The layer provides a way to transform fragmented, mostly informal knowledge into formal databases and datasets for storage, retrieval, and reuse. The functioning of the framework at this level occurs through structured metadata concerning the craft (its origins, materials used, procedures applied, temporal context), archival documents and fieldwork documentation, and procedural knowledge represented in multimedia.

Using narrative structuring techniques makes technical documentation more understandable and interesting. Thanks to scenario-oriented storytelling (for instance, presenting crafts in connection with festivals, family traditions, ethnography, etc.), the semantic dimension is effectively maintained. Thus, the narrative layer serves as an intermediary between raw data and interpretation, aligning with modern views of the social nature of heritage.

The interaction layer corresponds to the user's interface with the digitised ICH material. Here, documented and interpreted information is made available to the audience in digital form. A visitor to a website can either follow the predetermined sequence of narration or freely explore the information.

4 Application in the Digi&Handy Context

Digi&Handy is an Erasmus+ Programme (2024–2026) initiative focused on the digitisation and preservation of crafts threatened with extinction in Europe. The purpose of the project is to promote the continuity of artisan skills in the digital era by combining traditional knowledge with modern digitisation tools.

As part of the Digi&Handy project, comparative research was carried out in Bulgaria, Türkiye, and Italy between December 2024 and February 2025. In general, the applied approach involved a combination of secondary source analysis and primary

research methods. Various data collection methods were applied, including desk review of policies and legislation, analysis of existing digitisation techniques and tools, quantitative analysis of statistics, field research, and online surveys of more than 150 cultural-sector professionals from the selected countries (Digi&Handy, 2024). The analysis of the collected data revealed uneven levels of digitisation maturity, with challenges related to infrastructure, policy coordination, and standardisation.

- An advanced degree of digitisation is seen in Türkiye, which is aided through centralised inventory management, electronic government connections, and UNESCO guidelines (UNESCO, 2018).
- There is a high degree of financial and institutional readiness in Italy, though digitisation is more geared towards tangible heritage than intangible crafts.
- Bulgaria has actively engaged with digitisation in preserving its crafts, but there are some significant challenges and structural difficulties, such as insufficient funding and decentralised infrastructure.

These differences highlight the necessity of adaptable frameworks capable of operating across diverse institutional and technological environments.

The proposed digital framework is applied in the Digi&Handy context through its three layers. The Documentation Layer stresses the importance of systematic data collection by identifying crafts based on their cultural or historical value, documenting their techniques, materials, and processes, and, most importantly, by merging archival and field data. This is in line with the metadata and documentation principles provided in the framework.

A distinctive feature of the Digi&Handy narrative layer is the incorporation of storytelling through scenario-based digitisation. Crafts are contextualised within cultural festivals, family traditions, ethnographic practices, and community rituals. This narrative structuring facilitates interpretability and aligns with the framework's emphasis on cultural mediation.

The Interaction Layer is concerned with providing accessibility to crafts via digital platforms, such as social networks and video-sharing websites. Despite the use of the currently available platforms, the framework suggests moving to an interactive platform in the future. The application of the framework demonstrates several strengths:

- Scalability: The model adapts to varying institutional capacities across countries.
- Accessibility: Digital dissemination significantly expands audience reach.
- Knowledge preservation: Multimedia documentation captures tacit knowledge and procedural details.
- Cultural contextualization: Narrative integration preserves meaning alongside technical information.

The identified limitations include a lack of standardised metadata frameworks across implementations, limited interoperability between digital platforms, and insufficient integration of advanced interactive environments such as GIS and immersive systems.

The case study confirms that effective digitisation of endangered crafts requires not only technical infrastructure but also methodological coherence and reveals priorities for future implementations, including the adoption of international metadata standards like DCMI (DCMI, n.d.), EDM (Europeana, n.d.), and CIDOC CRM (CIDOC CRM,

n.d.), recognised as an official ISO Standard No. 21127:2023 (International Organization for Standardization, 2023), development of interoperable digital platforms, integration of immersive technologies, and strengthening institutional coordination and policy support.

5 Discussion

The suggested framework addresses key challenges in preserving endangered craft heritage by consolidating fragmented data into a coherent system. It safeguards tacit knowledge through multimedia documentation and improves accessibility by transforming local heritage into digital content for wider audiences.

A major strength of the framework lies in its emphasis on community engagement. By recognising communities as active epistemic actors, it ensures the validation, contextualisation, and preservation of cultural knowledge, supporting a shift from isolated documentation toward integrated and interpretative digital heritage systems.

However, several challenges remain. Issues of metadata standardisation and system interoperability continue to constrain scalability, particularly in settings with limited institutional capacity. Moreover, maintaining a balance between authenticity and digital representation requires careful methodological consideration, as digitisation inevitably involves selection and interpretation.

6 Conclusions

The preservation of endangered craft heritage requires a shift from static documentation toward dynamic, interpretative systems. The proposed framework structures digitisation as a multi-layered process combining documentation, narrative mediation, and user interaction.

It contributes to long-term safeguarding of intangible cultural heritage, enhances accessibility, and strengthens community engagement. Its adaptability makes it suitable for diverse cultural contexts.

Future research should focus on integrating immersive technologies such as virtual and augmented reality, and on developing interoperable infrastructures aligned with international standards.

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