DIGITAL HERITAGE (2025)
S. Campana, D. Ferdani, H. Graf, G. Guidi, Z. Hegarty, S. Pescarin, and F. Remondino (Editors)

Digital Memory as a Tool for Critical Knowledge in Restoration: a digital archive with Omeka S

Caterina Ciccotti, University of Macerata
c.ciccotti@unimc.it

Abstract

This paper presents a digital archiving project for the Sanctuary of Madonna di Garufo (Central Italy), damaged in the 2016 earthquake. Developed within a doctoral research framework, the initiative aims to document and preserve a multi-type corpus produced during the restoration process. Implemented on the Omeka S platform, the model adopts international standards (Dublin Core, ISAD(G), RiC-CM) and aligns with best practices for long-term preservation (PREMIS). The project proposes a replicable model for managing cultural heritage documentation through interoperable technologies and community engagement, promoting cultural resilience in post-disaster contexts.

Keywords
Digital Archives ; Post-earthquake restoration; OmekaS; Cultural heritage.

1.Introduction

The 2016 earthquake that struck Central Italy highlighted the fragility of architectural heritage and the need to accompany physical reconstruction with strategies for preserving and ensuring access to cultural memory. This project focuses on the creation of a multi-type digital archive dedicated to the Sanctuary of Madonna di Garufo, located in Camporotondo di Fiastrone (MC), which was damaged by the earthquake and is currently undergoing restoration. Developed within the framework of a doctoral research in collaboration with a local cultural association, the initiative aims to document, enhance, and make accessible a range of heterogeneous materials—historical, technical, and multimedia—within a digital infrastructure structured according to international standards and oriented toward the engagement of local communities [ANA23; Sal16].

The digital archive, implemented through the open-source platform Omeka S, proposes a sustainable and replicable model for managing documentary heritage in post-disaster contexts. The adoption of descriptive standards such as ISAD(G) and Dublin Core, ensures metadata interoperability and long-term value [GRI17]. Furthermore, the platform serves as a critical knowledge tool within the restoration process, embracing an epistemological perspective that recognizes documentation as an active component of the project rather than a passive record.

2. Case study: Sanctuary of Madonna di Garufo

Documented as early as the 13th century, the Sanctuary is a Marian site of worship deeply embedded in the religious and social identity of the local population. Located in a peripheral and marginal area of the seismic crater, it represents an at-risk cultural asset, both due to its structural condition and the fragility of its associated documentation. Following the damage caused by the 2016 earthquake, an extensive restoration campaign was launched, generating a significant amount of documentation: graphic surveys, technical reports, construction site photographs, administrative records, along with historical sources such as maps, manuscripts, and vintage images. These materials form the foundational corpus of the digital archive.

The documentary project aims to restore collective knowledge of the site and foster the construction of a shared memory, thereby promoting cultural enhancement and social regeneration [FR20; GRI17]. The Sanctuary is thus conceived not only as an object of protection but also as a node within an informational ecosystem that integrates local knowledge, religious practices, biographical memory, and technical expertise.

3. Methodology

The architecture of the digital archive is based on a multilayered logic inspired by the descriptive models ISAD(G) and RiC-CM. Resources are structured into fonds, series, subseries, and archival units, and described through extended

DOI: 10.2312/dh.20253038

Dublin Core metadata. enriched with custom vocabularies and auto-complete functionalities (e.g., Value Suggest), while the archive distinguishes between historical, technical, and educational documentation, each addressed with an appropriate methodological approach. While not yet connected to external authority files or Linked Data sources, such integrations are being considered for future development.

The methodological process follows an integrated sequence of activities, beginning with the analysis of the contextual framework and the identification of documentation needs, including typologies and levels of description. Digitization is performed using scanners and controlled photographic capture, according to archival quality standards (600 dpi, TIFF/JPEG/PDF-A formats). Metadata records are compiled in a local instance of Omeka S, following a coherent multilingual semantic taxonomy. Implementation and testing are carried out within a LAMP environment, with customized plugin configurations and access permission schemes. A systematic verification of the logical and semantic consistency of the archive follows, through cross-checks of internal relationships between resources. The final phase will involve the definition of digital preservation strategies through the adoption of the PREMIS standard and subsequent integration with Archivematica for the generation of preservation and dissemination packages. All activities are thus conducted in compliance with the 2023 ANAI Guidelines for digital archives and align with the view of documentation as a generative infrastructure of knowledge [ANA23].

3.1. Omeka S

Omeka S was selected as the digital platform due to its modular architecture and capacity to support rich and flexible resource descriptions. The activated modules include CSV Import for bulk metadata uploads, Custom Vocab for the creation of controlled vocabularies, Value Suggest for term autocompletion, and IIIF Server for the visualization of high-resolution images in line with interoperable standards [Alc22].

The platform is currently deployed in test environment on a Debian GNU/Linux virtual machine testing purposes and will later be migrated to the web server of the cultural association. Security configurations such as HTTPS encryption, access control, and automated backup strategies are planned for implementation during the production phase. Looking ahead, integration with Archivematica is planned in order to support long-term digital preservation, ensuring file traceability over time through event, agent, and change metadata recorded using the PREMIS standard [AFR*23].

5. Conclusions and expected results

The project aims to generate meaningful outcomes on multiple levels, reflecting a comprehensive vision of the digital archive as an operational, scientific, and participatory tool. The creation of a structured, queryable, and publicly accessible platform enables the organization and dissemination of documentation produced throughout the restoration and research phases. This documentation, in turn, is reinterpreted as a narrative and design resource that accompanies the cultural site across its life cycle, reinforcing awareness and knowledge of heritage

By integrating scientific research, local communities, and open-source technologies, the initiative proposes a sustainable model for managing documentation in fragile contexts, promoting cultural reappropriation and social innovation. Conceived from the outset to be modular and replicable, the system relies on open standards and validated methodologies adaptable to other territorial realities.

While the project is grounded in the participatory principles of the Faro Convention, further alignment with international frameworks such as Collections as Data and the Europeana Datasheets for Digital Cultural Heritage is under consideration, particularly in relation to responsible reuse and cultural data governance. [UNE03].

Led by the cultural association Identità Sibillina ETS, the project is committed to long-term development through public funding, collaboration with sectoral professionals and peer organizations, and the establishment of stable partnerships with universities and research institutions. This approach acknowledges the structural limitations of small non-profits while promoting a distributed, resilient, and community-driven model of digital heritage stewardship. The next steps involve the migration of the archive to the association's public web server, the progressive implementation of digital preservation workflows via Archivematica, and the drafting of replicable documentation guidelines in collaboration with academic and institutional stakeholders.

References

[AFR*23] Artefactual Systems et al. Archivematica Documentation. https://www.archivematica.org, 2023.

[Alc22] Alcaraz-Martínez, R. "Omeka S como alternativa para el desarrollo de colecciones digitales y proyectos de humanidades digitales." BiD, 48, 2022.

[ANA23] ANAI. Linee guida per la formazione, gestione e conservazione degli archivi digitali. Roma, 2023.

[FR20] Fiorani, D., Romeo, E. "Realizzazione degli interventi, valorizzazione, gestione, prevenzione." In: Musso, S.F., Pretelli, M. (Eds.), Restauro: Conoscenza, Progetto, Cantiere, Gestione, Ed. Quasar, Roma, 2020.

[GRI17] Grimoldi, A. “Storia della costruzione, storia materiale del costruito, tutela e conservazione del patrimonio architettonico.” In: Fiorani, D. (Ed.), RICerca/REStauro, Ed. Quasar, 2017.

[Sal16] Salarelli, A. “Gestire piccole collezioni digitali con Omeka: l’esperienza di MoRE.” Bibliothecae.it, 5(2), 177–200, 2016.

[UNE03] UNESCO. Convention for the Safeguarding of the Intangible Cultural Heritage, 2003.