

From Hidden Reports to Actionable Data. A Domain-Specific Metadata Standard for Conservation Science

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Abstract

The conservation of cultural heritage combines humanities and natural science approaches with practical work on objects. Conservation activities provide unique insights into materiality, manufacturing traces, as well as damage mechanisms and modifications of an object. Despite their scientific relevance for object-based research, these data are often hidden in narrative reports, neither machine-readable nor available according to FAIR principles (Fischer/ Witt 2025).

This contribution presents a domain-specific metadata standard developed within a Temporary Working Group (TWG) in the interdisciplinary NFDI4Objects consortium (Bibby et al. 2023). The standard builds on existing documentation traditions while promoting interoperability with established RDM-standards in heritage research. To ensure a shared understanding, the metadata elements are structured as a SKOS-based thesaurus and made interactively accessible through a mock-up page (Mempel-Länger et al. 2025a). During the development stage, this practical implementation facilitates comprehension and communication of the rather abstract conceptual work and supports feedback from the conservation community (Fischer/ Mempel-Länger 2025; Mempel-Länger et al. 2025b).

The standard establishes a foundation for making conservation data available as structured research data, bridging gaps between object documentation and process documentation. Through contextualisation with data from related disciplines such as archaeology, art history, materials science, and engineering, new research questions and analytical possibilities arise. How do patterns of damage in historical buildings relate to geographical location and environmental conditions? Which historical or contemporary materials become unstable under which conditions? Standardised conservation data enable systematic analyses of object changes, enhance traceability of material interventions, and provide insights into conservation practices and their development over time.

Looking ahead, the further development of a CIDOC CRM-based application ontology is planned to digitally represent the complex interrelations and decision-making processes in conservation practice (Schwenk/Fischer 2025). This approach enhances the long-term value of cultural heritage data, making conservation science a visible and accessible contributor to the wider digital humanities ecosystem and beyond.

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