

Special Session – MTSR 2025

Metadata, Ontologies, and AI for GLAM Institutions: Innovation in Art, Museum, and Music Collections, Cultural Heritage Preservation, and Libraries as Data Spaces

Overview

This Special Session explores the role of metadata, ontologies, and artificial intelligence in shaping the next generation of digital infrastructures across GLAM institutions—galleries, libraries, archives, and museums.

It addresses the convergence of cultural heritage preservation, semantic interoperability, and AI-assisted knowledge extraction to enhance documentation, interpretation, and accessibility of artistic, archival, and musical resources. By integrating AI, linked data, and knowledge graphs, the session will highlight how cultural and academic institutions are evolving into dynamic data spaces that support not only preservation but also innovation, participation, and education.

It will gather professionals and researchers from digital humanities, library and information science, museology, and conservation, presenting methodologies that ensure the sustainability, inclusivity, and visibility of collections within a rapidly changing technological landscape. It will bring together professionals and researchers from libraries, archives, museums (GLAM institutions), as well as scholars in digital humanities, art conservation, and museology, to discuss methodologies and technologies that ensure the long-term preservation, interoperability, and accessibility of cultural and artistic resources.

The session emphasizes the role of semantic technologies, linked data, AI-assisted cataloguing, and crowdsourcing in building dynamic digital ecosystems that connect artworks, artifacts, and music collections through shared ontologies and lexicons. It will feature case studies, demonstrations, and interactive discussions highlighting how metadata-driven infrastructures contribute to cultural continuity and community engagement.

Session Objectives

1. Specialized Ontologies and Lexicons for Cultural Heritage

Present frameworks and ontologies designed for the semantic representation of artworks, archival materials, musical compositions, and visual heritage.

Discuss how AI-assisted modeling and multilingual lexicons improve classification, interoperability, and cross-domain knowledge exchange.

2. Crowdsourcing and Community-Driven Enrichment

Explore strategies for AI-supported crowdsourcing and community participation in metadata enrichment.

Participants will examine examples of citizen annotation of images, manuscripts, and artifacts that enhance accuracy, accessibility, and inclusivity.

3. Digital Preservation and Material Conservation

Showcase metadata-driven practices in digitization, preservation of paper-based materials, fragile artifacts, and audiovisual content, emphasizing integration with AI-based image recognition, restoration support, and automated metadata extraction tools.

4. Interoperability, Data Integration, and Knowledge Graphs

Demonstrate how ReasonableGraph, CIDOC CRM, Dublin Core, and Europeana Data Model (EDM) can be combined with AI pipelines for semantic interoperability and large-scale data integration across GLAM domains.

Highlight libraries as data spaces, serving as active nodes in national and European infrastructures for open knowledge and sustainable development.

5. Engagement with Practical Applications and Use Cases

Provide interactive exercises applying metadata and ontology principles to real datasets from art, archive, and music collections.

Participants will gain hands-on experience linking and curating data using AI tools and ontology frameworks.

Workshop Benefits

1. Enhanced Understanding of Metadata, Ontologies, and AI in Cultural Heritage

Participants will understand how semantic and AI-based technologies enable preservation, interpretation, and open access in the GLAM ecosystem.

2. Skills in Leveraging AI and Crowdsourcing for Data Enrichment

Learn practical strategies for automated metadata generation, public participation, and data quality improvement in large-scale cultural heritage collections.

3. Knowledge of Interoperability and Institutional Transformation

Gain insight into libraries' evolving role as data spaces and their integration into digital ecosystems through metadata and AI.

4. Preservation Awareness

Insights into how metadata contributes to preventive conservation and sustainable documentation of fragile materials.

5. Professional Empowerment and Strategic Capacity-Building

Discuss the redefinition of the academic librarian's role in the age of data and AI, emphasizing the need for a comprehensive education framework aligned with the SDGs and a strategic approach to ESIF as a tool for library empowerment and social impact.

6. Networking and Knowledge Sharing

The session encourages collaboration among professionals in metadata, conservation, AI, and digital transformation, building bridges between research and practice in the GLAM and academic sectors.

Expected Outcomes

This Special Session will promote a cross-sectoral and forward-looking dialogue on how metadata, ontologies, and AI transform cultural heritage management and library infrastructures.

Participants will acquire conceptual and practical expertise in semantic modeling, data-driven preservation, and interoperability.

The session will generate a comprehensive framework for professional development and strategic policy alignment, connecting libraries, cultural heritage institutions, and AI innovation with art conservation, digital curation, and knowledge representation. It will serve as a roadmap for future interdisciplinary projects that advance sustainability, open knowledge, and long-term collaboration within the broader MTSR community.

Target Audience

Researchers, curators, librarians, conservators, archivists, AI specialists, digital humanists, and ontology developers working in or with:

- Libraries, archives, museums, and galleries
- Music and audiovisual collections
- Cultural heritage preservation and digitization projects
- Research data infrastructures, linked open data initiatives and cultural knowledge graphs
- Library and information science education and policy