European Commission

Research and Innovation

The Cultural Heritage Cloud: advancing with new tools

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#HorizonEU

INNOVATIVE PROJECTS FROM THE 2024 CALL

What is the Cultural Heritage Cloud?

Funded under Horizon Europe, the **Cultural Heritage Cloud** – or "European Collaborative Cloud for Cultural Heritage" (**ECCCH**) – is an initiative for the creation of a **digital infrastructure** that will serve cultural heritage institutions and professionals across the EU, facilitating their collaboration.

The goal is to help cultural heritage institutions, research organisations and other professionals of all sizes and types to work with their **digital objects** - i.e. virtual replicas of their heritage objects, also known as "**digital twins**" - in a more interconnected, harmonised, and informed way, allowing them to successfully navigate **the digital transition and conduct research together**.

Complementing other existing platforms, the Cultural Heritage Cloud joins forces with the common European data space for cultural heritage, the European Open Science Cloud and European Research Infrastructures (such as CLARIN, DARIAH, E-RIHS) towards a common goal. By providing access to cutting-edge technologies for digitising, connecting and researching cultural heritage objects, the Cultural Heritage Cloud will be adding a new digital dimension to cultural heritage research and innovation, and valorisation.

Innovative tools for the Cultural Heritage Cloud

Following the call under Work Programme 2023 with a budget of **EUR 35 million** the project ECHOES was selected to design and implement the **basic architecture, data model and governance of the Cloud**.

The projects AUTOMATA - for the digitisation of archaeological ceramics and lithics, TEXTaiLES - on the digitisation life cycle of textile objects, focusing on non-destructive methods, and HERITALISE - for advanced digitisation techniques and solutions for heritage buildings and diverse cultural heritage objects, were selected under this call and are developing tools for the Cloud users.

The 2024 call, with a budget of **EUR 48 million**, focused on the **research and development of basic tools** that make the platform practical and user friendly. **Ten new projects** were selected in **5 different domains**:

1 **The digitalisation and analysis of dynamic processes, objects and complex combined data** is about digitising dynamic objects, processes and practices, monitoring the evolving status of cultural heritage objects over time and interacting with, cross-mixing and re-mixing different data types.

KINETIKA creates a groundbreaking 4D digital twin framework for cultural heritage objects with mechanical parts, focusing on movable structures of industrial heritage and cultural heritage masonry. By integrating advanced imaging - photogrammetry, laser scanning and muography, KINETIKA captures both the physical form and internal complexity of objects, reflecting their dynamic nature.

MusicSphere aims to develop tools that combine advanced technologies for preserving, studying, and providing access to the cultural heritage aspects of traditional musical organs. Focusing on traditional wind instruments such as pipe organs and their ancient Greek counterpart, the employment of digital technologies will support the creation of precise digital replicas of these instruments, capturing intricate physical and mechanical details and aiding in preservation and restoration efforts.

2 **Advanced data enrichment** is about creating, enriching and refining annotated bibliographies and documenting the results of fieldwork, such as archaeological or paleontological excavations or other collection processes and studies.

INFINITY advances the Cultural Heritage Cloud with an innovative ecosystem of tools and methods that enhance the lifecycle management of Cultural Heritage Digital Objects (CHDOs). Key innovations include an open library of semantic web and AI-driven software components for metadata enrichment, multilingual knowledge extraction and AI tools, all designed for seamless integration into existing Collection Management Systems.

ECHOLOT will make the creation, provision, and reuse of high-quality, semantically rich, and interoperable Cultural Heritage data accessible to scholars and institutions, significantly lowering the threshold for joining the collaborative cloud.

3 **Documenting, interlinking and organising data** is about metadata enrichment, which is embedding scientific and professional value, intellectual property rights and other associated rights and collaborations. It also incorporates business models based on the multi-actor value chains.

ARXIVE introduces a semantic archival system that provides advanced solutions for annotating evolving digital twins, by addressing fragmented on-site workflows and the challenges of preserving both tangible and intangible cultural assets.

StratiGraph aims to transform archaeological and paleontological documentation by developing innovative open collaborative tools that integrate advanced knowledge graphs, artificial intelligence, and 3D field documentation techniques. Key innovations include tools that function effectively in all conditions, allowing technology use even where power and connectivity pose challenges. StratiGraph will deliver knowledge graph infrastructure to organize stratigraphic and spatial data; AI-powered tools for creating and enriching annotated bibliographies; advanced 3D documentation capabilities for recording stratigraphy; variable connectivity protocols for real-time and seamless offline/online work; and comprehensive training modules and technical support resources.

4 **High-value interactions with visitors and heritage objects** are about creating, sharing and re-using interactive content and analysing, designing and testing interactions with visitors.

UNICHE aspires to co-design and create an intuitive, technology-agnostic platform as a collaborative tool for effortlessly designing, producing and sharing high-quality, interactive cultural heritage experiences. By leveraging and integrating existing advanced technologies and tools developed by the consortium, UNICHE's platform addresses in a holistic way the four E's: Exhibits, Experience design, Exhibitions and Evaluation processes.

PlaceMUS XR focuses on creating digital applications that enable users to explore significant "places of music" across European regions and cities. The applications aim to provide a narrative, encompassing the musical event itself, its cultural and historical context, the location, and physical museum objects. The project involves geographically mapping musical locations and creating thematic itineraries based on places, people, themes, and historical periods, encompassing a wealth of tangible and intangible heritages. The project will focus on developing cutting-edge digital tools to enrich the visitor experience at these places of music through virtual and augmented reality experiences, multimedia and tools integrated in the Cultural Heritage Cloud.

5 **The study, conservation and restoration of heritage objects** is about supporting the study of cultural heritage objects, and their conservation and restoration work.

EXCALIBUR proposes a holistic framework that offers innovative tools and methods for enhanced study, improved conservation and restoration works, and knowledge of cultural heritage objects, based on their digital twins. EXCALIBUR focuses on solutions that assist the study, conservation, and restoration of burial excavations, remains, and findings at the level of (a) burial sites, excavations, and surroundings, (b) tomb structures and burial decorations, (c) artefacts, burial findings, traditions and ceremonies, and (d) human and burial remains.

COLOURS builds on two years of research and development conducted under the project PERCEIVE. This follow-up project aims to make a major contribution to the digital transition of cultural heritage conservation and restoration by developing integrated colour analysis and restoration tools tailored to diverse artefacts, including polychrome sculptures, paintings, textiles, historic films and photographs. These tools will provide high-precision analysis, simulate restoration results, and support interdisciplinary collaboration through hybrid spaces that merge virtual and physical environments.

What's next for the Cultural Heritage Cloud?

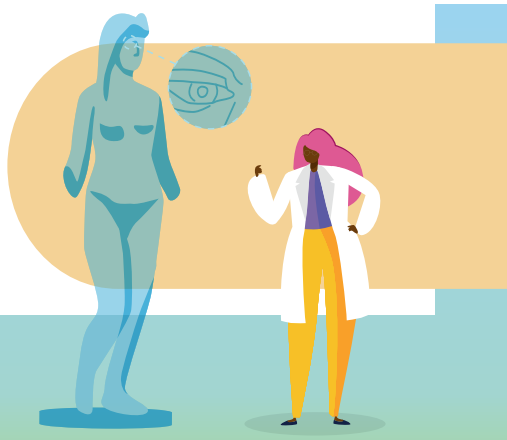
With a foreseen budget of **EUR 26 million**, the ECCCH call 2025 will develop and test **real-world use cases of the platform** together with stakeholders, complementing the work already achieved under the two previous calls. The 2025 call closed on 16th September 2025.

Let's stay in touch!

Do you want to know more about these tools and the next steps?

Check our webpage and subscribe to our community!

Or contact us at RTD-CULTURAL-HERITAGE-CLOUD@ec.europa.eu



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