In the Horizon Europe Work Programme 2023-2025 under "5. Culture, Creativity and Inclusive Society" (European Commission Decision C(2024) 2371 of 17 April 2024), a call for "A European Collaborative Cloud for Cultural Heritage – 2024" was published, comprising five topics with a deadline of 22 January 2025. As a result, ten projects, two under each topic, have been recommended for Grant Agreement Preparation, with expected sign-off in the last quarter of 2025.

Concurrently, within the Horizon Europe Work Programme 2025 under "5. Culture, Creativity and Inclusive Society" (European Commission Decision C(2025) 2779 of 14 May 2025), a new topic, HORIZON-CL2-2025-01-HERITAGE-03: "A European Collaborative Cloud for Cultural Heritage – Innovative use cases," is published, targeting a deadline of 16 September 2025. This new topic focuses on implementing real use cases and carrying out demanding end-to-end testing of the platform and its tools, in order to verify its capabilities and improve the European Collaborative Cloud for Cultural Heritage (ECCCH).

A summary of the ten projects currently undergoing Grant Agreement Preparation is provided below. This serves as valuable information for potential applicants interested in the new call.

- **HORIZON-CL2-2024-HERITAGE-ECCCH-01-01**

1- The project aims to revolutionise the recording, monitoring and preservation of cultural artefacts with mechanical parts by applying Industry 4.0 principles and a 4-D digital twin. Its goals are: (1) build a pan-European infrastructure interoperable with ECCCH; (2) develop reusable Digital Twin standards for dynamic objects incorporating mechanical parts and (3) validate solutions onsite in four use cases. Innovation stems from combining drone-based SLAM/NeRF scanning (DYNAMO), muon tomography for non-intrusive interior imaging (MUSICA), IoT-driven AI predictive maintenance (MechGuard) and the Synergy platform, which fuses real-time geometric, physical, environmental and acoustic data. Expected impacts include 90 % higher damage-detection accuracy, 40 % fewer unplanned interventions, new value-added services and a DT-as-a-Service market. Moving from reactive to predictive maintenance will conserve resources, reduce authenticity loss and enrich public storytelling through VR/AR. The project thus accelerates the digital transition of Europe's heritage institutions, boosting asset integrity and service quality.

2- The project aims to develop tools that combine advanced technologies for preserving, studying, and providing access to the cultural heritage aspects of traditional musical organs. The project will focus on traditional wind instruments such as Pipe Organs and their ancient Greek counterpart such as 'Hydraulis'. By employing digital technologies precise digital replicas of these instruments will be created, capturing intricate physical and mechanical details and aiding in the preservation and restoration efforts. The study will involve analysing the unique sound characteristics of the organs and utilizing acoustic simulations in order to accurately recreate their tonal qualities and the interaction of sound with surrounding architecture and environmental conditions. Virtual and interactive tools will be developed to simulate the handling of these instruments, providing platforms where users can experience them in digital or augmented reality environments. By integrating 3D visual data, acoustic properties, and interactive models into a cohesive system, the research will try to offer a holistic understanding of the instruments' artistic and functional significance. The results will contribute to the long-term preservation of these cultural artifacts by creating digital archives and enhancing public and scholarly access through interactive technologies and educational applications.

- **HORIZON-CL2-2024-HERITAGE-ECCCH-01-02**

1- The project contributes cutting-edge tools and methodologies to the European Collaborative Cloud for Cultural Heritage (ECCCH), currently developed under the ECHOES project. By supporting the preservation, contextualization, and sharing of both tangible and intangible heritage, the project helps ensure that Europe's cultural identity remains accessible and connected—across generations, institutions, and disciplines. Thereby, the project addresses fragmented documentation workflows enhancing the semantic structuring of Cultural Heritage Objects (CHOs) by integrating evolving digital twins, high-fidelity 3D models, AI-powered bibliographic annotation, and interoperable archival systems. The project ensures long-term sustainability and accessibility by aligning with established ontologies and standards, enabling seamless integration across institutions and supporting AI-driven analysis. Through pilots in Greece and Portugal and a robust Financial Support to Third Parties scheme (20 projects per two Open Calls), the project empowers practitioners fostering collaboration. In an evolving landscape of heritage digitization, the project reinforces Europe's cultural sovereignty by embedding open, inclusive documentation strategies into the ECCCH infrastructure.

2- The project develops collaborative tools that sustain archaeological and paleontological studies by connecting stratigraphic data, 3D models, historical archives, and scientific analyses within the ECCCH ecosystem. The project applies semantic technologies to 3D stratigraphy, recognising that stratigraphic sequences represent networks of spatio-temporal relationships. The core innovation transitions from "collect-then-curate" to "validate-as-you-collect" methodologies, ensuring data quality from the moment of discovery. The multi-temporal approach integrates field documentation with historical archives and AI-powered analysis, converging into semantic 3D models that preserve both objective observations and interpretative insights. Working with European partners, the project validates its approach through diverse case studies spanning Roman urban contexts to archaeological landscapes. The project establishes new standards for semantic interoperability while preserving diverse European methodological traditions, creating sustainable frameworks for collaborative digital heritage research that bridge field practice with broader scholarly knowledge networks. "

- **HORIZON-CL2-2024-HERITAGE-ECCCH-01-03**

1- The project advances the European Collaborative Cloud for Cultural Heritage (ECCCH) by developing an innovative ecosystem for managing Cultural Heritage Digital Objects (CHDOs). Its core objective is to enrich CHDO descriptions using multidimensional knowledge graphs that integrate ethical, historical, and socio-political perspectives. Innovations include an open library of Semantic Web and AI-based tools for multilingual metadata enrichment, explainable AI, and seamless integration with existing systems. The project also introduces scalable infrastructures for crowdsourcing and citizen science, promoting collaborative annotation and reuse. The project prioritizes FAIR data principles and responsible CHDO interaction through advanced user interfaces tailored to diverse audiences. Five use cases will validate its tools across real-world scenarios involving data enrichment, IPR, and ethical reuse. By establishing a stakeholder network, offering training, and launching an open call for cultural actors, the project aims to foster inclusive engagement, support cultural preservation, and unlock the social and economic value of digital heritage within and beyond the ECCCH.

2- The project supports the adoption of the ECCCH by making the creation, reuse and dissemination of high-quality, semantically rich and interoperable cultural heritage data accessible to scholars and institutions of any size. The new end-to-end solution relies on knowledge graphs and open-source software (notably MediaWiki suite) for the application of the FAIR data principles and further integration with Europeana, DS4CH, EOSC, and Wikidata. Using a combination of AI-, knowledge-, and rule-based approaches, the project delivers hybrid curation workflows that efficiently combine automated processing and human input to perform multilingual

and multimedia annotation, description generation, and entity recognition. The service features easy-to-use interfaces and mechanisms for the detailed capture and embedding of metadata to ensure correct attribution and management of value and ownership in collaborative data generation processes. To ensure sustainability and impact, the project includes business model innovation, training, and community engagement, as well as close collaboration with ECCCH stakeholders.

- **HORIZON-CL2-2024-HERITAGE-ECCCH-01-04**

1- The project focuses on developing cutting-edge digital tools, which will be integrated in the ECCCH, to enrich the visitor experience with cultural contexts and heritage objects. Design and simulation tools will be implemented to 1) create, share, re-use interactive contents, 2) analyse, design and verify interaction with visitors, for the benefit of museum curators, creative industries, students, and researchers. The leading theme of the project is “Paths and Places of Music in Europe” interpreted as extended realities, because they include several typologies of material objects/contexts as well as intangible heritage, whose value, possibilities of interaction and understanding are enhanced by virtual reality technologies and digital tools. Experiences are built on the intersection of architecture, arts, landscape, time and mind. Furthermore, the project will create design and simulation tools, conduct analysis and evaluation of the impact of sound and multimedia communication in museums, and develop s VR mock-up tool to design sound communication in museums.

2- The project develops a groundbreaking, technology-agnostic "no-code" platform for the seamless design, production, and dissemination of high-quality, interactive cultural heritage experiences. Designed for cultural heritage institutions, researchers, and creative professionals, the platform prioritizes accessibility, minimizing technical expertise requirements and fostering broad adoption. By integrating advanced technologies and tools, the project addresses critical challenges such as accessibility for non-experts, fragmented tools, and high production costs. Its holistic approach focuses on the four E’s: Exhibits, Experience design, Exhibitions, and Evaluation processes, enabling efficient content creation and meaningful audience engagement. Aligned with the European Collaborative Cloud for Cultural Heritage (ECCCH), the platform ensures interoperability with EU data spaces and standards. Pilot scenarios across diverse cultural settings, along with open calls for participation, will validate its effectiveness. The project’s commitment to collaboration and scalability establishes a unified framework to transform digital cultural heritage practices across Europe.

- **HORIZON-CL2-2024-HERITAGE-ECCCH-01-05**

1- The project aims to make a substantial contribution to the field of cultural heritage restoration by placing colour at the centre of an innovative and accessible digital framework. Building upon the Horizon project PERCEIVE, it develops predictive and simulation-based tools to support data-informed restoration decisions through digital twins, AI-driven analysis, and XR environments. The project empowers conservators, curators, and scientists to collaboratively visualise and assess restoration options before physical intervention. Integrated into the European Collaborative Cloud for Cultural Heritage (ECCCH), the project delivers interoperable, scalable, and affordable tools, designed to be accessible even to small and resource-limited institutions. The project is carried out by a multidisciplinary partnership of researchers, technologists, cultural institutions, and restoration professionals. In addition to supporting experts, it enhances public engagement through immersive mixed-reality experiences that reveal restored artefacts’ original colours and vibrancy. Outcomes include validated digital tools, hybrid collaborative environments, and knowledge-sharing resources that promote sustainable, inclusive, and transparent cultural heritage conservation.

2- The project 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. The project 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 remain. Through the centralised, interoperable, and human-based platform of the project, toolkits of usable, open-source, and cost-affordable solutions will be available for the wide spectrum of CH. The DNA of the project consists of the real user needs, as archaeologists, bioanthropologists, museologists, conservators, historians, researchers, and scholars co-define the requirements and their needs, co-design the toolkits, test, evaluate, and validate the tools through representative case studies and an open call for support to third parties, and finally using, the innovative and enhanced solutions of the project through the ECCCH. The holistic framework and the innovative solutions of the project will be designed and developed according to the guidelines of the ECCCH infrastructure and services, as well as with close collaboration with the ECCCH ecosystem.