**EuroMed 2024**

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**EUROMED**

International Conference on Digital Heritage

# A Question of Competence, Quality & Infrastructure

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# 3 keywords for 3D Cultural Heritage

The 3D advent is nowadays at the core of the cultural heritage transformation

Production, sharing and reuse of 3D contents is an important challenge, for which a large part of the cultural heritage is not yet ready

3D acquisition and modelling, AI, XR, and VW imply a level of innovation that is not yet available in the cultural domain, in particular for small institutions

Mutual learning among Cultural Heritage Institutions and industry experts should be facilitated

Knowledge transfer, good practices, common standards, methods, successful examples of reuse, digital tools, they are all crucial for effective 3D digitisation

Despite the commitment of the EU to support this transformation, the current initiatives are not sufficient

A new pace is needed, to secure actual knowledge services to institutions

- **Competence**
- **Quality**
- **Infrastructure**

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# Competence

The needed competences should be delivered in practical terms, open to the widest range of institutions

They should address the **multiple dimensions** linked with the digitisation of geometrical features, including, **for example**:
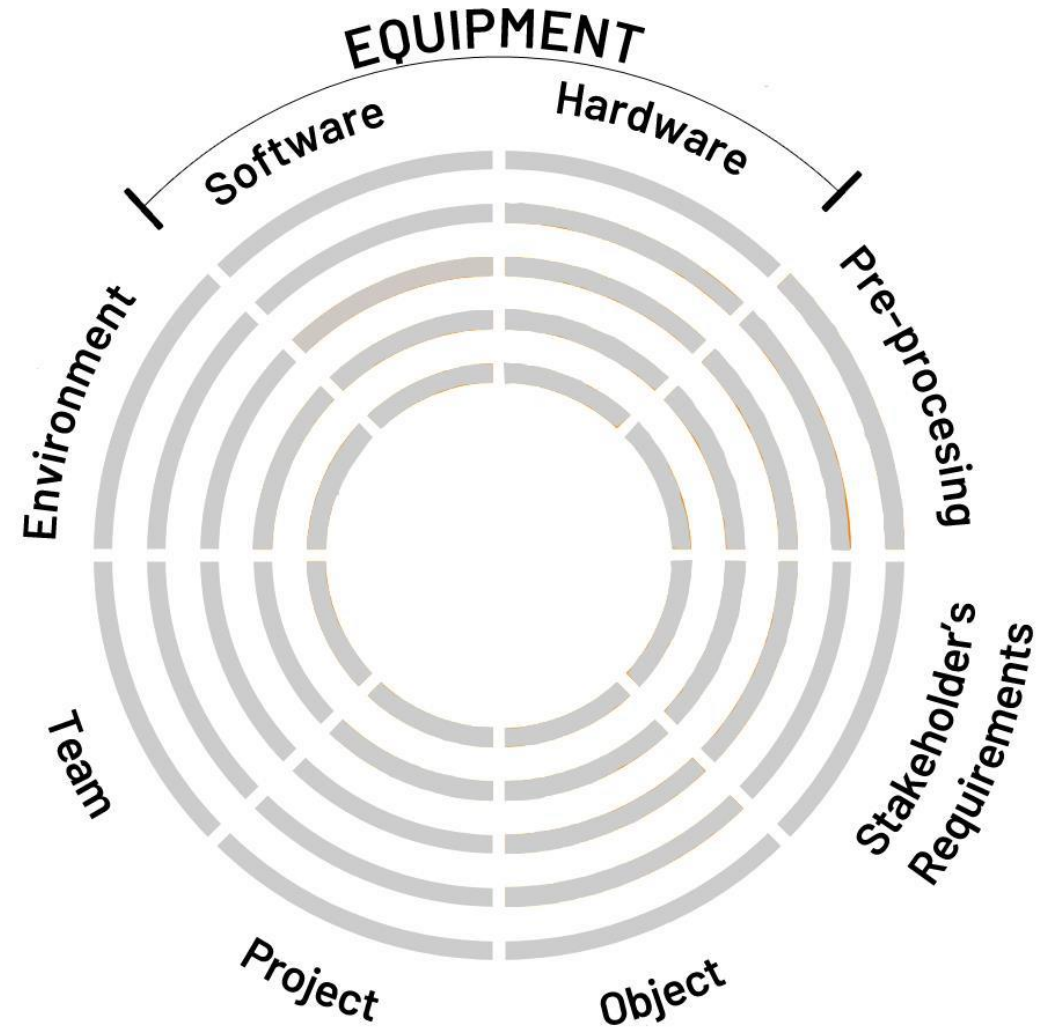
- Use of 3D for **recovery** processes, documenting all the steps taken for the object after its recovery, including temporal, scale and material dimensions in the reconstruction process

- Increased **understanding** of heritage artefacts and collections, where historical context, materiality, content and technology meet

- Elaboration of images and textual data, resulting in result is a **visual impression** that goes beyond normal renderings

- **Clustering of related 3D objects** adopting AI-based methods to cope with cases of gaps or holes

- Sharing **assessment** of successful and unsuccessful case studies, with clear KPI that are understandable by the heritage institutions, convincing for investors and policy makers

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# Quality

- Advanced digitisation is challenging: accelerating without a clear awareness of user requirements, key mapping parameters, formats, standards, benchmarks, methodologies risks to miss the generation of quality outputs

- Because of the high cost of 3D digitisation, we should avoid that investment is wasted in low quality or perishable collections that are outdated and unusable in few years

- The VIGIE 2020/654 Study on quality in 3D digitisation of tangible cultural heritage is a sound basis for which the EU has invested public money. We should take advantage of it!

- High quality 3D digital contents should be beneficial to the society, supporting reusability by researchers, creative industry, tourism and education sectors

- Establishing uniform standards (protocols, formats, metadata and paradata schemas...) is the pre-requisite to ensure seamless integration of digital cultural heritage assets across Europe

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# Quality matters

- Digitization is a static capture of a dynamic object at a certain moment in time

- A still image of a painting, the picture of a monument or a cultural site, they are all 2D projection of a 3D object

- Initial stakeholder requirements, equipment, practices, actual setting, software processing all impact the final result



EQUIPMENT
Software
Hardware
Environment
Pre-procesing
Team
Stakeholder's Requirements
Project
Object

VIGIE Study 2020/654

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# Infrastructure

Knowledge transfer may occur through training sessions, workshops, summer schools, good practice repositories, demonstrations, … but a solid European digital infrastructure that may sustain this effort is needed, too

Similar infrastructures exist for the research in other scientific domains that have benefitted of large investments in the past years: in the cultural domain this did not yet happen

We may acknowledge that experiences exist that are trying to cope with this situation:

- DARIAH, Europeana, 4CH, ECHOES attracted a 'large' part of the European employed resources

- Similarly, this is happening at the national levels (e.g. the Tiche cluster in Italy)

However, with regard to 3D digitisation they are still, mostly, at the phase of a *study* (experiments, reports, technological development, etc.) more than a factual *deployment* phase

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# EUreka3D European Union's reconstructed content in 3D

EU project co-funded by the Digital Europe Programme

Start date: 1/1/2023

Duration: 2 years

Coordinator: Photoconsortium International Association

Partners: CRDI, Bibracte, Museo della Carta, Cyprus University of Technology, EGI, Cyfronet, imec, Europeana Foundation

**Objectives**:

- To support Cultural Heritage Institutions implementing high quality 3D digitization
- To deliver the EUreka3D Data Hub made of cloud services
- To integrate the results in the Data Space for Cultural Heritage

# From Stakeholders to Users

**EUreka3D Data Hub**: dedicated cloud-based services to store, preserve, manage, share data, metadata and paradata generated in 3D digitization projects, including:

- *European-based storage facilities*
- *AAI for safe access*
- *PIDs service to grant long term preservation of online objects*
- *Visualization tool (3D viewer)*
- *Fully integrated and compatible with Europeana*

**Capacity building on high quality 3D digitization**, based on VIGIE 2020/654 Study

Aggregation of content for publication in the **Data Space for Cultural Heritage**

EUreka3D concludes on 31/12/2024 and is followed by the **EUreka3D-XR** to explore reuse of 3D assets in XR scenarios.
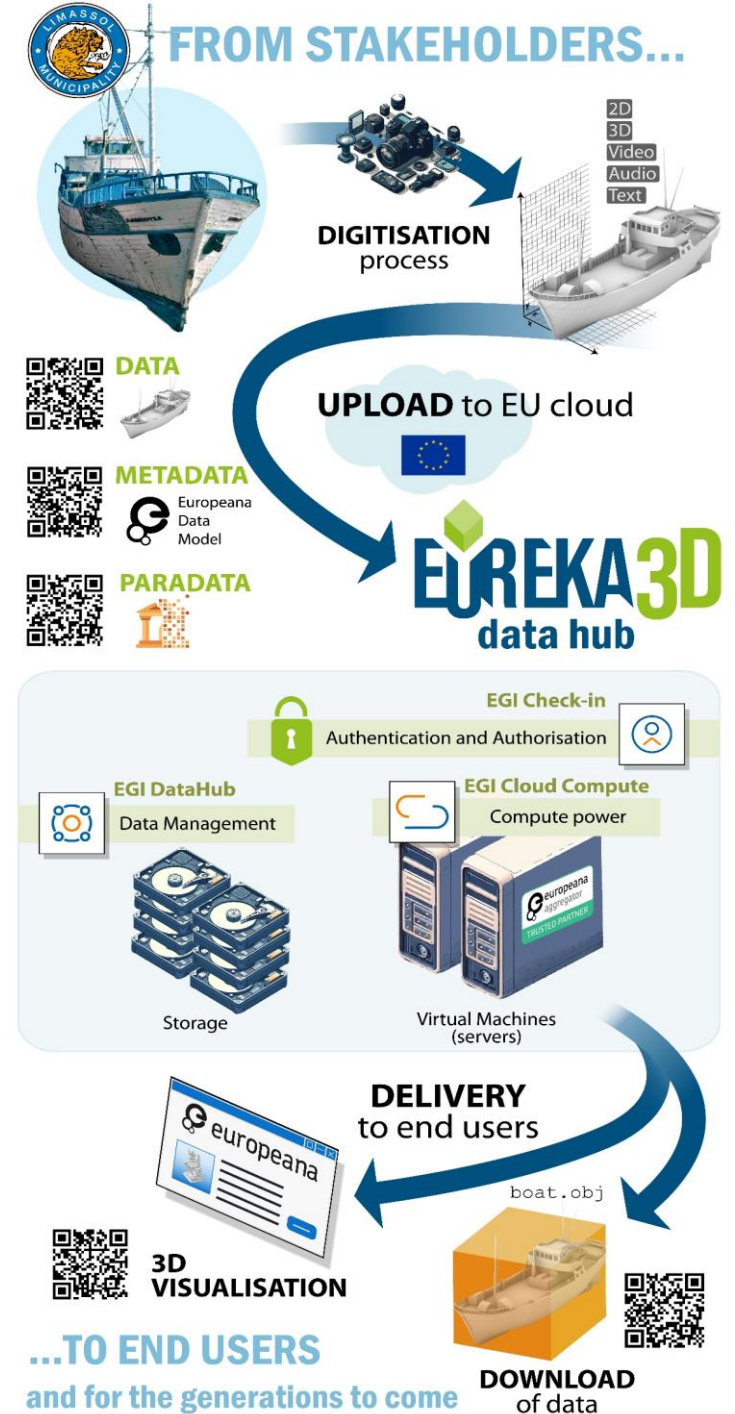
# Guidelines and good practices



**EUreka3D** is focused on cultural heritage institutions committed to implement high quality 3D digitization and assets management, via:

- Guidelines

- Tools

- Capacity building activities

- Case studies based on pilot experiences

- The Bibracte archaeological site

- Museo della Carta in Pescia

- The Lambousa Fishing Vessel in Limassol

- The Holy Cross Church, a UNESCO world heritage site

- The Cinema Museum of Girona

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SPOUT IN THE SHAPE OF A BOAR'S HEAD (INV. 2003.34.116.1)

HELMET REUSED AS A FOUNDRY LADLE (INV. 2001.32.258.1)

STORY

Bibracte, a 2000-year-old town under a forest

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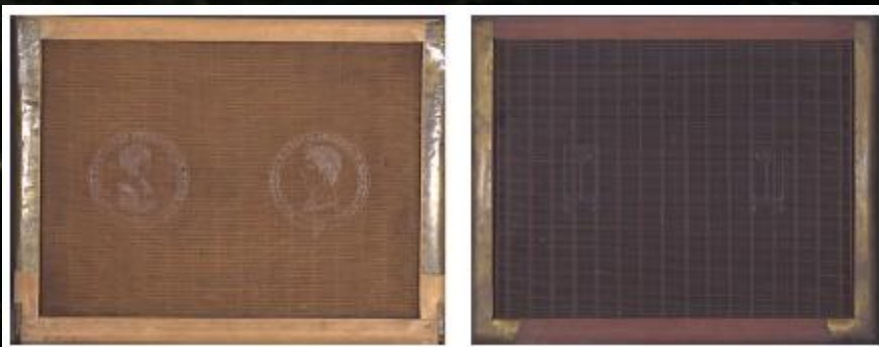
# The Pescia Paper Museum

Keeper of paper-making heritage in Italy since the 13th century

PHOTOCONSORTIUM    EUREKA3D

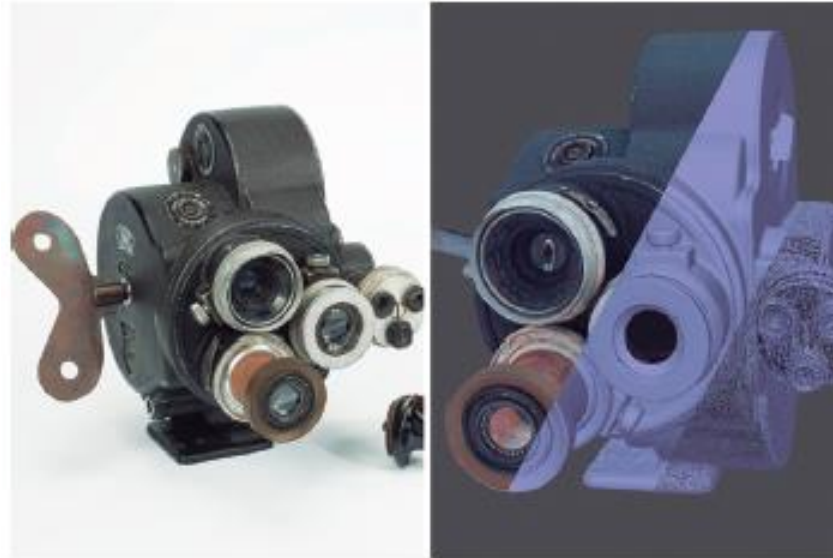# The Lambousa historical fishing boat in Limassol



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# The Holy Cross Church





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# Cinema Museum of Girona

EUreka3D concludes on 31/12/2024
EUreka3D-XR to explore reuse of 3D assets in XR scenarios, starting in February 2025



# EUreka3D-XR scenarios

Three showcase scenarios will be available in the Data Space as contents and documentation:

1. The virtual visualisation of the middle-ages walls of the city of Girona
2. The XR narrative of excavations in process in the Bibracte archaeological site
3. The creation of a new life of Saint Neophytos Englystra in Cyprus in the virtual space

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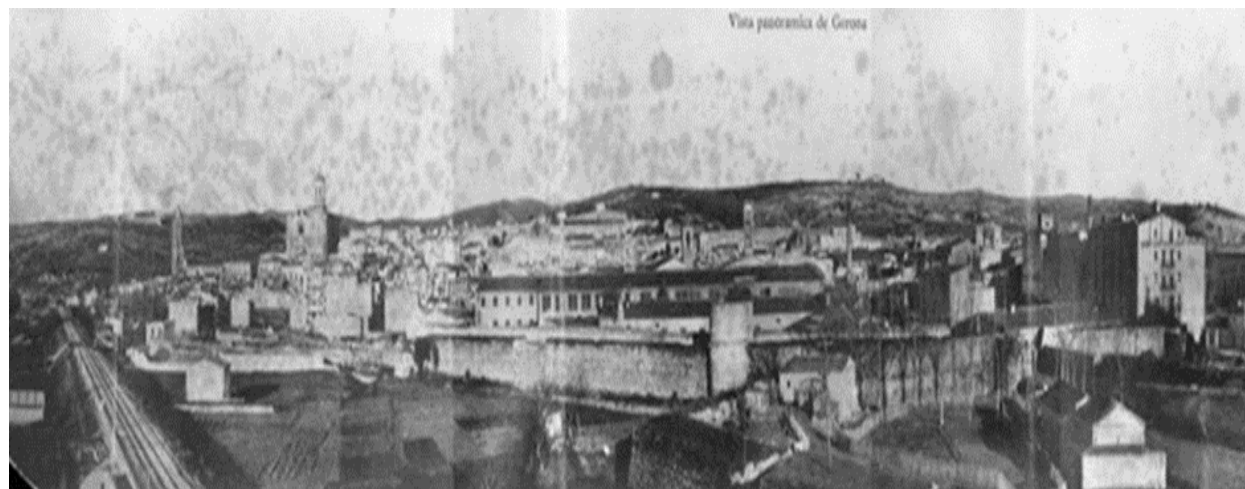
# Concluding considerations

The reasons for the delay of the cultural heritage sector to take advantage of advanced digital technologies are multiple:

- Lack of immediate economic return

- A change in the mindset of the sector

- Not harmonised IP regulations among the EU member states

- Unclear vision of EU policies and investments

Some practical observations from the field on the needs we should consider in our future actions:

- Building on previous and ongoing EU-funded projects

- Continuing to improve capacity building in 3D cultural heritage across Europe

- Developing a common language

- Enhancing the understanding of media transformation

- Acknowledging the role of artistic reflection and human creative process

- Networking, establishing cooperation agreements, adopting bottom-up approaches

# Thank you for your attention

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