HELLENIC REPUBLIC
MINISTRY OF DEVELOPMENT
Under the auspices

TMM 02 04 5 CH

NATIONAL TECHNICAL UNIVERSITY OF ATHENS

4th International Conference on

Transdisciplinary Multispectral Modelling and Cooperation for the Preservation of Cultural Heritage

Addressing World Challenges

7-9 April 2025, Eugenides Foundation, Athens, Greece

FROM DIGITAL TWIN TO MEMORY TWIN: A NEW HORIZON FOR CULTURAL HERITAGE

The EUREKA3D-XR PROJECT

Καινοτόμος, Διεπιστημονική, Ψηφιακή Διατήρηση της Πολιτιστικής Κληρονομιάς

www.tmm-ch.com

EUREKA3D

Co-funded by the European Union

EUreka3D-XR 3 scenarios in Extended Reality

Three showcase scenarios are under development in the Data Space :

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

EUREKA3D Co-funded by the European Union

EUreka3D-XR

European Union's REKonstructed content in 3D to produce XR experiences

EU project co-funded by the Digital Europe programme

Start date: 1/2/2025

Duration: 1,5 years

Coordinator: Photoconsortium International Association

Partners: CRDI, Bibracte, Cyprus University of Technology, EGI, Cyfronet, IMEC, SWING.It, Meemo, Miralab, National Technical University of Athens, Europeana Foundation

Objectives:

- To transform cultural contents (2D, 3D, video, texts, maps, stories) into extended Reality (XR) scenarios
- To deliver the XR scenarios to the European common Data Space for Cultural Heritage
- To continue the effort to strengthen the capacity of cultural heritage institutions

EUREKA3D Co-funded by the European Union

How can we trigger the multiplier effect of our 3D projects?

What the Memory Twin need?

- Quality
- Infrastructure
- Competence

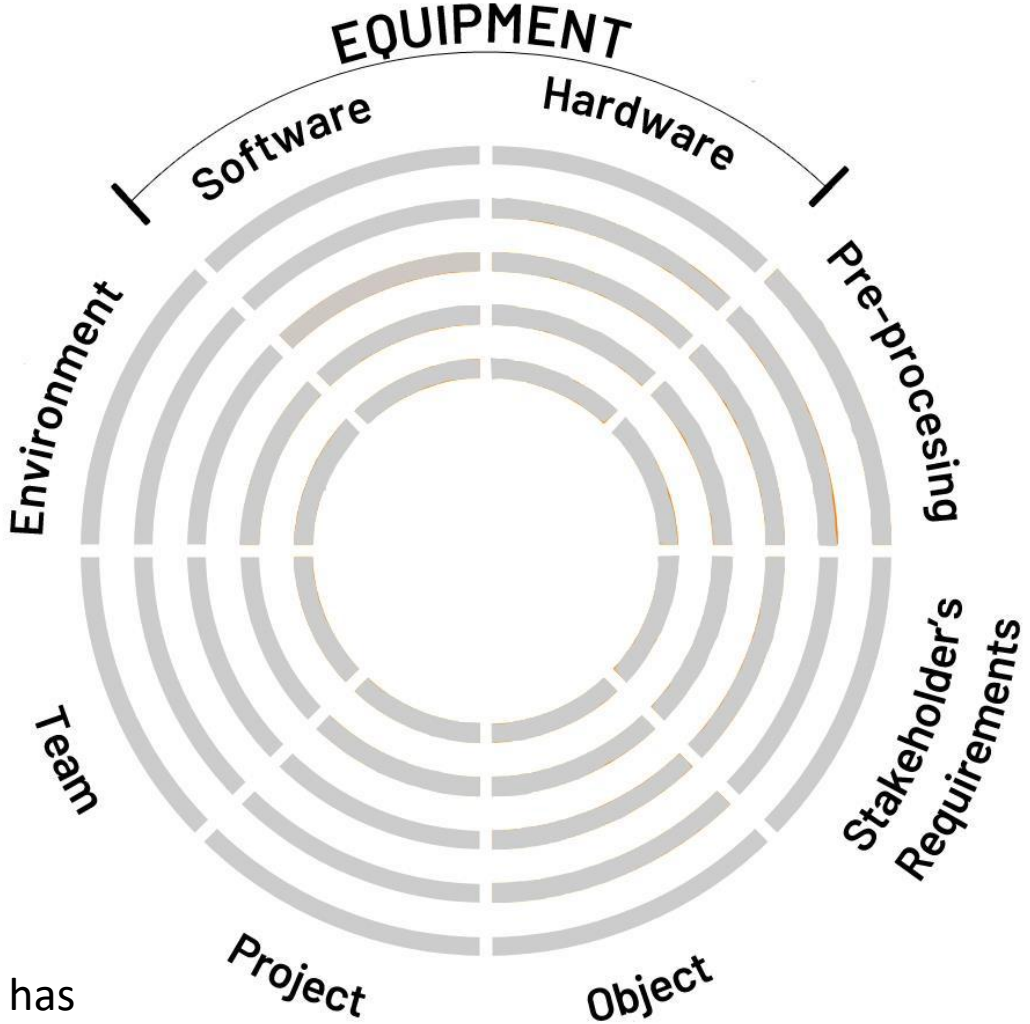
EUREKA3D
Co-funded by the European Union

Quality

EUREKA 3D
Co-funded by
the European Union

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



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!

EUREKA3D
Co-funded by the European Union

Infrastructure

EUREKA 3D
Co-funded by
the European Union

EUreka3D

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

Objective: Implementing a Data Cloud and services in the Data Space for Cultural Heritage

Website: https://eureka3d.eu/

EUREKA3D Co-funded by the European Union

EUreka3D Data Hub

Cloud-based services to store, preserve, manage, share data, metadata and paradata generated in 3D digitization projects, including:

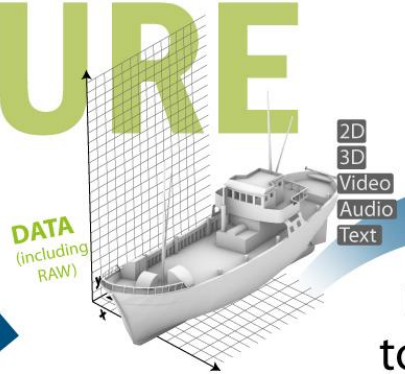
- *European-based storage facilities*
- *AAI for safe access*
- *PIDs service to grant long term preservation of online objects*
- *Visualization tool (3D viewer)*
- *Fully integrated and compatible with Europeana*

EUREKA3D
Co-funded by
the European Union

CAPTURE

CLOUD

DELIVERY



DATA (including RAW)

METADATA

EDM

```
Name:        Statue of Eureka3D
Description: From the XII Century, the...
Author:      Ignacio Lamata Martinez
```

PARADATA

DIGITISATION process

UPLOAD to EU cloud

EUREKA3D Data Hub

Authentication and Authorisation

Data Management

Compute power

DATA

PARADATA

WEB

PRIVATE

Storage

Virtual Machines (servers)

B2HANDLE

USER INTERFACE
(Access to metadata and 3D visualisation)

boat.obj

DOWNLOAD of data

e-Archiving
(long time preservation)

eosc

Co-funded by the European Union

EUreka3D is co-funded by the Digital Europe Programme of the European Union
GA n. 101100685

Competence

EUREKA 3D
Co-funded by
the European Union

Knowledge & experience + a clear mind to provide services to the CH sector

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

EUREKA3D
Co-funded by the European Union

Thank you for your attention

antonella.fresa@photoconsortium.net

PHOTOCONSORTIUM

FOLLOW US!

www.eureka3d.eu info@eureka3d.eu

https://www.digitalmeetsculture.net/eureka3d-blog/