



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

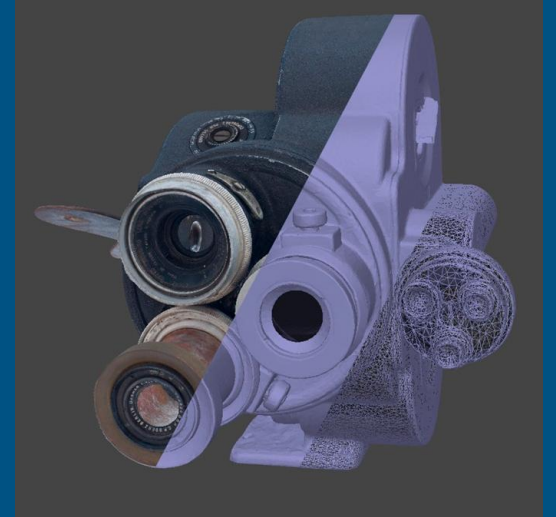
By Axelle Vanmaele &
David Iglésias

Challenges in 3D digitisation: experiences and resources



Overview

1. 3D digitisation in archive collections - David Iglésias
2. From 3D to XR in EUreka3D-XR - Axelle Vanmaele



Why 3D digitisation in Archives?

Archive is primarily a space for preservation and custody



- A space for **discovery, knowledge and experimentation** about information
- 3D digitisation: a faithful representation for **analysis, research, and entertainment**
- Archives as the main resource for **Memory Twins** related to our heritage.

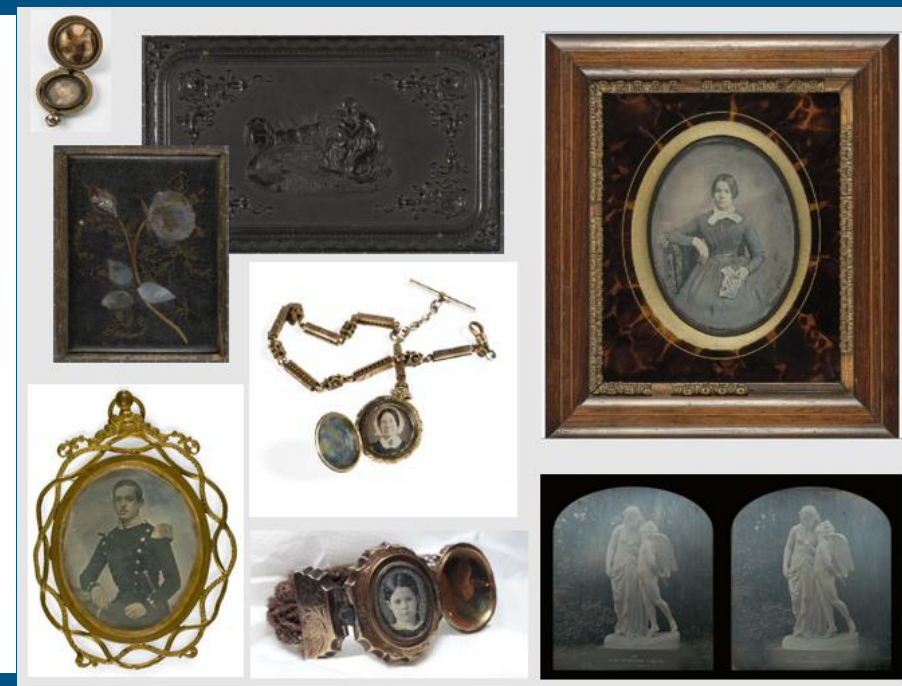
Previous experience: the daguerreotype CRDI collection



LA TEMPESTA

99 daguerreotypes in 3D

- Three pro cameras at different heights
- 144+ photos per daguerreotype (24*6)
- Hyperfocal length to achieve high depth of field
- Same focal length for all cameras
- Adaptation (mounting base, orientation...) depending on the daguerreotype's requirements



Challenges for managing a 3D collection

✓ **Achieving high-quality digital reproduction**

Skilled professionals, a working methodology, the ability to analyse the complexity of the objects to be reproduced, and criteria to assess the results.

✓ **Making the content accessible**

Not only well-documented objects, but also a specific infrastructure.

✓ **Preserving the 3D objects**

Managing file formats and paradata

EUreka3D & EUreka3D-XR projects

1 How do we digitise in 3D?

2 How do we manage the content?

3 How do we make it accessible?

EUreka3D (2023-2024) and EUreka3D-XR (2025-2026) are two projects coordinated by **Photoconsortium International Association** and co-funded by EU under the Digital Europe Programme

- EUreka3D focused on supporting CHIs with 3D digitisation, promoting **quality** and developing a **European based digital infrastructure**
- EUreka3D-XR continues the initiative with a focus on **transforming cultural contents** (e.g. 2D, 3D, video, texts, maps, stories) into **compelling narratives and extended reality (XR) scenarios**

12 partners from 8 EU countries and Switzerland participate in EUreka3D-XR



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How do we digitise in 3D?

Technical requirements written at Study on Quality in 3D Digitisation of Tangible Cultural Heritage (VIGIE 2020/654)

3D Digitisation Guidelines: Steps to success
A guide based on the EU VIGIE Study on quality in 3D digitisation of tangible cultural heritage

DOWNLOAD IT



Coordinatore scientifico: Prof. Dr. Ingrid Isenhardt - ICI - Universität Bonn
Coordinatore tecnico: Prof. Dr. Ingrid Isenhardt - ICI - Universität Bonn

EUREKA3D European Union's
REKconstructed content in 3D



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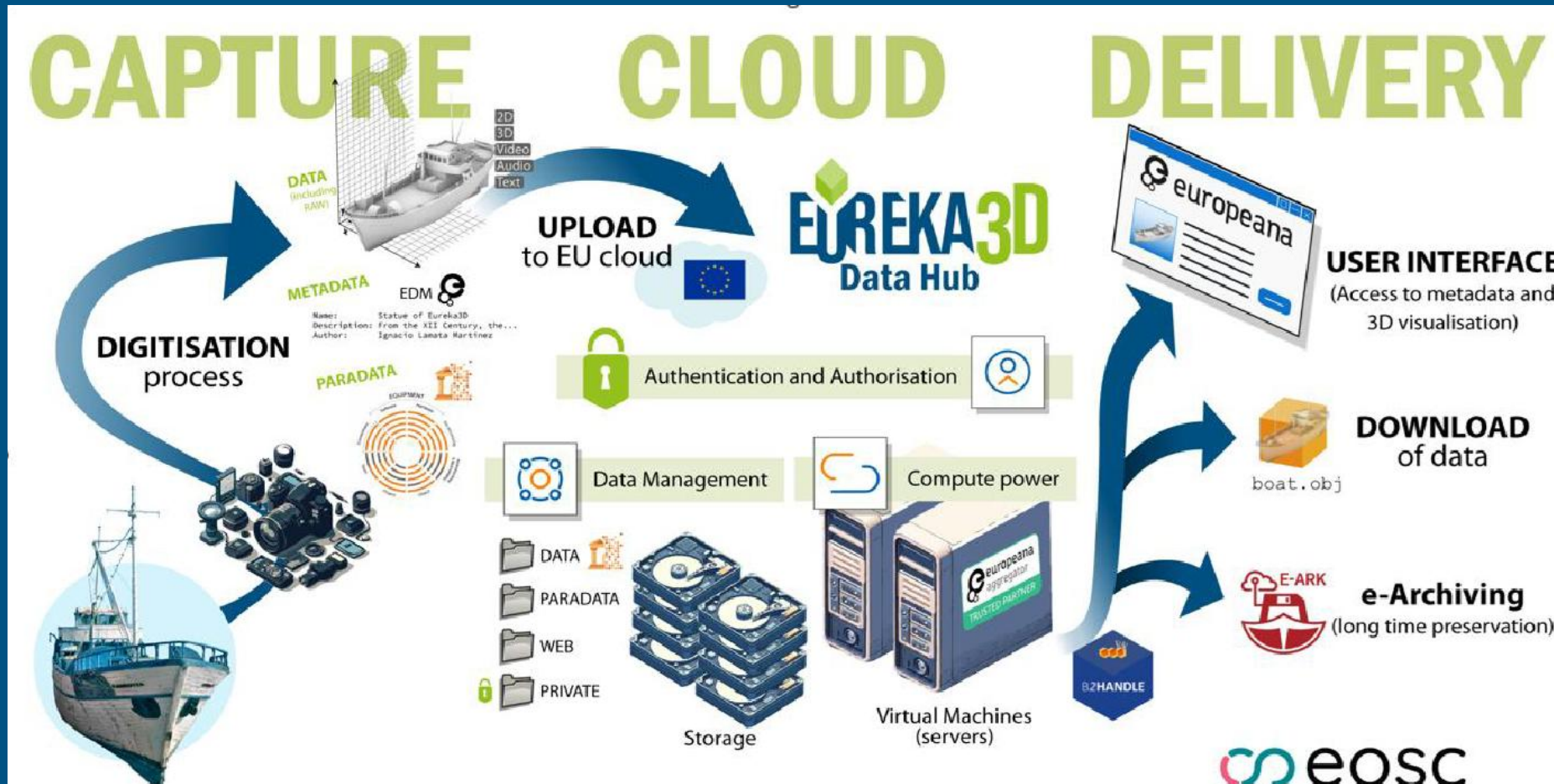


**Study on quality in 3D digitisation
of tangible cultural heritage:
mapping parameters, formats,
standards, benchmarks,
methodologies, and guidelines**

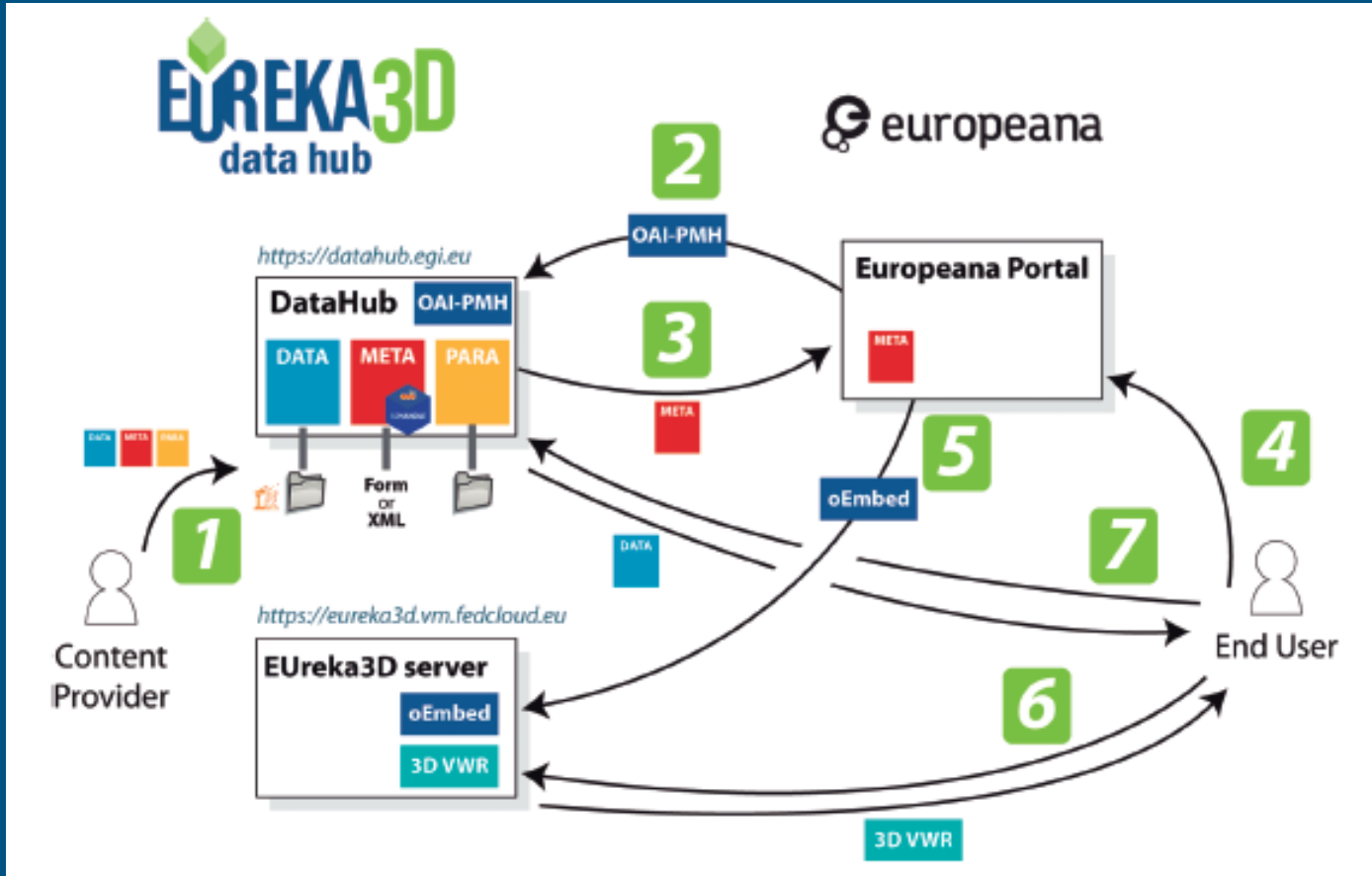
Executive Summary



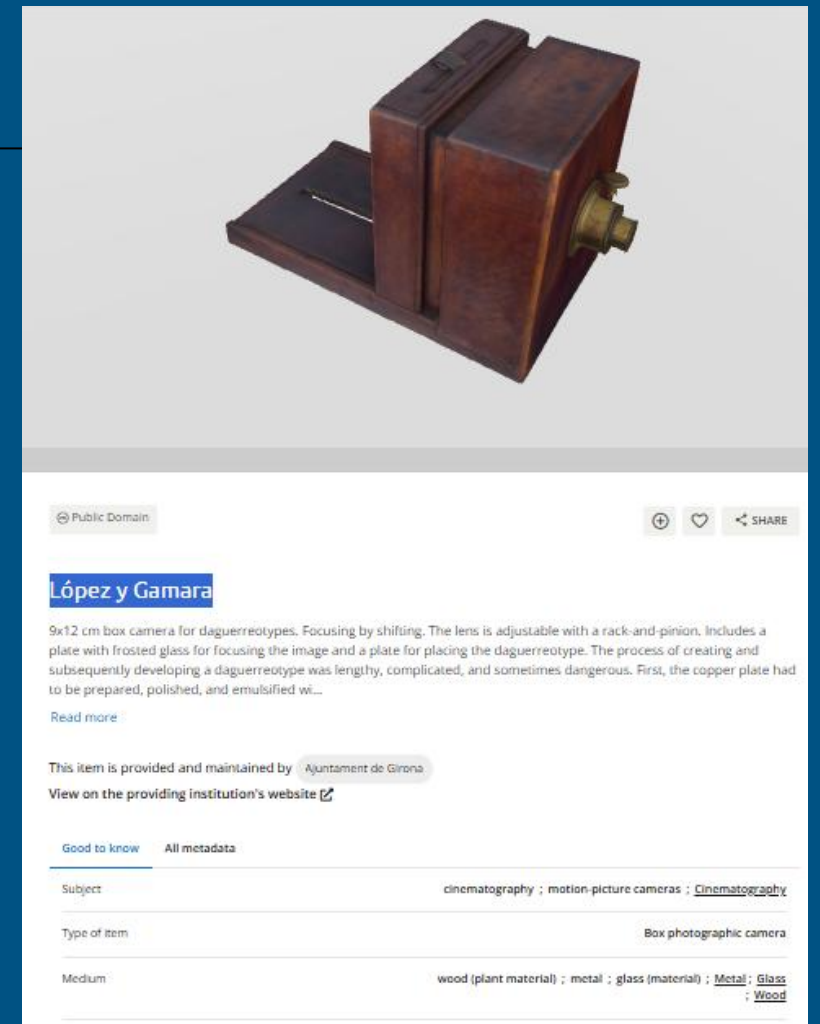
How do we manage the content?



How do we make it accessible?



- EDM adopts the principles of semantic web representation (RDF).
- It allows the reuse and combination of different vocabularies.



From 3D data to XR experiences

Reuse and capacity building in EUreka3D-XR

EUreka3D-XR – European Union's REKconstructed content in 3D to produce XR experiences



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From 3D data to XR experiences

Why invest in XR as a cultural heritage professional?

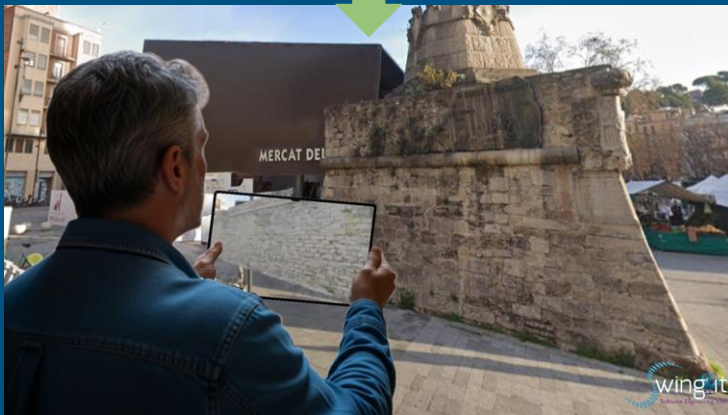


Challenges

- limited skills
- lack of tools & resources
- complex workflows
- where to start?

Eureka3D-XR provides

- XR tools
- pilot scenarios
- training resources
- workflows and guidance



From 3D data to XR experiences

The EUreka3D-XR toolbox

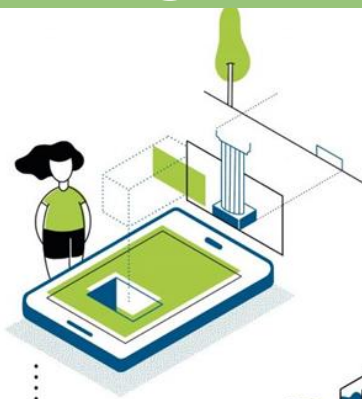
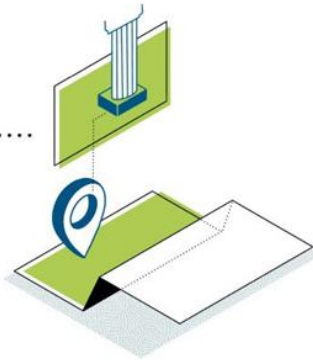
5 tools supporting different reuse scenarios



Discover the tools!

AR TOUR BUILDER

Online tool for creating custom AR tours, retrieving 3D objects from Cultural Heritage repositories and associating them with locations on a map.

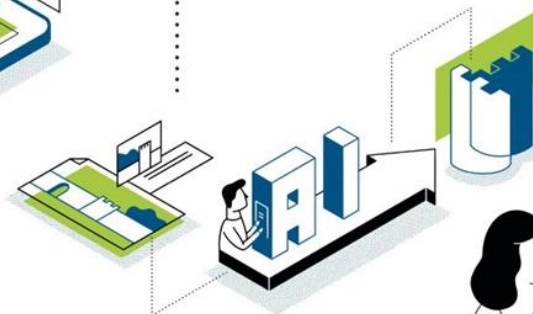


AR TOUR EXPERIENCE

Mobile app that allows visitors to experience phygital tours, superimposing 3D digital objects onto the physical world.

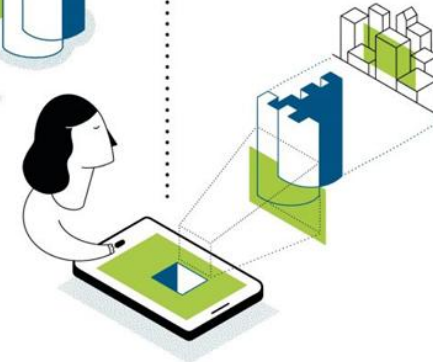
AI 3D BUILDER

3D Modelling software pipeline that reconstruct cultural heritage sites using AI technologies, digital photo and archival documents.



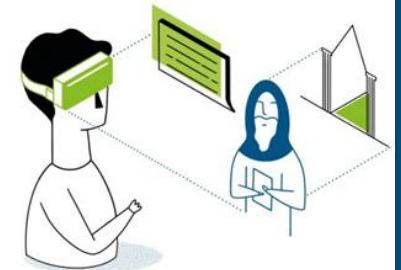
3D XR STUDIO

Web tool for creating XR/AR experiences using a range of predefined layouts for UX and UI.



AVATAR BUILDER

AI-based tool to create the digital representation of human characters that interact with visitors of cultural heritage sites.



From 3D data to XR experiences

The EUreka3D-XR pilot scenarios



Get inspired by the demo scenarios!

GIRONA (CAT)

The virtual visualisation of the middle-ages walls of the city of Girona.



BIBRACTE (FR)

The AR narrative of the hidden side of the Bibracte archaeological site.



PAPHOS (CY)

The creation of a new life of Saint Neophytos Englystra in Cyprus in the virtual space.



Different heritage contexts → different XR approaches

From 3D data to XR experiences

Capacity building in EUreka3D-XR

EUreka3D-XR helps professionals to ...

1. reuse 3D assets
2. start experimenting with XR
3. build digital skills
4. and create engaging visitor experiences



Capacity building resources



Co-funded by the European Union



**EUreka3D – European Union’s REKonstruced
content in 3D to produce XR experiences**



www.eureka3d-xr.eu



LinkedIn: [EUreka3D-XR](#)
Instagram: [@EUreka3D_XR](#)
YouTube: [@Eureka_3DXR](#)
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Ajuntament de Girona
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CRDI



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