Re-envisioning Cultural Heritage Documentation in the Metaverse Age

Summer SCHOOL 2023

23-27 OCT 2023

The EU Digital Europe Project EUreka3D: Implementing a Data Cloud on Cultural Heritage

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Context in the cultural heritage sector

A recent Recommendation from EC demands CHIs for a **bigger effort in 3D digitization**, especially but not limiting to built heritage.

The digitized collections should be **made available online** to the various stakeholders communities (researchers, creative industry, education, tourism, and of course general public) with possibility of reuse.

In particular, **Europeana is the flagship project** of the EU to provide online visibility and access to the digitized collections, and is at the basis of the European common data space for cultural heritage.

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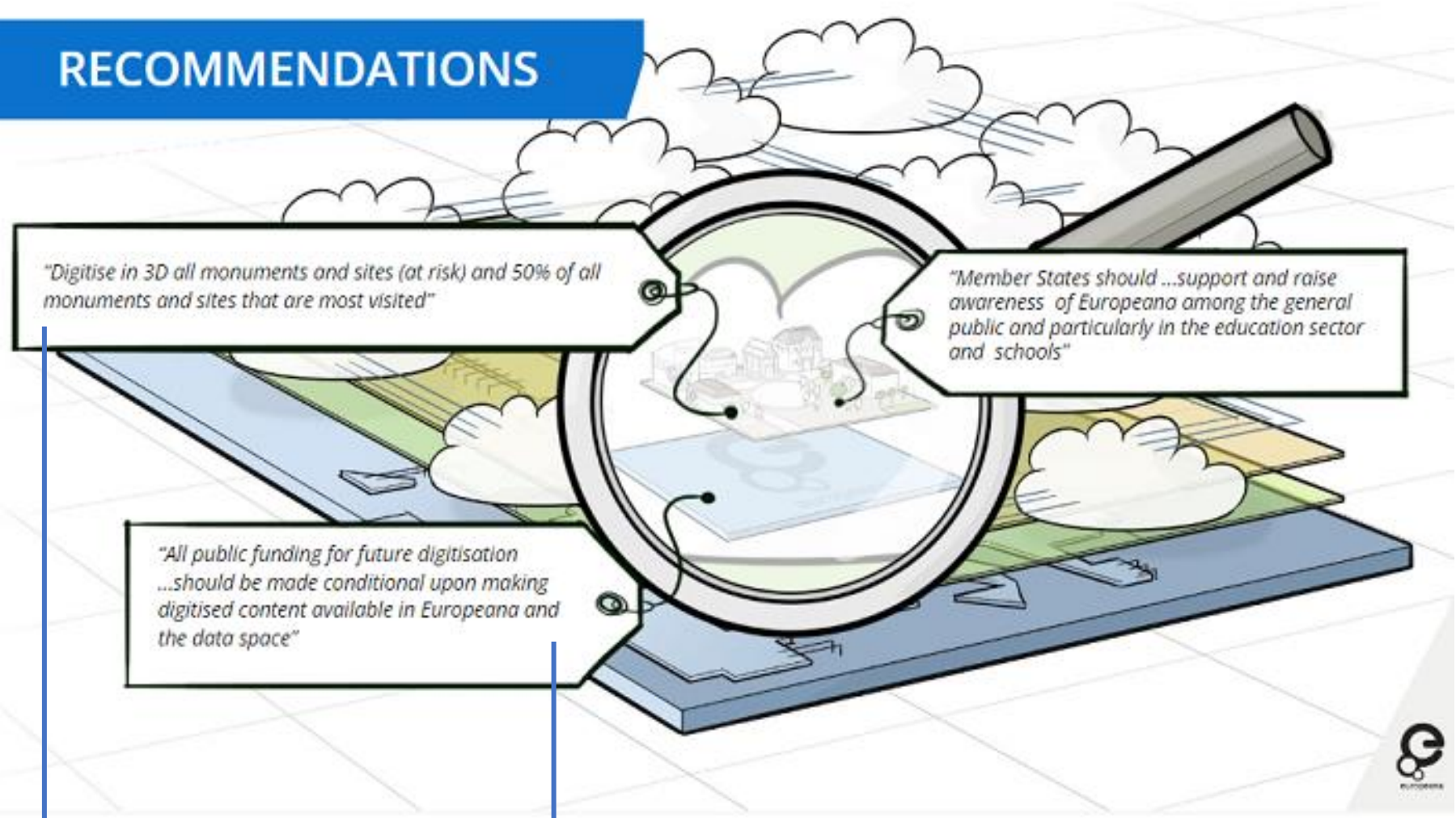

What to digitize?
With what quality?
Where to store the models?

What information to capture and share?
What rights to apply?

The common European data space for cultural heritage is an initiative of the European Union and funded under the European Union's Digital Europe Programme.

It was announced in Commission Recommendation C(2021)7953 dtd 10 November 2021, along with a number of targets to achieve.

Various projects are funded to support the creation and deployment of the Data Space for Cultural Heritage.

Challenges

Not all CHIs have in-house expertise, skills, nor capacity for identifying a quality service and for recognizing **high quality 3D digitization**.

Not all CHIs have access to proprietary infrastructures that allow to host, manipulate and visualize high quality, large scale, 3D models, so they **need to buy e-infrastructure services**:

- Service provided by whom? Data from European CHIs should better stay in Europe
- Long-term cost of service? Investment sustainability?

Variety of content and variety and complexity of information makes 3D digitization and its online sharing in Europeana often difficult.

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VIGIE Study 2020/654

Enabling high quality 3D digitization

EC commissioned Study performed by CUT

- Goal: to produce a **framework** that would enable cultural heritage professionals, institutions and other custodians of cultural heritage, providers of 3D digitisation services for cultural heritage and other researchers in 3D digitisation technologies to define and produce **high quality 3D digitisation projects** for tangible cultural heritage.
- The Study maps parameters, formats, standards, benchmarks, methodologies and guidelines which relate to 3D digitisation of tangible cultural heritage, **to different potential purposes or uses** and to general-purpose visualisation, by type of tangible cultural heritage, whether immovable or movable, and by degree of complexity.
- To be used in-house by CHIs or shared by CHI to the technical partner so to set **requirements of the digitization service**.

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Implementing the Study in CHIs

- There are **no internationally recognized standards** or guidelines for planning, organising, setting up and implementing a 3D data acquisition project, nor for meta/para -data schemas to be used.
- Factors such as the stakeholder requirements (available budget and time, expected use, required quality/accuracy), the characteristics of the object (size, geometry, surface, texture, material composition, state of conservation, location), the level of competence of the personnel involved and the type of equipment used, condition the production effort and have a **direct impact on the quality of the final output**.
- As a consequence, **each CHI needs to understand and decide** what is feasible for them and what they want as a minimum for the final output.

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Additional deployment efforts are needed

- Guidance to CHIs in determining the **best balance to meet acceptable quality** in 3D models creation and meta/para-data compilation, taking into account the constraints CHIs have.
- Pressing and urgent need for a technical specification to ensure **interoperability and longer term sustainability** of 3D data metadata and paradata, especially to enable a fully functional Data Space for Cultural Heritage.
- Definition of **harmonised means** to annotate 3D content, to combine 3D with audiovisual content, or to embed additional dimensions (e.g. time, material and story).

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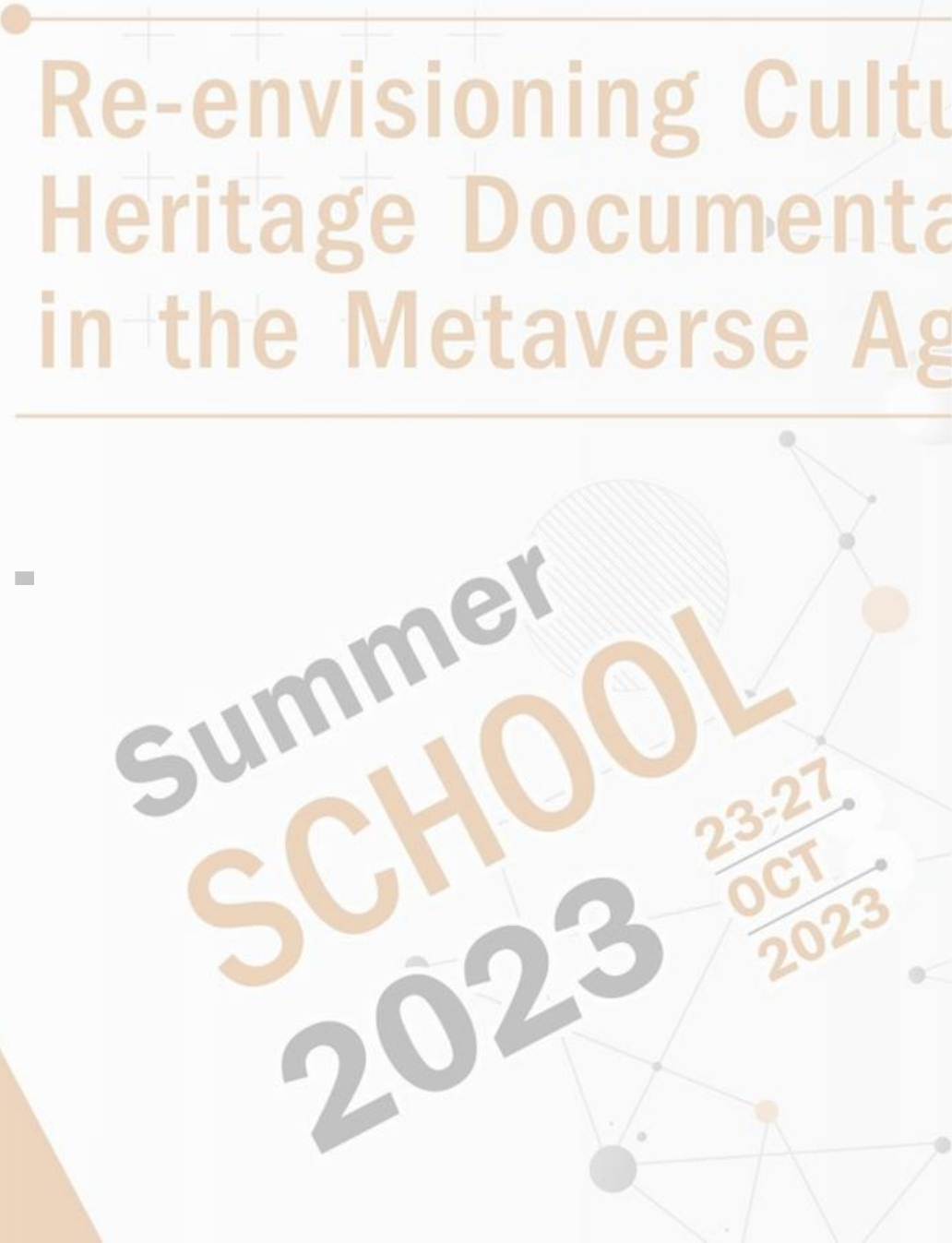
3D models and IP

Enabling lawful and effective possibilities of reuse for 3D models



Do rights apply to digitized CH collections?

- In principle, copyright protects a work if it is original, i.e. if it is the author's own intellectual creation (human creation and/or implying creative choices).
- This in principle suggests that a plain reproduction (either in 2D or 3D) of cultural heritage should not generate new rights.
- For this reason, consequence seems to be that, given the heritage is public domain, its digitized version (data) should be public domain.
- The meta- and para- data associated to the object however can be author's own intellectual creation, e.g. in the provision of title and description.
- There is not a consensus on this by all Member States, with national laws operating differently.

What if rights apply?

- The fact that possible rights exist on the collection or need to be applied by (national) law does not mean that the objects cannot be accessible and reusable.
- Permissions can be granted by the content holder, with different possibilities or allowed domains of reuse.
- Available rights statements enable to describe as accurately as possible the rights status of the collection/objects.
- In Europeana, it is mandatory to include the rights label for each object in order for the collection/object to be published on Europeana website.

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Choosing a rights statement

Europeana Licensing Framework

europeana

Actual scenario

- Heritage belongs to the citizens, but is managed and preserved by organizations, public and private.
- Materials in the public domain and historical items are in the hands of some authority, who makes the decision to digitize in 3D or not, and to share online or not.
- They have budget limitations and need for sustainable preservation models.
- They are also bound to national laws on copyright, which are not unified at European level. Some countries apply copyright or protection on digital reproductions of heritage (e.g. Bulgaria, Italy…)
- While everybody agrees on enabling digitization and online access, consensus needs to be built among different interests, constraints, and existing barriers.

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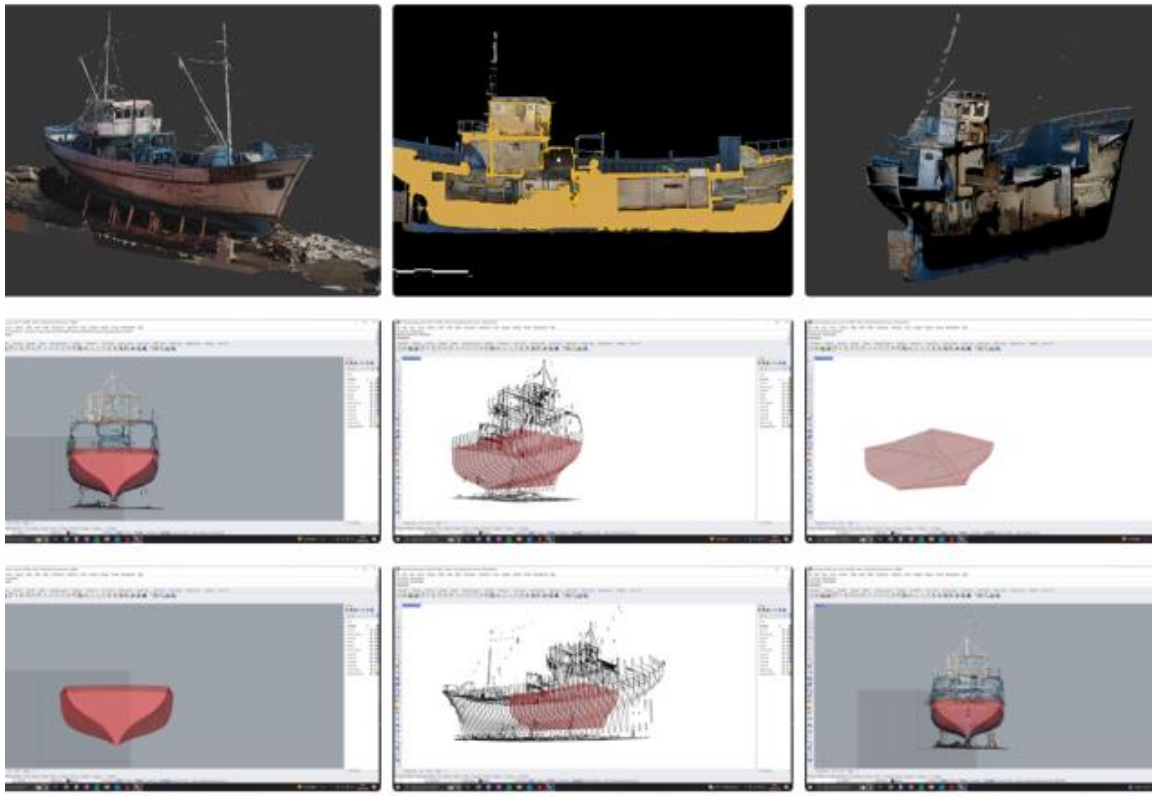
Case 1: Lambousa boat

- The fishing boat Lambousa, built in 1955, is considered a historical monument of the newest Cyprus culture
- It is property of the Limassol Municipality and one of Limassol popular visitable attraction. It has been docked for the past few years in a corner of the Karnagio shipyard, where it is eaten away by sea salt and weather conditions
- Restored in the context of EU funded preservation projects and digitized in 3D in the context of Mnemosyne and EUreka3D project
- The high quality model will be published in Europeana



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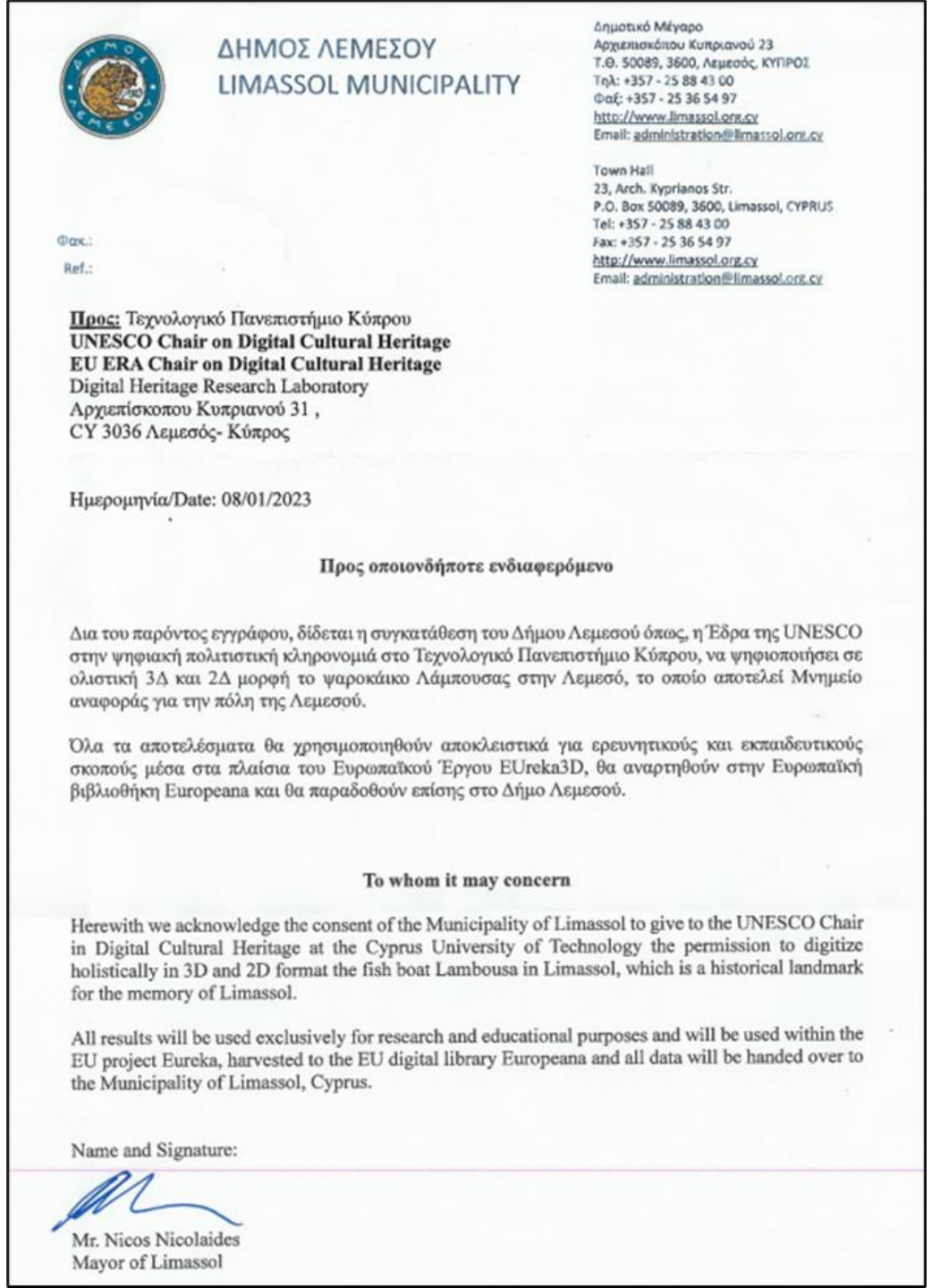
- Digitization and holistic documentation is done by Cyprus University of Technology
- Consent to digitize is obtained by the Municipality of Limassol, all the data will be handed over to the Municipality
- Agreement on the type of reuse allowed for the 3D model. In this case: research and education purposes
- Label to be applied to the record in Europeana will be compliant with this agreement



ΔΗΜΟΣ ΛΕΜΕΣΟΥ
LIMASSOL MUNICIPALITY

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EU ERA Chair on Digital Cultural Heritage
Digital Heritage Research Laboratory
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CY 3036 Λεμεσός- Κύπρος

Ημερομηνία/Date: 08/01/2023

Προς οποιονδήποτε ενδιαφερόμενο

Δια του παρόντος εγγράφου, δίδεται η συγκατάθεση του Δήμου Λεμεσού όπως, η Έδρα της UNESCO στην ψηφιακή πολιτιστική κληρονομιά στο Τεχνολογικό Πανεπιστήμιο Κύπρου, να ψηφιοποιήσει σε ολιστική 3Δ και 2Δ μορφή το ψαροκάικο Λάμπουσας στην Λεμεσό, το οποίο αποτελεί Μνημείο αναφοράς για την πόλη της Λεμεσού.

Όλα τα αποτελέσματα θα χρησιμοποιηθούν αποκλειστικά για ερευνητικούς και εκπαιδευτικούς σκοπούς μέσα στα πλαίσια του Ευρωπαϊκού Έργου EUreka3D, θα αναρτηθούν στην Ευρωπαϊκή βιβλιοθήκη Europeana και θα παραδοθούν επίσης στο Δήμο Λεμεσού.

To whom it may concern

Herewith we acknowledge the consent of the Municipality of Limassol to give to the UNESCO Chair in Digital Cultural Heritage at the Cyprus University of Technology the permission to digitize holistically in 3D and 2D format the fish boat Lambousa in Limassol, which is a historical landmark for the memory of Limassol.

All results will be used exclusively for research and educational purposes and will be used within the EU project Eureka, harvested to the EU digital library Europeana and all data will be handed over to the Municipality of Limassol, Cyprus.

Name and Signature:

Mr. Nicos Nicolaides
Mayor of Limassol

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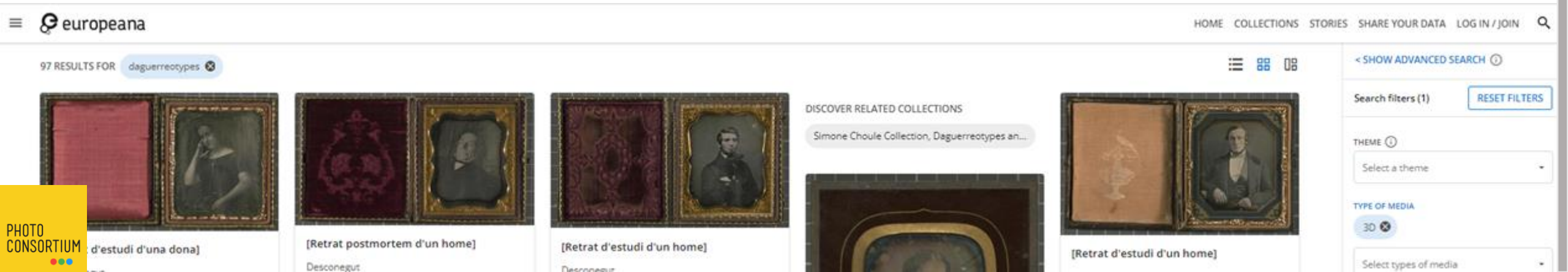
Case 2: Daguerreotypes (Girona)

- Daguerreotypes are the first example of photography, dating back in the 1830s. It is by definition material in the Public Domain as copyright expired
- One of the best collections is preserved at CRDI the Municipal Archive of the city of Girona
- As a public body, CRDI is subject to a specific law that regulates the reuse of public heritage. When there are no legal obstacles, it is mandatory to provide free access and free reuse to public heritage collections
- 2D collection was already published in Europeana with PD mark, and it was re-digitized in 3D
- Digitisation in 3D was carried out by a specialized company on behalf of CRDI: a public tender was launched by the Ajuntament de Girona to select the service provider



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- Differently from other countries, in Spain the reproduction does not generate new/additional rights, so there was no need for specific agreements with the service provider
- The 3D collection in Europeana was in facts labelled PD as well

Derivative works:

- In the case that CRDI wants to use the 3D daguerreotype to create new resources such as an interactive / immersive application, or a videogame, new rights will arise
- It will be necessary to clear it with the service provider, so to acquire the copyright in order to be able to make the resource available, e.g. with CC0 or CC BY-NC-ND

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EUreka3D project

Implementing a Data Cloud in the Data Space for Cultural Heritage

Co-funded by
the European Union

EUreka3D project 01/01/2023 – 31/12/2024

EUreka3D is a strand 2 Data Space project to support digital transformation of the cultural heritage sector.

Capacity building programme, **e-services and computing and storage resources** are at the basis of a **data hub** piloting action that involves e-infrastructure providers and cultural heritage institutions.

Aggregation of new collections in Europeana, communication and impact assessment complement the work of the project.

Website: https://eureka3d.eu

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

Co-funded by the European Union

Core activities in 24 Months

e-infrastructure services development including:

- Access to **European computing and storage resources**
- Methods on **authorization and authentication** with different levels of interaction with users
- **Visualization tools** for showcasing and sharing 3D models of different formats and size
- Publication of services on the **European Open Science Cloud** (EOSC)

Capacity building action on:

- Implementing 3D digitization of objects ex-novo and assessing quality of existing 3D collections against the **VIGIE 2020/654 Study** recommendations
- **Impact assessment** of high-quality 3D digitization workflows on CHIs
- Integrating **data, metadata and paradata** in Europeana Data Model
- **Events** in presence and online for the community at large

EUREKA3D

Co-funded by the European Union

Technical progress at month 10

- EUreka3D content partners have started 3D digitization of a variety of CH collections
- Cloud resources are allocated in a pilot (hardware, storage, visualization tools)
- Identity management system is configured for different user roles
- User requirements analysis is progressing
- Technical integration with Europeana and in the Data Space has started

UPCOMING

Demo event for EUreka3D platform
15 December 2023 - online

EUREKA3D

Co-funded by the European Union

Capacity building and networking

3D in cultural heritage, the first capacity building event of the project was successfully delivered on 6/6/2023 in Rome, hosted at the Istituto Svizzero (ca. 50 participants in presence and overall ca. 120 participants connected) in the context of the summer school **DHCH2023 Data Science and Digitization of Cultural Heritage.**

Support to content providers in accessing and understanding the requirements of the **VIGIE Study** 2020/654 is provided and work is ongoing for **digitization and metadata preparation**, also in connection with Europeana to **expand the EDM** to accommodate more contextual information and (at least some of) the paradata associated to the 3D models

The EUreka3D **stakeholders' network** is growing, with many professional and CHIs being engaged.

Next events

Three webinars are organized in collaboration with ICA International Council on Archives

Free and open to all interested, registration at: https://eureka3d.eu/transforming-heritage/

UPCOMING

Being digital, being standard. Guidelines for digitisation of cultural heritage
27 October 2023 – keynote by Ismo Malinen, Museovirasto

Boosting 3D digitisation for research and reuse of cultural heritage collections
10 November 2023 – keynote by Marinos Ioannides, CUT

3D Innovation and creativity in the cultural heritage sector
1 December 2023 – keynote by Valentine Charles, Europeana

EUREKA3D

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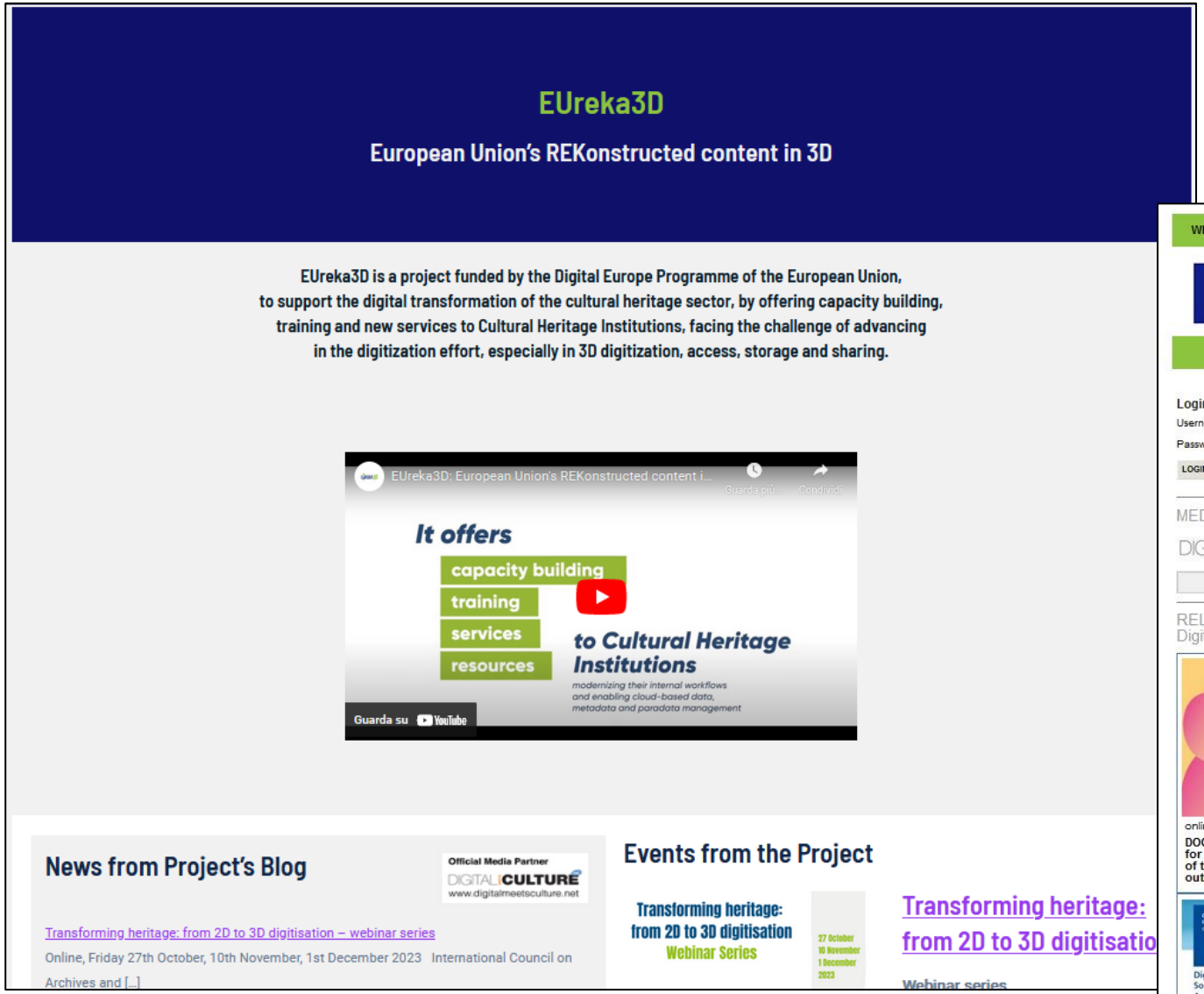

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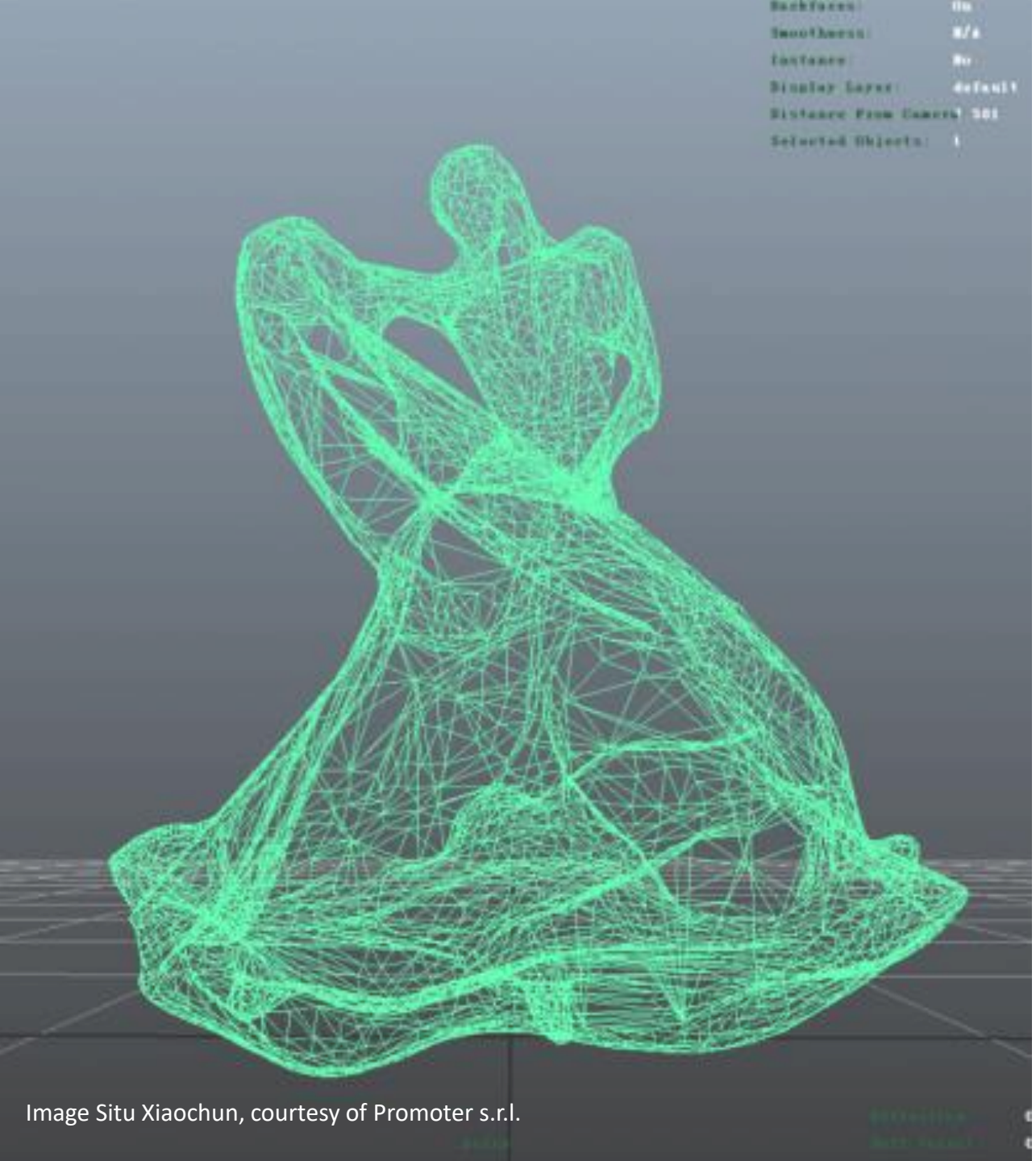

Image Situ Xiaochun, courtesy of Promoter s.r.l.

Thanks for your attention

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Q&A Time

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