XV JORNADA D'ESTUDI I DEBAT

Nous patrimonis, nous feudalismes: les servituds de la documentació digital

BARCELONA CAIXA FORUM — **15 DE MAIG DE 2024**

Associació de Professionals de l'Arxivística i la Gestió de Documents de Catalunya

Digital transformation of cultural heritage: challenges and opportunities, policies and good practices

Antonella Fresa
Photoconsortium International Association

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Documents de Catalunya

Contents of the presentation

➢ Digital cultural heritage and digital transformation

➢ Using digital technology to transform the work of cultural heritage organisations

➢ Which values to be delivered

➢ The common European Data Space for Cultural Heritage and the Commission
Recommendation of 2021

➢ Examples of good practices

➢ Impact of digital transformation on the society

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Digital cultural heritage

"*The identification and interpretation of historical information and cultural value embedded in peoples' heritage has become an essential and urgent requirement to form and strengthen national identities.*" (IFLA International Federation of Libraries Associations and Institutions, Digital Cultural Heritage: Theory and Practice, 19/2/2024)

Digital representation of cultural heritage include: archival records, texts, still images, audio and videos, graphics, web pages, …

All these contents are produced according to specific procedures and specifications.

To be accessible by different users and on different platforms the adoption of standards is needed.

Permanent management and maintenance of data is requested to preserve them for the longest possible time.

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Digital transformation

"*Digital transformation is both the process and the result of using digital technology to transform how an organisation operates and delivers value. It helps an organisation to thrive, fulfil its mission and meet the needs of its stakeholders. It enables cultural heritage institutions to contribute to the transformation of a sector powered by digital and a Europe powered by culture.*" (Europeana Foundation, Defining digital transformation for the cultural heritage sector, 6/11/2023)

To transform the work of cultural heritage organisations there is a need of capacity building in terms of:

- Human resources

- Digital infrastructures

- Procedures and policies

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Which values to be delivered

In addition to access and preservation, a question exists about cultural bias in the digital representation of cultural heritage

- A more inclusive and respectful approach is needed to describe cultural heritage

- AI technology can help to detect problematic terms in cultural heritage metadata and provide information about their background, but it can also introduce biases

- Efforts are needed to improve the representation of minority cultures

- Improve the capacity of cultural heritage institutions to analyse and to address biases in their collections

The case of Topfoto collection of Roma heritage

- Topfoto Image Archive: https://www.topfoto.co.uk/

- For older collections preserved by archives since a long time, it is possible that original descriptions of the items, or even the items themselves (e.g. heritage colonial videos, photographs, manuscripts, …), might include inappropriate terminology and offensive language towards the community that they intend to represent.

- This was the case of the TopFoto Roma collection dating back to 1950s and earlier.

- The collection included content depicting the Roma community.

- Review and validation of metadata was performed in collaboration with Roma media experts, ensuring correct, fair and unbiased representation of the community in the cultural heritage collection.

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Ref. 2002202

In Topfoto's image database, this 1940s portrait was simply titled

"Jettatura"

which by definition (Collins English Dictionary) means: *A curse of the evil eye, whereby all that the cursed looks upon will suffer bad luck.*

This original title dates back to the 1940s.

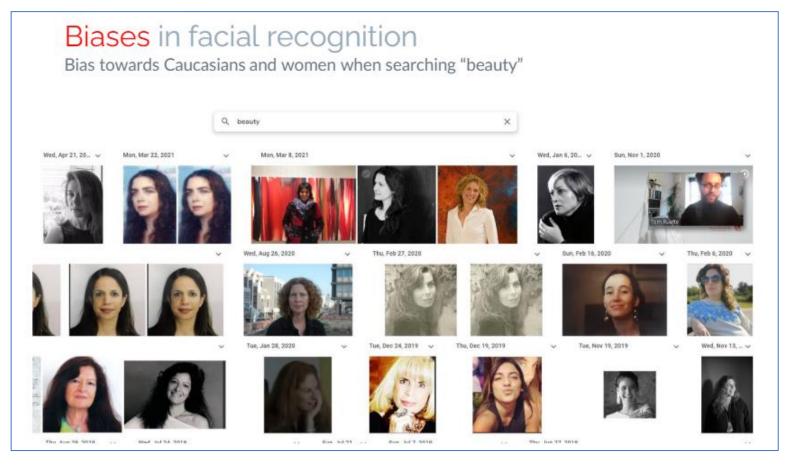The 2022 corrected title, appearing in Europeana by Topfoto, is

"Romani Woman – c. 1944"
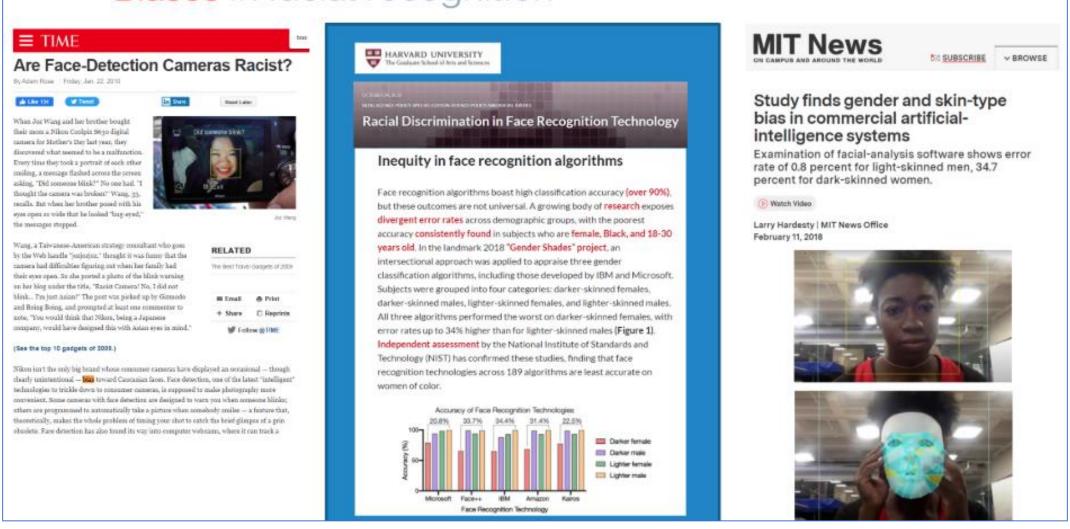
Algorithmic biases can occur

Due to coding based on assumptions and computer misunderstandings, gender, racial, and language algorithmic biases can occur.
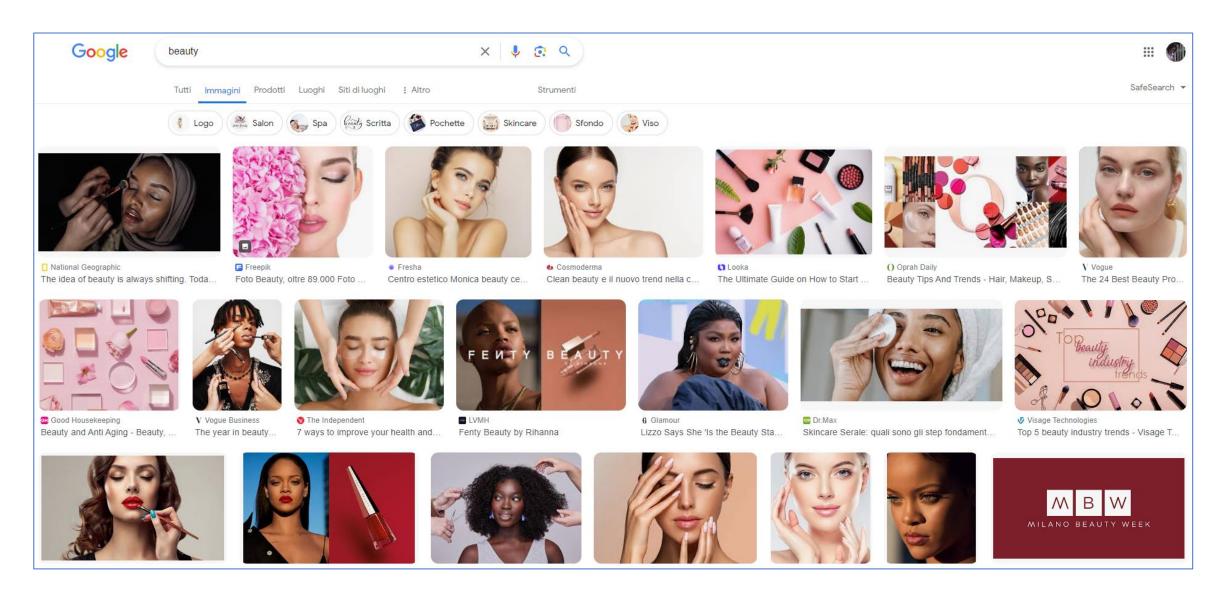

Search done in June 2022

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Biases in facial recognition

Pisa, 28/6/2022, Multiplier event, Citizen Heritage project, funded by Erasmus Plus Programme of the EU
Author: Dr. Allison Kupietzky, Collection Database Manager Head of Information Center for Israeli Art
https://www.citizenheritage.eu/wp-content/uploads/2022/06/4-Cataloguing-Large-Photo-Collections-Allison-Kupietzky.pdf

Search done in May 2024: still women but a stronger commercial presence

The common European Data Spaces

14 Data Spaces:

Agriculture	Health	Public administration
Cultural Heritage	Language	Research and innovation
Energy	Manufacturing	Skills
Finance	Media	Tourism
Green Deal	Mobility	

- To unlock the potential of data-driven innovation
- To allow data to be made available and exchanged in a trustworthy and secure manner
- To enhance the development of new data-driven products and services in the EU

https://digital-strategy.ec.europa.eu/en/policies/data-spaces

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The common European Data Space for Cultural Heritage

- The common European Data Space for Cultural Heritage is the flagship project of the EU to accelerate the digital transformation of Europe's cultural sector

- Announced in the Commission Recommendation C(2021)7953 of 10 November 2021

- To improve availability of high-quality cultural contents in the digital world

- To foster the reuse of digitised cultural resources

- To complete the deployment of the **Europeana** digital service infrastructure platform

- To support cultural heritage institutions in making use of digital advanced technologies

- To increase the offer of 3D and extended reality (XR) cultural contents and scenarios

- To offer training and capacity building opportunities to cultural heritage institutions

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The new webpage for the common European Data Space for Cultural Heritage

The new website was launched on 30/4/2024

http://www.dataspace-culturalheritage.eu/

The Europeana platform

https://www.europeana.eu/en

Commission Recommendation

On 10/11/2021 the European Commission published a Recommendation addressed to the Member States of the European Union on a common European data space for cultural heritage.

The purpose of the Recommendation is to accelerate **digitisation and preservation** efforts of cultural heritage institutions and to exploit the opportunities created by the digital transformation.

All types of cultural heritage are considered: tangible, intangible, natural, born digital, with a special emphasis on cultural heritage at risk.

3 main ambits of intervention in the cultural heritage sector are taken into account:

- Digitisation

- Digital preservation

- Digital transformation

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Digital strategy for digitisation and preservation of cultural heritage

- Member States are recommended to develop a digital strategy for cultural heritage at national and regional levels

- Collaboration of all the concerned stakeholders and parties, both cultural heritage institutions and competent authorities, is foreseen to provide resources and support for the strategy's implementation

- Advanced technologies should be taken up, such as **3D**, artificial intelligence, extended reality, cloud computing, data technologies and blockchain, to enable an efficient process of digitisation, digital preservation of the digitised cultural resources, a wider access to high quality content, and their use and reuse

Holistic approach:

- Purpose of the digitisation

- Target user groups

- Highest affordable quality

- Long-term financial and staffing resources

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Key features of the digital strategy

- To establish partnerships between the cultural heritage sector, higher education and vocational training, creative industries and sustainable cultural tourism

- To laid down clear and fair conditions for using and reusing the digitised assets (rights and licenses)

- To assess digital skills gaps, to identify and to address the needs in the sector

- To take advantage of the current copyright framework, supporting cultural heritage professionals in acquiring skills and providing copyright expertise

- To showcase and promote success stories

- To encourage cross-border collaborations

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Guiding principles

- To adopt to standards (e.g. Europeana Data Model and RightsStatements.org)

- To adhere to quality frameworks (e.g. the VIGIE Study on 3D digitisation)

- To enhance the potential reuse in social sciences and humanities, sustainable cultural tourism, cultural and creative sectors

- To help identify cultural goods that are illicitly trafficked

- FAIR principles (findable, accessible, interoperable and reusable)

- To include in particular **3D digitised cultural heritage assets**

Objectives foreseen for the national and regional strategies

Very precise targets have been set in the Recommendation for the elaboration of the national and regional strategies.

Digitisation and digital preservation (terrific) goals

By 2030:

- All monuments and sites at risk

- 50% of the most physically visited cultural and heritage monuments, buildings and sites

Intermediate goal by 2025:

- 40 % of the overall 2030 targets

Expert Group on a common European Data Space for Cultural Heritage

The Expert Group on a common European Data Space for Cultural Heritage (CEDCHE) is a group launched by the European Commission in November 2021.

- Forum between the European Commission, Member States and UNESCO

- To review and discuss policies for digital cultural heritage and the common European data space

- To advice and help monitor the implementation of the Recommendation on a common European data space for cultural heritage adopted on 10 November 2021

- The 27 EU Member States have each appointed representatives to take part in the group, with UNESCO as observer

https://digital-strategy.ec.europa.eu/en/news/expert-group-common-european-data-space-cultural-heritage

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Examples of good practices

- Managing data-metadata-paradata

- Infrastructure services: storage, computing, authentication&authorisation

- Sharing collections in the virtual world

The VIGIE Study on quality in the 3D digitisation of tangible cultural heritage

EUreka3D Data Hub and 3D collections

EUreka3D-XR virtual scenarios

The VIGIE Study

The VIGIE 2020/654 Study on quality in the 3D digitisation of tangible cultural heritage:

https://digital-strategy.ec.europa.eu/en/library/study-quality-3d-digitisation-tangible-cultural-heritage

Data acquisition of tangible cultural heritage comes with different degrees of complexity depending on the user scenarios and context:

- Small artifacts in controlled environments

- Sites

- Monuments

- Underwater or in caves objects

> Movable cultural heritage

> Immovable cultural heritage

Scope of the digitisation: preservation, exhibition, re-use, etc.

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A Guideline based on the EU VIGIE 2020/654 Study:

- Why digitise in 3D

- Quality and complexity

A Step-by-step guide:

- Start with a project plan

- Documentation and site work

- Production and delivery

- Archive

And eventually: publication and dissemination

3D Digitisation Guidelines: Steps to success

A GUIDE BASED ON THE EU VIGIE2020/654 STUDY ON QUALITY IN 3D DIGITISATION OF TANGIBLE CULTURAL HERITAGE

EUREKA3D
European Union's REKonstructed content in 3D

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TwIN iT!
3D FOR EUROPE'S CULTURE
europeana

EUreka3D: the project

European Union's reconstructed content in 3D

EU project co-funded by the Digital Europe programme

https://eureka3d.eu/

Start date: 1/1/2023

Duration: 2 years

Coordinator: Photoconsortium Internation Association

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

Museums, galleries, libraries, archives and archaeological sites need to review and modernise their internal processes from digital capture to end-user access and re-use

- to review their infrastructure capacity
- to (re-)train their personnel to cope with the new digital responsibilities and roles
- to represent a novel holistic documentation of the digital objects

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EUreka3D outcomes

The solutions developed aim to cover the whole value chain of digitization:

- EUreka3D Data Hub: dedicated cloud-based services for the management and preservation of cultural contents in a safe and IP-mindful environment

- High-quality 3D digitization

- Aggregation of new contents in Europeana

- Webinars, demonstrations and guidelines

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EUreka3D latest events

Transforming heritage: from 2D to 3D digitisation

Three sessions organised in collaboration with ICA, focusing on guidelines for digitisation, 3D digitisation for reuse and research, innovative initiatives in 3D

27/10,10/11, 1/12/2023, recording available online:
https://eureka3d.eu/transforming-heritage/

Paradata, Metadata and Data for 3D acquisition in cultural heritage

- 8/4/2024, recording available online: https://youtu.be/SdTGUXU75s0
- 17/5/2024 at 6 pm, online, registration: https://eureka3d.eu/webinar-paradata/

Preserving Values through #MemoryTwins

29/5/2024, hybrid public demo event, Lymasso, Cyprus registration:
https://eureka3d.eu/eureka3d-preserving-values-through-memorytwins/

Final event in Girona on 12-13 December 2024: STAY TUNED!

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EUreka3D-XR: the project

A continuation of EUreka3D to develop innovative scenarios of extended reality (XR)

EU project co-funded by the Digital Europe programme

Start date: 1/1/2025

Duration: 1,5 years

Coordinator: Photoconsortium Internation Association

Partners: CRDI, Bibracte, Cyprus University of Technology, EGI, Cyfronet, IMEC, SWING, 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

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EUreka3D-XR expected outcomes

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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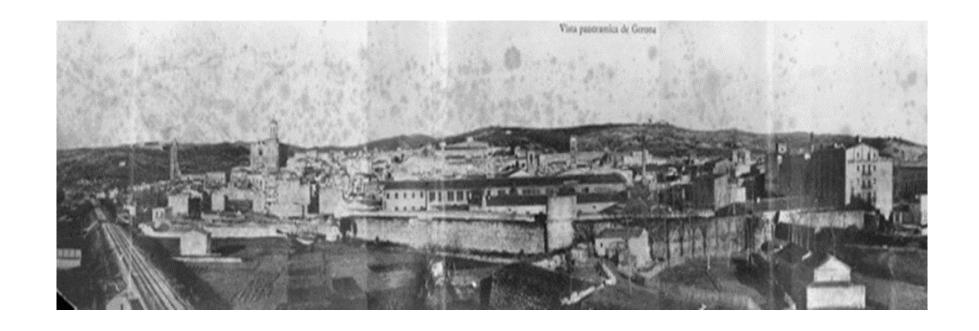
EUreka3D-XR: the walls of Girona

The EUreka3D-XR application will re-use 3D digitisation of what remains and 2D contents from the city archive, to reconstruct the walls as they have been.

3D contents	2D records
Models of the towers	Photographs
Models of the bastions	Maps
Remaining sections of walls of the city of Girona	Documents
Videos	**Audio**
Films of the walls before destruction	Interviews

The virtual scenario will not be just the geometric representation of existing heritage:

It is a "**memory twin**".

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The demolition of mediaeval walls destroyed at the beginning of the 20th century transformed completely the urbanism of the city to offer new possibilities of expansion

EUreka3D-XR: the Celts of Bibracte

The EUreka3D-XR application will use the wide range of materials linked with excavation, both exhibited in the museum and kept in the archives of the research centre, to offer an interactive XR experience of the archaeological site.

3D contents	2D contents
Digital models of land	Facsimiles of old documents
Digital models of building remains	Maps
Digital models of objects	Geophysical prospecting maps
Digital models of the museum	2D and 2D+ for ground penetrating radar
Videos	**Audio**
Films of the Celts walls construction	Interviews

The virtual scenario will not be just the geometric representation of existing heritage:

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Bibracte, Mont Beuvray, aerial view towards the northeast of Pâture du Couvent" (Bibracte/A.Meunier, 2020, no.125833)

EUreka3D-XR:
Saint Neophytos Englystra in Cyprus

3D models of the site of Saint Neophytos will be enriched by giving life to virtual people in the Monastery.

Virtual monks will be moving in the physical Englystra space, simulating the life inside the monument according to the documents available.
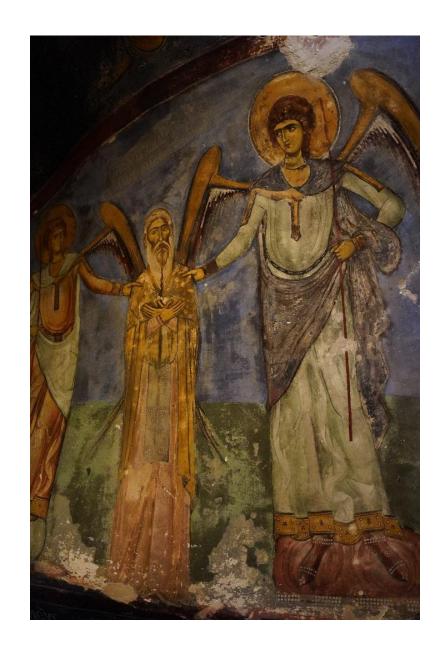
The virtual Saint Neophytos will tell his story, using generative AI to produce the narrative in multiple languages.

3D contents	2D contents
Digital models of the tomb	Archival documents
Digital models of the cells	Manuscripts
Digital models of the oratory	Digitisation of frescos
Videos	**Audio**
Films of the Hermitage	Synthetic voice of the monks and of the Saint

The virtual scenario will not be just the geometric representation of existing heritage:

It is a "**memory twin**".

Fresco Depicting St. Neophytos from the Enkleistra's Berm

Assessing impacts

Assessing impact means to understand if the planned and implemented activities can lead and contribute to the changes (short and long-term outcomes) that have been envisaged for stakeholders and for the society.

Problem statement:

> *Which is the impact that digital transformation in the archival sector can deliver?*

- **Innovation Impact:** to move research and experimental outcomes to a larger scale

- **Operational Impact:** to improve processes internal to the organisations

- **Social Impact:** to affect stakeholders and wider society bringing changes that are beneficial to citizens

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Innovation impact

to move research and experimental outcomes to a larger scale

Innovation at the cross-road between technology and humanities

- The EUreka3D Data Hub

- Virtual 3D reconstruction of heritage that has already disappeared

- Recreate heritage objects for dissemination, in digital and physical formats (3D printing)

- Automated and standardised generation of XR/AR experiences

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Operational impact
to improve processes internal to the organisation

- Sharing of assets, contents, methodologies, and experiences among the various cultural heritage domains (archives, museums, libraries, galleries, archaeological sites, architecture, history, arts, …)

- Setting up a ground-breaking change in integrating innovation

- Visual quality, metadata, precise and traceable paradata for preservation

- Developing new curricula in education and vocational training

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Social impact

to affect stakeholders and wider society bringing changes that are beneficial to citizens

More and better available digital cultural content will impact on:

- **Education**. The importance of historical records becomes more evident for the creation of knowledge, promoting students collaboration and critical thinking.

- **Tourism**. Physical and virtual visitors benefit from availability of information while planning the trip, enhanced experience to plunge into a past world or to have a feeling on how life was, better understanding of complex heritage.

- **Culture**. Heritage becomes more attractive to certain categories of public that are difficult to attract, e.g. teenagers and young adults, or difficult to reach, e,g. differently able and aged people.

- **Arts and creative sectors**. Access to digital contents, 3D and XR cultural scenarios represent an opportunity for artists and creators to engage with cultural artefacts.

- **Local development**. Cultural heritage institutions offer their services not only to scholars and professionals, but also to citizens, becoming centres of resources and expertise and spaces of engagement, learning and encounter.

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Gràcies!

Antonella Fresa

Antonella.fresa@photoconsortium.net

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