JPEG Trust Summit 2026

London, 12-13 November 2026

Trust in cultural heritage matters

Antonella Fresa

Photoconsortium International Association

PHOTOCONSORTIUM

Digital cultural heritage: what does it mean

- Digital representation of individual physical items resulting from digitisation
- Digital items that are digital born
- Data sets representing large collections of digital items

Digital cultural heritage is represented by:

- Data,
- Metadata,
- Paradata,
- Contextual information,
- Extended reality experiences.



CC BY-ND 4.0

Misteri di Trapani, 2006
Pietro Masi
Promoter Digital Gallery

PHOTOCONSORTIUM

When cultural heritage started moving to the digital space

- Beginning of 2000: museum, libraries, archives, galleries, archaeological sites, … started creating websites.
- The initial websites provided information, but did not give access to digital data.
- When accessing data became a requirement, the first urgent question was crossing the barriers among specific domains (museums, libraries, archives, galleries, archaeological sites, etc.).
- It was necessary to decide for a common metadata standard → Dublin Core.
- The Europeana Data Model (EDM) is drawn upon Dublin Core.

Europeana is the EU initiative for the Europe's digital cultural platform, embedded now into the common European data space for cultural heritage.



CC BY-ND 4.0

Misteri di Trapani, 2006
Pietro Masi
Promoter Digital Gallery

PHOTOCONSORTIUM

From digitisation to access and re-use: open issues

- Digitising cultural heritage does not ensure that the digital cultural content becomes accessible.
- Infrastructure dedicated to digital cultural heritage are still fragmented, and cloud resources are often not located in the EU.
- Usable, reusable and socially meaningful data require rich metadata, able to connect with contextual information, and these operations are costly.
- IP and copyrights remain often uncertain.
- Governance of preservation is not clearly established.



CC BY-ND 4.0

Misteri di Trapani, 2006
Pietro Masi
Promoter Digital Gallery

PHOTOCONSORTIUM

Recurring challenges

- Metadata and paradata interoperability
- Intellectual property and rights clearance (e.g. orphan works, public domain contents whose rights are restricted, …)
- Dependence on proprietary platforms (particularly relevant for 3D contents and associated viewers)
- Meaningful community participation is needed (e.g. crowdsourcing for metadata enrichment, bias in descriptive metadata, …)
- Sustainability of digital assets beyond project funding (i.e. the committeemen of providing cultural heritage institutions)



CC BY-ND 4.0

Misteri di Trapani, 2006
Pietro Masi
Promoter Digital Gallery

PHOTOCONSORTIUM

Priority measures: policies and technology

- Shared, interoperable and EU-based digital infrastructures
- Ethical considerations impacting access and re-use
- Harmonised legal frameworks
- Recalibrating relationships: bringing cultural heritage and people together and finding new ways of engaging with heritage in the digital world
- Capacity building to support digital transformation in the cultural heritage sector, particularly for small and regional institutions



CC BY-ND 4.0

Misteri di Trapani, 2006
Pietro Masi
Promoter Digital Gallery

PHOTOCONSORTIUM

Transparency in technological processes

- Conventional validation strategies in heritage contexts are limited by the lack of widely adopted benchmarks.
- Accountability of the process is needed, e.g. paradata that document AI-powered 3D digitisation and reconstruction.
- Paradata should make understandable the process that brought to the creation of the digital object.
- Paradata are not only acting as descriptions but as an instrument to address evidences of the process.
- Processes should be documented in the light of the expected use of the digital object, in different contexts, e.g. research, education, tourism, …



CC BY-ND 4.0

Misteri di Trapani, 2006
Pietro Masi
Promoter Digital Gallery

PHOTOCONSORTIUM

Digital cultural heritage encounters artificial data

- Cultural heritage is facing a new challenge nowadays: to manage collections and XR applications where data coming from digitisation processes are mixed with data generated artificially.
- As at the beginning of 2000, again, the cultural heritage sectors need new standards able to represent the nature of these ‘mixed’ collections and applications.
- Similar specificities of the cultural heritage practices that have impacted on digitisation, need now to be taken into account to address the new AI challenges:
    - ➢ Quality matters,
    - ➢ A question of competence,
    - ➢ Availability of EU based cloud resources.



CC BY-ND 4.0

Misteri di Trapani, 2006
Pietro Masi
Promoter Digital Gallery

PHOTOCONSORTIUM

Connecting policy agendas with practical heritage experimentation

Four cases:

- Ethical issues: the case of the VR representation of Saint Neophytos Enkleistra of Pafos in **Cyprus**
- Preserving trust through institutional reuse: the case of Museovirasto (the Finnish Heritage Agency) in **Finland**
- Preserving trust and context in contested visual heritage: the case of CRDI (Image Research and Diffusion Center), Ajuntament de Girona in **Catalonia**
- Responsible creation and use of AI-generated and AI-assisted content: the case of Ud'Anet creative enterprise in **Italy**



CC BY-ND 4.0

Misteri di Trapani, 2006
Pietro Masi
Promoter Digital Gallery

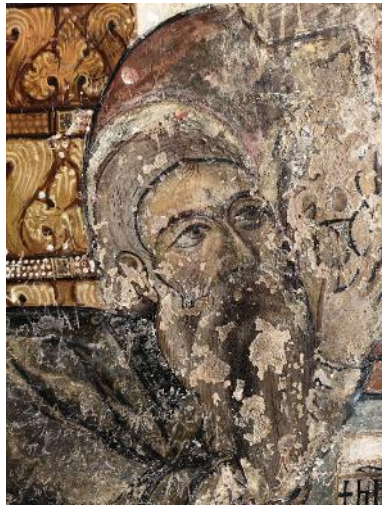
PHOTOCONSORTIUM

VR representation of Saint Neophytos Enkleistra of Pafos in **Cyprus**

PHOTOCONSORTIUM

AI is a socio-cultural technology

- The avatar talking with the AI generated speech was demonstrated to the monastery community that did not want an AI interactive avatar generating uncontrolled or arbitrary responses.
- The problem was not linked to technical issues, but it was strictly connected with ethical, cultural and theological matters stated by the target stakeholders.
- The monks requested to keep full control over the content, the wording and the intonation of the avatar's speech.
- Opposition towards the risk of "disneyfication".
- Substantial refinements to the avatar's appearance were necessary, including hairstyle, clothing, colours, and movement patterns.
- While the AI intervention in the delivery of the Saint's appearance posed a question of 'cultural truth', the virtual environment was, instead, appreciated by the cultural heritage stakeholders.







EUreka3D-XR project, 2025-2026
Co-funded by the EU
DEP Programme

Institutional reuse of digital cultural heritage at Museovirasto in **Finland**

PHOTOCONSORTIUM

Preserving trust and authenticity through heritage reuse

- Museovirasto (the Finnish Heritage Agency) publishes its digitised collections online under rights and licences that permit broad reuse (Public Domain, CC BY, CC BY-ND-NC).
- It looks at making its digitised heritage widely accessible and reusable while protecting the authenticity and trustworthiness of its collections and defending the reputation of the institution.



The Oldzhigin family eating in Kolguyak, Siberia, 1912 (cropped image), Kai Donner / Finnish National Board of Antiquities Image Collections. Object number: VKK532:2207

PHOTOCONSORTIUM

Maintaining the authenticity chain

- The content of Museovirasto is already widely reused and modified.
- While many transformations are legitimate and harmless, the authenticity chain maintained within institutional collection and preservation systems can be broken once content is disseminated and transformed.
- For example, heritage images may be modified or used with generative AI in ways that contribute to misinformation or propaganda.



CC BY-ND 4.0

A woman cutting grass at Pikisaari
Finnish Heritage Agency
Laine, Ilkka Timo, kuvaaja, 1973

PHOTOCONSORTIUM

A proposed validation scenario

- The set-up of a validation environment is needed to manage authenticity and provenance capabilities, including those based on JPEG Trust.
- Such validation may support transparent and rights-respecting use of openly available heritage content, for AI training.
- Addressing born-digital material entering the collection is also necessary.
- The validation environment should be applicable within the institutional acquisition workflow and to support informed decisions when incorporating AI generated material into trusted collections.



CC BY-ND 4.0

School lunch at Nokela's school
Finnish Heritage Agency
Laine, Ilkka Timo, kuvaaja 1983

PHOTOCONSORTIUM

Archiving contested visual heritage at CRDI in **Catalonia**

PHOTOCONSORTIUM

Preserving trust and context in contested visual heritage

- Preservation of trustworthy documentary evidence is needed in socially sensitive and contested visual archives.
- A collection is going to be preserved by CRDI of Girona City Council, documenting the Catalan independence referendum of 1 October 2017, comprising images produced by citizens, journalists, institutions and social media users.
- Such collection represents a historical event subject to multiple and often contrasting interpretations.



CC BY-NC-ND 4.0

Manifestació a favor dels top manta. Barcelona Ajuntament de Girona. CRDI (Fons El Punt – Oriol Duran Fígols)

PHOTOCONSORTIUM

Documenting provenance, authenticity and context

- Technical, archival, ethical and societal approaches should be combined to support documentation and communication of provenance, authenticity, context and, naturally, any further AI interventions.
- Trustworthy information about visual records should be established and communicated.
- A fair and transparent archival process should support, on one hand, **critical engagement with sensitive documentary evidence** and, on the other hand it should mitigate **risks arising from manipulation, recontextualisation and narrative construction.**



CC BY-NC-ND 4.0

Sessió de control del ple del Parlament. Artur Mas. Barcelona, 2009
Ajuntament de Girona. CRDI (Fons El Punt – Oriol Duran Fígols)

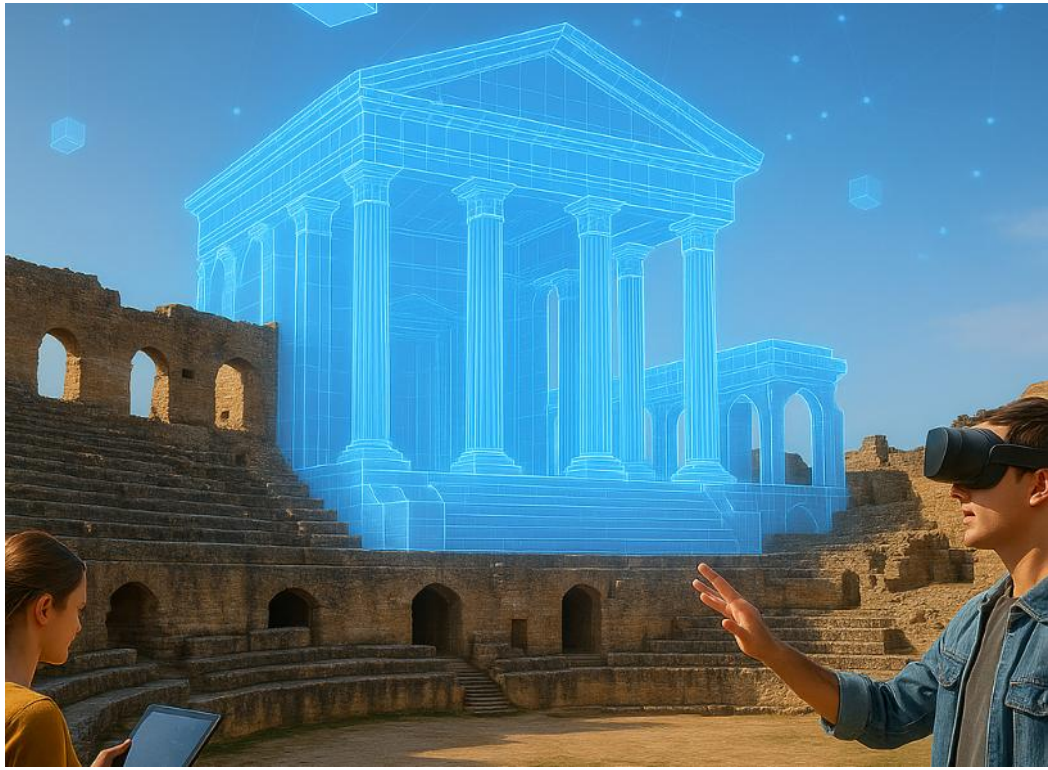
PHOTOCONSORTIUM

Responsible creation of AI-generated and AI-assisted content in **Italy**

PHOTOCONSORTIUM

Trustworthy and fairly attributed AI-generated content

- Generative AI enables cultural, educational and knowledge-based content to be transformed into new formats and experiences.
- However, when transforming archival documentation into an interactive experience, it is difficult to determine which sources underpin the resulting content, who contributed to its creation and how those contributions should be recognised and rewarded as culturally trustful.
- Responsible creation and use of AI-generated and AI-assisted content means to address:
  - ➢ transparency,
  - ➢ source attribution,
  - ➢ human authorship,
  - ➢ fair remuneration.

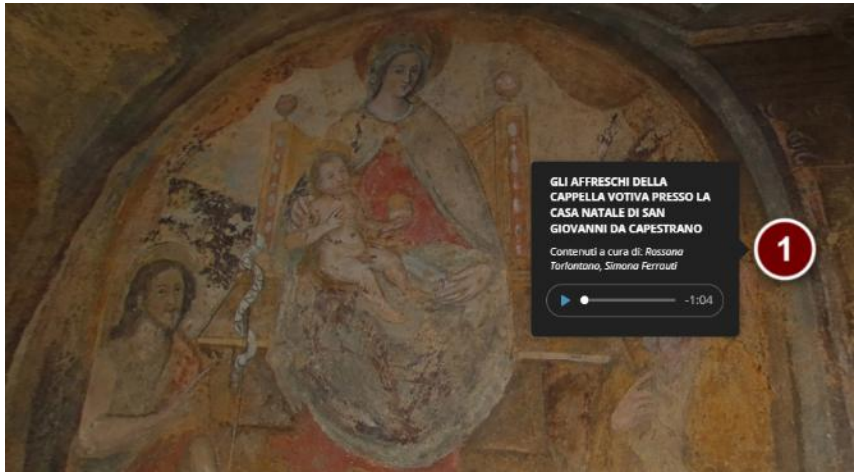


LIP3D project, 2024-2026
Co-funded by the EU
DEP Programme

PHOTOCONSORTIUM

Persistent attributions through content format transformation

- The potential of generative AI for cultural and creative industry is huge. It can be used to create and transform content into
  - ➢ educational materials,
  - ➢ narrative reinterpretations,
  - ➢ audiovisual content,
  - ➢ interactive experiences,
  - ➢ multilingual and/or accessibility-oriented adaptations.
- However, it is necessary that through these processes, the generated content remain traceable to verified sources.
- Human contributions and AI involvement should be transparently communicated.
- Intellectual property, copyrights and attribution information should persist along the resulting content workflow.



Le Terre del Guerriero
Abbazia di San Pietro in Oratorium
Misura B2.2 PNC - PNRR

PHOTOCONSORTIUM

Concluding remarks and ...

more problems to be addressed

PHOTOCONSORTIUM

A question of curation in the era of generative AI

- The advent of AI in digital cultural heritage is creating a mediation in the delivery of information.
- New values are emerging, which are still under definition.
- Cultural heritage and the society as a whole need new instruments to benefit from these new values.
- Sharing values imposes trustable ways to share data and information.
- Digitisation of cultural heritage is producing value and visibility that in turn needs control.
- Standards are at the basis of controlling the way data, information and values are shared.

More questions remain.

As food for though, some of these questions are presented in the next slides.



CC BY-ND 4.0

Don Quixote de la Mancha by Miguel de Cervantes Saavedra, illustrated by Paul Gustave Louis Christophe Doré, book edited by G.Scotti & C.
Promoter Digital Gallery

PHOTOCONSORTIUM

Evolution of paradata

- Generative AI is becoming part of the process through which we reconstruct and interpret cultural heritage. Should paradata evolve into a machine-readable record, continuously maintained on the basis of both human and algorithmic decisions?
- How can this evolved character of paradata become a requirement for establishing authenticity and trustworthiness of digital heritage assets?
- How may we distinguish between paradata related to digital data processing, as opposed to material processing that may have taken place before the digitisation occurred (e.g. to physically restore the physical object)?
- Using AI as a tool to assist digitisation can be described and in paradata. How can we ensure that intellectual transparency is maintained and adapted for different usages, e.g. for scholarly, communication, educational, tourism, … purposes?



CC BY-ND 4.0

Don Quixote de la Mancha by Miguel de Cervantes Saavedra, illustrated by Paul Gustave Louis Christophe Doré, book edited by G.Scotti & C. Promoter Digital Gallery

PHOTOCONSORTIUM

Heritage knowledge and generative AI

- Integration of AI into archival processes (e.g. classification, tagging, object and place recognition, text transcription, description generation, semantic search, and digital restoration) may enhance organisation of and access to large collections.
- However, it risks to introduce misidentification, algorithmic bias, loss of contextual information, visual alteration, and the incorporation of unverified inferences into documentary records.
- These concerns become particularly relevant when outputs from AI are embedded in institutional catalogues, acquiring the appearance of authoritative information.
- How alternative representations applied to the same heritage evidence may structure heritage knowledge and subsequently the interpretative possibilities of generative AI?
- When does a heritage reconstruction become a deep fake?



CC BY-ND 4.0

Don Quixote de la Mancha by Miguel de Cervantes Saavedra, illustrated by Paul Gustave Louis Christophe Doré, book edited by G.Scotti & C. Promoter Digital Gallery

PHOTOCONSORTIUM

Illicit trafficking of cultural heritage

- In partnership with INTERPOL's ID-Art application and other law enforcement partners, UNESCO has created the Virtual Museum of Stolen Objects, an immersive digital environment that raises public awareness and supports efforts to combat the illicit trafficking of cultural property.
- Which are the consequences of the “pollution” created by genAI resulting in “authentic” collections mixed with “artificial” objects?
- How to prevent that the new practices of digitisation of cultural heritage supported by AI, instead of helping to combat illicit trafficking, can generate more issues?



CC BY-ND 4.0

Don Quixote de la Mancha by Miguel de Cervantes Saavedra,
illustrated by Paul Gustave Louis Christophe Doré,
book edited by G.Scotti & C.
Promoter Digital Gallery

PHOTOCONSORTIUM

Authenticity of the digital object and its use

- For digital cultural heritage, knowledge representation needs to be evaluated both in terms of technical coherence and based on the cultural relationships it makes computationally accessible.
- As digital resources become more layered and complex (*memory twins*), new possibilities are opened for how we interpret, combine and reimagine cultural heritage, also via the application of generative AI.
- However, when digital records are used to train AI, the work of cultural curators risks to remain disconnected from the digital results.
- In the cultural heritage domain authenticity does not end with tracking origins and knowing the technical chain applied to generate the digital object: it is also a question of how the digital object is used and how usage conditions are recorded in a way that computers can understand.



CC BY-ND 4.0

Don Quixote de la Mancha by Miguel de Cervantes Saavedra, illustrated by Paul Gustave Louis Christophe Doré, book edited by G.Scotti & C. Promoter Digital Gallery

PHOTOCONSORTIUM

Thank you for your attention

Antonella Fresa

Antonella.fresa@photoconsortium.net

PHOTOCONSORTIUM