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D5.1 Capacity Building Implementation plan

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TABLE OF CONTENTS

EXECUTIVE SUMMARY

This deliverable presents the **Capacity Building Implementation Plan** for the EUreka3D-XR project, developed in alignment with the *Europeana Guidelines for Delivering Training and Development*. This report outlines a comprehensive and informed framework for designing an impactful training programme to two key stakeholder groups: content providers (e.g. CHIs) and content users (e.g. professionals in education or tourism).

The report distinguishes between formal and informal capacity building activities - formal training is developed for more mature content, tools and services, while informal training supports tools and content that are still under development.

Starting from a clear methodology and a detailed needs determination of the target groups, the report outlines how learning pathways and Intended Learning Outcomes (ILOs) have been defined for diverse professional profiles and sector-specific use cases. Initial reflections on expected impact is also provided for the different stakeholders and groups of learners.

An extensive inventorisation of existing resources, reflections on group size, assessment methods and exercises led to a capacity building programme that is standardised, structured and incremental. The programme draws on existing resources from the previous EUreka3D project and introduces new content to address the XR toolbox, showcase scenarios and other guidelines and best practices for 3D and XR. For the various activities in the project, this deliverable outlines the scheduling, content creation, and execution, with indication of the responsibilities of the team members and partnering organisations, and also including evaluation metrics to be implemented and used by the project, such as participant engagement and feedback surveys.

This document allows the project consortium to work out new training resources and activities that are substantiated by the research done in this deliverable and generate meaningful impact across the Europeana ecosystem, the wider cultural heritage sector and neighbouring sectors.

The document is composed of the following chapters:

1. Introduction
2. Methodology
3. Needs determination
4. Inventorisation
5. Development and planning
6. Training delivery
7. Gathering feedback
8. Conclusions

As an annex, a Briefing template for the development of training is added to this document which allows the structured development of training resources and activities by project partners, and refers back to the relevant chapters in this deliverable.

ABBREVIATIONS

2D	Two-dimensional
3D	Three-dimensional
AR	Augmented Reality
CHI	Cultural Heritage Institution
ILO	Intended Learning Outcome
Metadata	Metadata are structured data about identification, management, type, use and location of physical or digital resources. There are different types of metadata, such as descriptive, administrative and structural metadata
MR	Mixed Reality
MOOC	Massive Open Online Course
OER	Open Educational Resources
Paradata	Paradata refers to information about the process and provenance of a digital object, as well as information about the processes, tools, and methodologies used to create data.
VR	Virtual Reality
XR	Extended Reality

1. INTRODUCTION

This report contains **the capacity building implementation plan** outlining the methodology, scheduling, content creation and execution of each activity in the programme, by the EUreka3D-XR project partners. The aim of this plan is to strengthen the knowledge, skills and behaviours of **content providers** (specifically CHIs) and **content users** (such as the tourism, educational, research or creative sector) on 3D and XR technologies, taking into account the possibility that an organization may have both profiles, being both a content provider and content user. The programme builds upon the seminars, documentation, workshops and demonstrations already developed in the EUreka3D project (2023-2024)[1] and adds new activities and documentation focused specifically on XR and valuing the XR tools, scenarios and experiences realized in the EUreka3D-XR project.

EUreka3D-XR will research and support the transformation of 2D and 3D digital cultural assets into XR scenarios for visitors and users of cultural collections onsite and online, and will make available to the CH community five open source digital tools (including online services and mobile apps) to support innovative reuse of those assets. These tools will be showcased in three use cases or demonstration scenarios, which will serve to demonstrate the tools in real-life settings and inspire other CHIs to try the tools for XR experiences to engage their audiences in their own context. Both the tools and scenarios will be made available in the common European data space for cultural heritage, the EUreka3D Data Hub and on Europeana.eu. At the time of writing (M4 in the project) the development of tools and scenarios is in the early stages, with first outcomes and deliverables expected from M6 onwards.

The capacity building programme is developed according to the Europeana's Guidelines for training development and delivery[2]. Following these well established guidelines ensures a consistent transfer of skills and knowledge throughout the project and helps formulate intended learning outcomes for specific target groups. The aim of the capacity building activities is to support CHIs, CH professionals and other relevant stakeholders such as the tourism and creative sector in the exploration and exploitation of new opportunities for reuse offered by 3D and XR technologies.

1.1 ROLE OF THIS DELIVERABLE IN THE PROJECT

This deliverable aims at illustrating the project strategies to address the lack of knowledge, skills and resources to access relevant 3D and XR technologies and tools, that is a significant challenge for cultural heritage institutions and actors in tourism, education, research and the creative industries, also preventing them from the reuse and valorisation of 3D and other digital cultural heritage assets. EUreka3D-XR implements in this document an extensive capacity building plan is developed to enhance individual skills and knowledge, structural processes and empowerment of organisations, and to create opportunities for collaboration - both during the project and after. Learning materials and other resources, such as the recordings of presentations and the use case scenarios, will remain available as open access materials after

[1] European Union's REKonstructed content in 3D, 101100685 — EUreka3D — DIGITAL-2022-CULTURAL-02

[2] Europeana Guidelines for Delivering Training and Development, https://pro.europeana.eu/page/guidelines-for-delivering-training-and-development , last accessed on 29/04/2025.

the completion of the project (July 2026), online in the project's communication channels, in the various partner's channels, and on the existing Zenodo community[3].

The *D4.3. Sustainability Plan* will outline exactly how these outcomes will stay available, maintained, and/or updated after the completion of the project term. Various other deliverables link to the Capacity Building Implementation Plan, such as the *D4.1 Dissemination and exploitation plan*, *D4.2 Impact assessment report*, the periodic *Technical Progress reports* (D1.1, 1.3, 1.4) and the *Integration reports 1 and 2* (D1.2 and D1.5).

The deliverable is both a planning document and a guideline for project partners in creating and delivering effective training to target communities. Engaging a diverse target audience requires in fact careful planning and a multifaceted approach for developing the capacity building programme. It should cater to the needs of each stakeholder's sector and contains both introductory and more enabling training materials and activities.

In consideration of these needs, EUreka3D-XR project aims at offering both informal and formal training. Informal training—such as presentations, round tables, and networking sessions—is easier to organise and particularly well-suited for introducing tools and services still under development, or for general knowledge sharing, and for creating synergies with other projects and organisations. They are ideal for reaching a wide audience and introduce the project's core themes, but it is harder to gather specific feedback from attendees. An example of informal training in this project are presentations of the EUreka3D-XR project in events, expert testimonials on 3D and XR or the demonstration of the three showcase scenarios. Formal training—such as structured workshops, certified webinars and self-paced e-learning modules— is best suited for topics and tools that have reached a sufficient level of maturity. It requires more preparation but can yield greater impact in the skill level of the attendees. In formal training it is also easier to assess the achievement of the intended learning outcomes, that are formulated beforehand in support of the development of the training resource or activity. An example of formal training in this project are the focus groups, on site workshops and the online training programme organised in the Fall 2025 together with ICA, the International Council on Archives. For this last activity, a certificate of attendance will be delivered.

The training resources developed by the project will be easily accessible and available in various formats (online documentation, webinars, on site and hybrid (collaborative) sessions) and will include hands-on guidelines, for example demos, manuals and technical documentation focused on the use of the EUreka3D Data Hub and XR tools created in this project. The training resources will also highlight other relevant topics such as paradata, advanced metadata management and intellectual property and the online accessibility for content. The demonstration of the three showcase scenarios play a key role in inspiring stakeholders and illustrating the full potential of the newly created XR tools. There will be specific capacity building activities that will address these showcase scenarios, such as the demo event in Girona in January 2026.

In sum, a blend of formal and informal capacity building actions at entry level and for more advanced attendees will complement the development of the XR tools and scenarios in this project, enhance outreach for both the completed EUreka3D and EUreka3D-XR projects, and foster collaboration across the Europeana ecosystem, the common European data space for cultural heritage, and the wider cultural heritage sector and other stakeholders.

[3] EUreka3D Zenodo community. https://zenodo.org/communities/eureka3d/, last accessed on 20/05/2025.

2. METHODOLOGY

2.1 EUROPEANA GUIDELINES FOR DELIVERING TRAINING AND DEVELOPMENT

To reach the goal mentioned in the previous chapter, the capacity building programme has been developed using the Europeana Guidelines for Delivering Training and Development. These guidelines provide a detailed step-by-step guide to design training materials in a **standardised**, **structured** and **incremental** manner.[4]

The Guidelines are structured by six main sections, which provide a framework for the main chapters of this deliverable. This structure from the Europeana Guidelines that is at the basis of the main content for the EUreka3D-XR deliverable is complemented with two sections (indicated in bold in the list below) specifically dedicated to EUreka3D-XR implementation plan and its communication and dissemination, and to project's strategies for gathering user feedback:

A. Needs determination
B. Inventorisation (*of intended learning outcomes, training materials, etc.)*
C. Development and stages
D. Training delivery
E. Measuring training impact
F. Upkeep and improvement
Capacity building implementation plan, and Communication and dissemination
Gathering Feedback

2.2 REFLECTIONS ON THE TRAINING AND CAPACITY BUILDING PROGRAMME, AND AUDIENCE FEEDBACK FROM EUREKA3D

During the implementation of the training activities in the previous project EUreka3D, a number of challenges were identified and addressed, which provide useful lessons learned for the implementation plan of EUreka3D-XR. The reflections on the outcomes and impact of the EUreka3D project is widely reported in the EUreka3D deliverable D2.2 *Report on Training Programme*[5]. The first two challenges identified in the course of EUreka3D training programme are **challenges in content and format**.

1. **Challenge: variety of digital skills among participants (CHIs and professionals), ranging from entry-level knowledge to more advanced technical knowledge.**
    a. This challenge was faced by formulating Intended learning outcomes both for beginners and more advanced learners with technical profiles.
    b. When presenting to stakeholders outside of the CH sector, a more general overview of the project was provided that could be understood by people of different skill levels.

[4] **Standardised** ("an aligned approach for training resources and activities, with consistency in the structure of learning activities"), **structured** ("an intake process to discuss outcomes, associated learning goals and needed training course material and activities") and **incremental** ("Development is conceptualised as early as possible and in parallel to the development of tools instead of after completion. Ideas and decisions made earlier in the process are continually reviewed and adjusted"), from the Europeana Guidelines.
[5] D2.2 Report on training programme. EUreka3D. https://eureka3d.eu/wp-content/uploads/2024/12/EUreka3D-D2.2-V1.0.pdf, last accessed on 08/05/2025.

2. **Challenge**: **different activity formats (i.e. online, onsite or hybrid) resulted in a different level of attention from learners. Online and hybrid events shortened the attention spans of learners.**
    a. While onsite events are more engaging for attendees and can last longer, online events proved to be more effective when they are limited in time. Also, the demanding organisational aspects of onsite events and the risk of failing technologies or internet during online events have to be taken into account.
    b. Hybrid events are even more challenging due to these differences and risks.
    c. When the event is embedded in a wider context such as a conference either onsite or online, it is more effective to include it in the plenary session.

Additionally, **challenges in outreach** during EUreka3D were threefold:

1. ensuring that the training reaches a wide audience (**quantitative** outreach)
2. ensuring significant **geographic** coverage
3. ensuring that a varied typology of stakeholders is reached (**sectoral** outreach).

These challenges were addressed with actions taken to endorse the events in the Communication and Dissemination work package during EUreka3D.

The EUreka3D-XR project will take these challenges and mitigation measures from EUreka3D into account and will also add a more explicit focus on sectoral outreach. Not only to increase quantitative outreach of this project, but also qualitative, so as to reinforce the competencies, knowledge and skills of professionals and organisations in CH and in neighbouring sectors, such as education and tourism. By mapping the needs of different sectors that are relevant to this project, we will formulate ILOs that are specific to both content providers (mostly CHIs) and to content users (CHIs, but also other sectors), thus creating a '**sectorial capacity building programme**'. An example in this project are the focus groups aimed at different groups of professionals. Other challenges in outreach are answered in deliverable *D4.1 Dissemination and Exploitation Plan*, due M6 (July 2025), for which this deliverable will provide input.

3 NEEDS DETERMINATION

3.1 TARGET GROUPS

The capacity building activities aim to enhance the skills and knowledge of **CHIs and actors in tourism, education, research and the creative industries** on 3D and XR technologies, and other relevant topics, such as the importance of metadata and paradata. A specific goal of the capacity building activities is to support the development of and participation in 3D and XR content in the common European data space for cultural heritage[6], targeting more specific **groups of users of the tools and solutions** provided by this project.

The training resources make sure that:

- By improving their skills, **content providers** (CHIs, such as small museums and libraries, digital archives, heritage sites, public and private archaeological organisations…) are able to use the tools and solutions provided in the EUreka3D-XR project to give access to their datasets and to transform their cultural contents (2D, 3D, video, texts, maps, stories) into innovative XR scenarios.
- **Content users** (who can be content providers too, but also researchers, students and teachers, tourism professionals and local authorities, creative enterprises, other CHIs) are able to reuse the high-value datasets published by the providers, to have and to create new XR experiences.

End users of the XR experiences, such as tourists and citizens living in the physical locations represented in the digital space are not the primary target group for capacity-building efforts, even if this target group will be addressed too in the communication and dissemination effort of the project, in particular by promoting and sharing the case studies and stories of the three pilot scenarios in Girona (Spain), Bibracte (France) and Paphos (Cyprus).

3.2 NEEDS DETERMINATION

The needs analysis for the preparation of the EUreka3D-XR proposal was built upon the experience from EUreka3D, where we interacted with a vast population of CHIs that were engaged with the project. Also, in the previous (EUreka3D) and current consortia we have representatives of different CHIs/content providers who stated their requirements. The analysis was then further enhanced by means of a desk research at the beginning of this project and completed with relevant needs found in a literature review and from the project partners' professional experience. Not all challenges listed below can be addressed within this project, but these challenges have been included because they are influencing or are influenced by challenges that can be addressed in this project. It is also important to note that participants of capacity building activities can have multiple roles, e.g. a content provider of 3D models can at the same time also use 3D models from other organisations.

[6] The common European data space for cultural heritage, https://www.dataspace-culturalheritage.eu/en, last accessed on 20/05/2025.

Target groups	Needs and challenges

Content providers	• Expertise, skills and resources in how to store, handle, share/give access to and effectively reuse their digital assets, especially 3D assets
	• Open source and easy-to-use tools to create XR scenarios
	• Skills related to giving access to their own datasets and digital assets
	• Hands-on, practical guidelines and training sessions
	• Technical quality standards and frameworks:
	  - Guidelines to ensure high quality 3D datasets
	  - Recommendations and shared frameworks for granting technical quality in line with EU-wide initiatives such as the data space
	  - Workflows and best practices for transforming 3D content into XR scenarios
	  - Instructions to access and use the EUreka3D Data Hub

Content users	• Access to assets:
	  - The availability of open access reusable content
	  - Guidelines on how to source, compare and select relevant content of interest
	  - Clear licensing information and right statements
	• Expertise, skills and resources in where to retrieve and how to effectively reuse high-value digital assets, especially 3D assets
	  - There is an increasing push to foster reuse of resources in order to make research data available and accessible to a wider audience. However, researchers may struggle in finding content and datasets of their interest, even when searching in open repositories and e-infrastructure facilities
	• Open source and easy-to-use tools to manage, create and experience XR scenarios
	• Technical quality standards and frameworks:
	  - Workflows and best practices for transforming 3D content into XR scenarios
	• Knowledge on intellectual property and ethics, such as:
	  - Clarity on the intellectual property of 3D models
	  - Ensuring that online resources have been properly authorised by the creators or owners, and are in line with a lawful reuse that prevents possible copyright infringement
	  - Data management: so that possible personal data collected in (touristic) apps is treated accordingly

Needs and challenges of specific sectors in the group of content users	
Education	**Challenges for the use of 3D content and XR tools in teaching:** • Lack of suitable computer equipment and stable internet connections • Lack of skills among teachers to experiment with innovative teaching methods using digital cultural content • Lack of information on how to find good quality 3D models and XR scenarios. • Lack of awareness of the possible exceptions provided within intellectual property and copyright law for educational purposes. These exceptions can vary across EU member states, as they are implemented differently in each country's legislation, but copyrighted works may in some cases also be used in the classroom for educational purposes without having permission from the right holder(s) • Language barriers that make it difficult to reuse XR scenarios in mother-tongue teaching **Needs:** Upskilling of educators through easily available documentation, information, tools and digital assets; build confidence to experiment with 3D and XR technologies in the classroom; multilingual sources
Research	**Challenges researchers face when using 3D heritage:** • Accessing a wide range of data that fits their research topic • Collating and analysing data in formats that work for them and the software they use • Need for access to a network of peers to discuss challenges and receive / provide inspiration • Need for opportunities to discuss challenges and needs in broader contexts with outside institutions/government bodies • Juggling teaching responsibilities with research pursuits • Finding 3D models that are detailed enough for research purposes, with a high level of accuracy and certified authenticity • Accessing paradata for 3D models that certify the quality and improves their analysis work **Needs:** Upskilling with new technologies; access to a wide range of high quality 3D models, metadata and paradata

Tourism	**Challenges tourist organisations and other tourist stakeholders face with reusing digital heritage:** • Too many stakeholders make collaboration/cooperation complex • Visitor behaviour is slow and stubborn to change • Seasonality, overcrowding, overtourism, low levels of technical infrastructure to manage large groups of tourists • Not being aware that 3D heritage exists for reuse in their sector • Tourism providers often have low levels of technical knowledge and digital infrastructure • Very unbalanced coverage of destinations in 3D heritage databases • Reusing 3D heritage doesn't automatically mean increased revenue, other incentives are needed **Needs:** Awareness of the opportunities of XR scenarios for the tourism sector, among others as a way to deal with overcrowding and seasonality; upskilling of tourism professionals
Creative sector	**Challenges creative professions encounter when reusing digital heritage to create new content and experiences** • Accessing (3D) heritage datasets of their interest, with appropriate formats that fit the needs of creative apps development • Finding datasets that are detailed enough for a variety of purposes, with a high level of accuracy and in different and flexible formats • Creatives can be unaware of the opportunities of digital heritage in new creative productions • Uncertainties about licensing and reuse **Needs:** Information and inspiration about the opportunities of digital heritage in new creative productions; clarity about licensing and reuse; access to high-quality datasets

3.3 CHANGE PATHWAYS

A change pathway is a tool that helps to capture how - in this case - **training resources and activities lead to impact** for a certain stakeholder, sector and even society as a whole. It visualises the investment in new resources and activities in this project and the outcomes it aims to achieve. In the EUreka3D-XR project, the change pathway models of the Europeana Impact Playbook[7] are used as a guidance to the reflections.

In the next pages, two schemas for change pathways are presented for

- the **content providers** - those who manage 3D objects and models - so it is aimed at how they can create 3D models and XR experiences (with their own models and/or openly accessible models available online,), and
- the **content users**, for whom the change pathway is focussed at sharing information about the benefits, uses and best practices involved with creating and interacting with 3D and XR content.

The change pathways are used for the development of the training programme, as a guideline for the way feedback is gathered from learners in this programme and lastly for measuring the training impact at the end of this project (D4.2 due July 2026).

These change pathways are specifically designed for the capacity building activities and resources provided by the EUreka3D-XR project. It is important to state that these do not exist within a vacuum. On a European level, multiple 3D and XR projects are in progress, resulting in other relevant resources and developments for content providers and content users. First and foremost, the participation of project coordinator Photoconsortium in the 3D working group led by Europeana in the context of the data space initiative allows for regular discussions, updates and exchanges of knowledge with the other actions funded in the DEP programme, such as the competence center and the other data space supporting projects. Additionally, more concrete actions and collaborations are established, including consultation, cross dissemination, direct participation in project's events, reuse and adoption of existing resources etc.

Among these, it is noteworthy to mention the collaboration with TMO Time Machine Organization, which is involved in the 3D Big Data Space and other relevant projects. TMO and Photoconsortium have a close relationship, being members of each other's association, which facilitates collaboration and common work also in the contexts of respective projects. For example, TMO invited PHC to participate in a panel on 3D in the conference Digital Heritage 2025 in Siena (September 2025), and TMO was invited as keynote speaker in the EUreka3D-XR event in Florence (May 2025). Similar connections are established with other initiatives and projects, in the digital cultural heritage but also in other sectors such as tourism, for example with a hackathon organized with the HE project SECreTOUR (Fall 2025). This collaborative approach proved very useful and successful already in the previous EUreka3D project, for example with the webinar series organized with ICA International Council on Archives. By leveraging these existing connections and collaborations, projects' results reach a larger audience, empower their learning pathways and have improved sustainability.

[7] https://pro.europeana.eu/page/europeana-impact-playbook

	INTERNAL			EXTERNAL		
 **Stakeholder**	 **Resources**	 **Activities**	 **Outputs**	  **Short - Outcomes - Long**		 **Impact**
Content providers, such as small museums and libraries, digital archives, heritage sites, ... with 3D models **Content partners from the use case scenarios**	EUreka3D DataHub (to access and store XR tools, 3D models, 3D experiences) Existing resources from EUreka3D, such as the 3D Digitisation Guidelines: Steps to Success Shared partner expertise in the project consortium	Capacity building activities: Webinars, conferences and training workshops; organised by the consortium, together with partners outside the project or through attendance of third parties' activities 1-to-1 sessions with Tech and Content Partners to Develop XR use case scenarios Testing sessions, focus groups and gathering user feedback	Feedback: survey results, 1-to-1 responses 1-to-1 responses Exercises for the validation of ILO's Interaction during hybrid/online/on site training activities XR Toolbox (out of the box XR applications created by tech partners for CHIs with 3D models Documentation on best practices	XR scenarios - proof of concept , best practice for XR experiences that can be tested by CHIs and used by user stakeholders Evidence of a knowledge transfer - indication that a capacity building has taken place for the stakeholders	**Content providers** use standards, skills, the XR toolbox and other resources in order **to create high quality 3D datasets**, give access to their datasets and **transform their contents into innovative XR scenarios** Capacity Building programme to build confidence in CHIs when it comes to creating tailored 3D and XR applications or experiences	Behavioural chnge in the way stakeholders approach 3D-digitisation, preservation and giving access and re-using their datasets in the workflows they undertake. Increased user engagement with 3D models and related physical cultural heritage Greater use of 3D assets and increased engagement with 3D models and XR tools and scenarios

	INTERNAL			EXTERNAL	
Stakeholder	**Resources**	**Activities**	**Outputs**	**Short - Outcomes - Long**	**Impact**
Content users • also content provider (CHIs, etc.); • Small cultural and creative institutions and enterprises; • Research, social science and humanities, and education; • Tourism organizations, independent tour guides and local administrations; • Citizens.	Documentation and training resources produced and collated in the EUreka3D project --- Shared partner expertise + lessons learned during the use case scenario development --- Advisory Board of Experts --- Established partner networks (including Europeana and EUreka3D)	Dissemination activities: socials, newsletter, blogs --- Capacity building activities: Webinars, conferences and training workshops; organised by the consortium, together with partners outside the project or through attendance of third parties' activities --- Demonstration Events --- Focus groups on the XR toolbox with stakeholders	A knowledge base with (multilingual) resources collated in the capacity building programme --- Documentation for the XR scenarios (Use case evidence) --- Exercises for the validation of ILO's --- Interaction during training activities --- Feedback: survey results, 1-to-1 responses --- Contributions to the EU DataSpace for Cultural Heritage, Historiana, Europeana	Evidence of a knowledge transfer about 3D and XR technologies - indication that a capacity building has taken place for the stakeholders	Content users have skills and knowledge to **source, compare and select 3D-datasets** that are fit for re-use in their professional context. They know how **to re-use** the high quality datasets published by the content providers by using the XR toolbox --- Content users can **interact with XR-contents**, leading to deeper learning of specific CH objects and sites	User confidence and behavioural change in the way stakeholders approach finding, selecting and re-using high quality 3D datasets and XR tools --- Greater use of 3D assets and 3D engagement using 3D models and XR tools --- Increased understanding related to physical CH that can be shared in innovative ways and experienced by others

4. INVENTORISATION

4.1 IMPACT

Impact for CHIs as content providers

- Create datasets that are higher in quality and better documented, by following the guidelines that were developed during the EUreka3D project;
- Give access to their datasets;
- Transform their cultural contents (2D, 3D, video, texts, maps, stories) into innovative XR scenarios by using the tools developed in the EUreka3D-XR project.

Impact for content users:

- Source, compare and select relevant content and datasets that are fit for reuse in their professional context;
- Reuse the high-value datasets published by content providers using the tools created in this project;
- Interact with XR content.

Impact for tourism sector

- Access to free, reusable sources of locally relevant 3D content for use in campaigns, promotions, events;
- Ability to connect with CHIs, opening up opportunities for collaboration;
- Digital exploration into novel ways to experience tourism, tapping into new audiences;
- Potential reduction of overtourism, overcrowding, by diverting audiences away from high-density spaces to places where they can enjoy novel XR experiences;
- Renewed focus and interest in intangible heritage, invisible heritage (i.e. destroyed sites, archaeological excavations), connection to local cultures.

Impact for education

- Teachers integrate 3D/XR in their lessons and in this way enhance student engagement with and knowledge retention about cultural heritage;
- Student participation in creating XR experiences improves their confidence and interest in new technologies.

Impact for research

- Better access to paradata and high quality 3D datasets increases the reliability and reusability of 3D materials in academic work and research;
- New possibilities for the research of cultural heritage emerge when using high quality 3D models and XR technologies.

Impact for creative sector

- Creative professionals can deliberately go looking for high quality digital heritage to use in new creative settings and know how to do this in accordance with relevant legal frameworks;
- New collaborations emerge between the creative sector and CHIs;
- Increased visibility of cultural heritage through new creative formats, such as XR, but also in games and interactive media.

4.2 USERS OF THE TRAINING ACTIVITIES AND THEIR USE CASES

Understanding the needs and use cases of **the users of the training activities** (both content providers and content users) is a first step in designing an impactful capacity building programme. This section outlines the target groups, their professional contexts and the use cases that illustrate how the training responds to their specific challenges and opportunities when it comes to 3D and XR technologies.

4.2.1 Cultural heritage institutions

Professional role: heritage site manager, curator, archivist, archaeologist, specialist in digitisation and digital mediation

Use cases

- **Digitisation:** a CH professional wants to digitise a CH object in their collection and is looking for guidelines on how to approach this project and to create high quality digital assets of their object(s) that are fit for reuse in various scenarios.

  Relevance of the training → the capacity building programme offers training on the 3D digitisation guidelines from EUreka3D project in different formats and addresses relevant topics, such as metadata and paradata.

- **Preservation and access:** a CH professional has digitised CH objects and wants to sustainably preserve and give access to the datasets for others to reuse the objects for various purposes.

  Relevance of the training → the capacity building programme introduces attendees to best practices for the preservation of 3D objects (file formats, metadata, paradata) and provides guidelines for using the EUreka3D Data Hub to give access to datasets. The capacity building programme also fosters collaboration across the common European data space for cultural heritage and Europeana ecosystem.

- **Reusing:** a CH professional wants to reuse the 3D datasets they created in an innovative and interactive way to attract more visitors, and also activate possible visitors from difficult to reach audiences, such as younger generations.

  Relevance of the training → the capacity building programme includes the presentation, technical documentation and user manuals of the open source tools that are forged in this project to create XR scenarios.

4.2.2 Education

Professional role: teacher in secondary or higher education, teacher trainer and educational advisor, creator of educational digital media and activities

Use case:

- **Lecture-based approach:** A teacher integrates 3D or XR content into their courses (history, art history, archaeology, etc.) to visually illustrate aspects of cultural heritage and past societies.

  Relevance of the training → The capacity building programme will provide repositories where users can access high-quality 3D datasets and XR experiences, including through the pilot scenarios developed in the project.

- **Guided approach:** Students manipulate 3D models, engage in playful hands-on activities to explore what XR technologies are, experience existing XR applications, and carry out comparative or analytical exercises.

  Relevance of the training → The capacity building programme will provide guidelines for the use of 3D models and XR experiences in the classroom, as well as suggestions for fun activities and educational exercises adapted to different levels.

- **Project-based learning:** Students take part in a collaborative project involving the design of a simple XR scenario, using one of the tools developed within the EUreka3D-XR project.

  Relevance of the training → The capacity-building programme will provide resources to strengthen teachers' skills in experimenting with 3D/XR technologies. Pilot scenarios will play a key role in inspiring stakeholders, and these experiences will be shared via the Europeana.eu platform. Guidelines will also support the creation of digital teaching activities based on resources made available by partner cultural institutions.

4.2.3 Research

Professional role: academic, doctoral researcher

Use case: An archaeology researcher is in need of 3D models that are reliable enough for research purposes, with a high level of accuracy and qualitative metadata and paradata.

Relevance of the training: The capacity building programme covers topics on the importance of advanced metadata and paradata, technical documentation on 3D and XR technologies and tools.

4.2.4 Tourism

Professional role: tourist office manager, independent tour guide, event planner

Use case: A tourist office wants to offer, out of season, a geolocated visit in AR using data on cultural heritage.

Relevance of the training: Tourism professionals attend training to learn how and where to find datasets, understand reuse rights, and test EUreka3-XR tools for AR tours. The capacity building programme also offers inspiration for this target group by highlighting the three showcase scenarios.

4.2.5 Creative sector

Professional role: game developer, XR experience designer, digital storyteller, artistic creator

Use case: An independent artist wants to reuse 3D models of historic monuments for an immersive VR performance. They need clarity on rights, licences and file formats, and technical workflows and inspiration for the development of XR scenarios.

Relevance of the training: The capacity building plan offers webinars and documentation on specific topics, such as the EUreka3D Data Hub, the common European data space for cultural heritage, metadata and paradata, file formats, IP and licenses for reuse, 3D viewers, authenticity, etc.

4.3 GROUP SIZE

The number of potential users of the tools, solutions and datasets provided by the EUreka3D-XR project is vast, given the large number of European CHIs, tourism and education professionals, etc., but not all of them work in the domain of (digital) cultural heritage. Given the large number of possible attendees that might be interested in the EUreka3D-XR capacity building activities, the primary focus should be on online (and hybrid) presentations/webinar series - since the number of participants is less limited than on site sessions -, as well as online resources that can be used independently.

Looking at the numbers of attendees of online and hybrid events during EUreka3D, the amounts vary depending on different factors, such as the size of the event itself, the addressed target audiences and their knowledge level (less or more specialised) and on the setting of the event (e.g. if it was part of a larger conference). An average of 37 people attended on site (for hybrid events) and on average 186 people attended online, with a minimum of 12 and a maximum of 539 attendees. Onsite hands-on training activities had a minimum of 4 and maximum of 47 participants. The onsite presentations were attended by an average of 95 people.

There are already some first events organised during EUreka3D-XR. During the hybrid kick off event 30 people attended on site, and 30 online. At the hybrid conference 'Photography and archives: discovery, technology and innovation' on the 29th of May 2025, there were 82 online participants, and 41 attendees on site in Florence. During the hybrid Europeana Aggregators Forum 50 people attended in total.

Group sizes should be aligned with the format of the training and the intended learning outcomes. In the early stages of the project and **in informal training activities**, such as introductory sessions covering the project's goals and objectives, and general overviews, larger groups are suitable and allow for wide dissemination with minimal resources. These can be effectively delivered through online documentation, self-guided learning modules, webinars, and general presentations. **In formal training**, such as workshops to learn to use specific tools, building XR scenarios, and focus groups, smaller groups become necessary. These formats are best served through interactive, hands-on activities (online; hybrid; on site). The smaller group size facilitates greater engagement, more personalised feedback, and the opportunity for participants to apply their learning in practical contexts.

This tiered approach to group size ensures that EUreka3D-XR's capacity building activities remain accessible, scalable, and effective across different user profiles and levels of expertise.

4.4 LEARNING PATHWAY

Ideally, learners are able to shape their own learning path, choosing topics and activities that are fit for their professional context and jumping back and forth between informal training/introductory courses (focusing on the first two categories of Bloom's Taxonomy, see 4.5 *Intended Learning Outcomes*) and formal training/enabling courses (focusing on more complex cognitive processes of the Taxonomy, see 4.5 *Intended Learning Outcomes*). This is possible when the capacity building programme answers to the needs of the different target audiences and the possible use cases of these groups, and provides a variety of learning opportunities and formats, such as documentation or online and onsite presentations and a way to validate if the learner has met the ILOs of that training after completing, both for introductory and more advanced topics and activities.

A learning pathway is a framework that helps to work out a tailored and self-directed route through the resources and activities in the EUreka3D-XR capacity building programme. It considers their professional roles, learning goals, the maturity of the tools and topics covered, and the type of engagement (formal or informal) best suited to their needs. Rather than a linear trajectory, the pathway supports **modular, flexible learning**, where participants can move between foundational awareness-raising content and more in-depth, skills-based training depending on their context.

In the scope of developing a capacity building implementation plan for EUreka3D-XR, this deliverables focuses only on this project.

As mentioned above, the EUreka3D-XR capacity building programme does not exist in a vacuum. The learning pathway of professionals looking for skills and knowledge on 3D and XR will also include resources and activities from other relevant projects.

4.4.1 Use cases as the starting point for the pathways

Before drawing out the learning pathways, it is useful to first describe some practical use cases of the different stakeholders, from which they might start to look for relevant training activities.

Content provider: Cultural heritage institutions

1. **Digitisation**

Goal	High-quality digitisation of CH collections
Needs	Standards and guidelines on digitisation and the creation and importance of metadata and paradata
Pathway	**Informal** Webinars, use cases, documentation and guidelines
	Formal Self-paced training, instructor-led activities

2. Preservation and giving access

Goal	Sustainable preservation of their datasets and giving access to a wider audience for reuse
Needs	Solutions for data, metadata and paradata management and storage, and for delivering 3D collections to users' platforms like Europeana
Pathway	**Informal** Webinars, use cases, documentation and manuals
	Formal Self-paced training, live demonstration and workshops

Content Users: CHIs, but also education, research, tourism and creative sector

3. Reuse of 3D datasets in XR scenarios

Goal	Reuse of datasets in XR scenarios
Needs	Guidelines on how to find, compare and retrieve high-quality 3D datasets Clarity on intellectual property and licenses for reuse Knowledge on the role of metadata and paradata in the reuse of 3D datasets, and the concept of authenticity Easy-to-use open tools to create XR scenarios with step-by-step manuals Inspirational scenarios
Pathway	**Informal** Webinars, sectoral events and testimonials, dissemination of (the approach in and result of) the three showcase scenarios
	Formal Live demonstration, self-paced training and instructor-led workshops, focus groups

To provide a truly sectoral capacity building programme and to strengthen the skills of a broader group of users, more tailored learning pathways can be developed. These build on the general reuse pathway. The sectors addressed are Education, Research, Tourism and Creative sector, as illustrated below.

Education

Goal	Integrate 3D and XR into the classroom
Needs	Easy-to-use tools, reusable educational scenarios, multilingual resources
Pathway	**Informal** Webinar with sector testimonials, documentation
	Formal Workshop on how to create interactive, digital exercises using 3D models

Research

Goal	Use 3D models as data for analysis or visualisation
Needs	High-quality models, access to paradata
Pathway	**Informal** Presentations at external events, panels and conferences aimed at researchers
	Formal Focus groups, advanced documentation on paradata, advanced demo of using the EUreka3D Data Hub (and other repositories)

Tourism

Goal	Create XR/AR scenarios
Needs	Inspirational AR scenarios on touristic locations, content available for reuse, easy-to-use tools
Pathway	**Informal** Sectoral testimonials and use cases, demonstration of the three showcase scenarios
	Formal Focus group

Creative sector

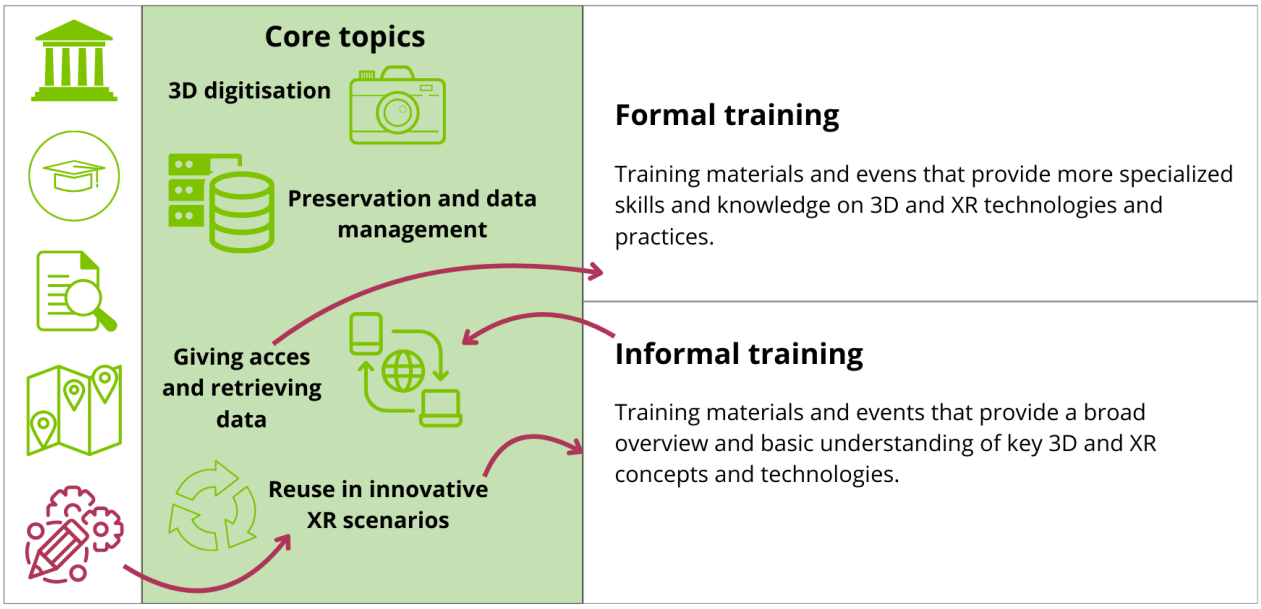
Goal	Reuse 3D CH datasets in virtual, immersive exhibitions, experiences, art installations
Needs	Inspirational scenarios, licensing clarity, easy-to-use tools
Pathway	**Informal** Inspirational talks and use cases
	Formal Tutorial on the XR tools, webinar on IP

4.4.2 Core topic across the learning pathways

Certain fundamental concepts that are relevant to 3D and XR technologies will be recurrent throughout the training activities - whether formal or informal:

- **3D digitisation:**
  - Planning 3D projects
  - 3D data capture
  - 3D data processing
- **Archiving and data management**
  - Metadata/paradata
  - Formats, sustainability and quality
  - 3D data management, preservation and archiving
- **Giving access**
  - EUreka3D Data Hub
  - 3D viewers
  - Sharing via international platforms or showcases, e.g. Europeana website
- **Reuse**
  - Creation of derivatives for specific audiences or use cases
  - XR experiences for users: on site or on line
  - EUreka3D-XR toolbox
  - EUreka3D-XR scenarios
  - Access, rights and licences
  - Other uses of 3D in cultural heritage

In the figure below is presented an example of how a creative professional might approach the training programme and define their own learning pathway.

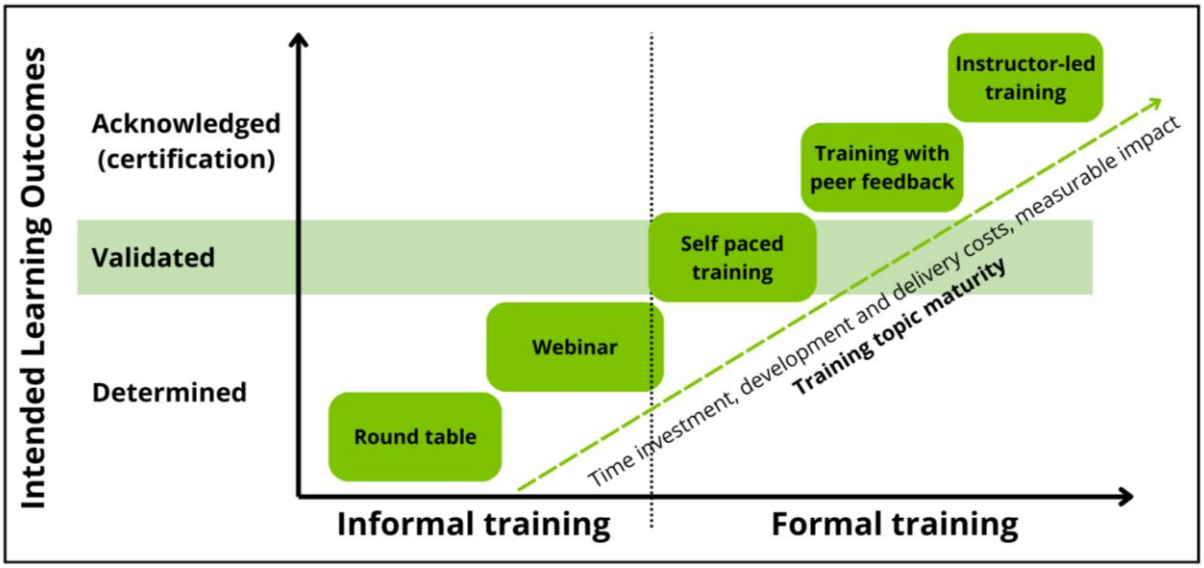


4.4.3 A decision tree for training design

Before defining ILOs for the target groups and selecting the best suited formats for the training activity, it is helpful to define the features for informal and formal training.

	Informal training	Formal training
Maturity of the topic, tool or service	Early stage, evolving, still under development	Mature and stable
Need for accredited/validated learning outcomes	Low	High (e.g. ILOs, certificates)
Needed resources (time, budget, pm)	Limited	Sufficient: greater time investment, more preparation, evaluation, follow ups.
Goal	Awaress, inspiration, introduction to basic concepts, community building	Deeper engagement and the acquisition of skills and more advanced knowledge by learners
Format of the activity	Presentations, conference contributions, testimonials, demonstrations, networking	Workshops, webinars with assessment and accreditation, self-paced learning modules with exercises, focus groups

In the figure below, it is presented a visualisation of how ILOs are acknowledged according to the training format, topic maturity and needed resources:



4.5 INTENDED LEARNING OUTCOMES

ILOs formulate which skills and knowledge the learner will have gained after completing a training event or after studying available resources and documentation. Formulating ILOs based on the needs, challenges, use cases and goals of the different target audiences described above makes it possible, on the one hand, to define the most suitable training (content, method, format), and, on the other hand, to define the best method for measuring if the ILOs are reached by the learner.

The Europeana Guidelines suggest Bloom's Taxonomy as a useful tool for defining ILOs, especially the six cognitive processes: **remembering, understanding, applying, analysing, evaluating and creating**. It should be noted that Bloom's Taxonomy, although widely used in education, has been reviewed and adapted multiple times, adding more layers such as categories of knowledge (factual, conceptual, procedural and metacognitive), which we won't use for this deliverable.

ILOs determined for **informal training activities**, such as webinars or introductory documentation, correspond - in this deliverable - mostly to the cognitive levels **Remembering and Understanding**. These are validated by basic exercises, such as multiple choice questions, to validate if the learners remember and understand what they are learning.

In **formal training activities**, ILOs are determined, validated (with exercises etc.) and in some cases acknowledged through a certificate (e.g. the webinar series organised with ICA). Translating formal training to Bloom's Taxonomy, these activities could correspond to all levels, but to differentiate from informal training activities, which focus mostly on the first two levels, for formal training the cognitive levels **Applying, Analysing, Evaluating and Creating** are described in the table below.

4.5.1 Exercises

In the table below, the method for measuring if ILOs are reached by the learner is shortly described in the last column. The exercises to assess ILOs are dependent on the training format. The Europeana Guidelines for training development and delivery makes the following distinction, which will be used during the development of the training resources and activities in the EUreka3D-XR project:

	Type of training	
Type of assessment	**In person training**	**Online training**
Self-evaluation, based on quizzes and questions	Offline or online forms (see next column)	Online forms, for example Google forms, Mentimeter, Surveymonkey, Kahoot
Peer review by fellow trainees	Small group discussion, written feedback	Small group discussion (possibly in a breakout room), written feedback (supported by online forms)
On-the-job observation	In person observation, role playing	Screen sharing, role playing
Feedback from an instructor	One-on-one meeting or written feedback	One-on-one meeting or written feedback

4.5.2 ILOs for content providers

Intended learning outcomes		Training delivery and content	Measurement of goals
Content providers (CHIs)			
INFORMAL TRAINING	**Remember** The content provider is able to name and define key concepts of 3D and XR technologies relevant to cultural heritage.	**Documentation** on relevant topics (such as the difference between XR/AR/VR/MR, methods of 3D digitisation, relevant standards (and lack thereof) for 3D and XR). **Presentations**: general overview of the EUreka3D-XR project, presentations on relevant topics.	**Online survey** after an activity or reading through documentation **Quizzes and tests** during live or online presentations (yes/no, multiple choice, …)
	Understand The content provider is able to explain the opportunities and challenges of 3D/XR for cultural heritage.	**Expert testimonials and demonstration of the showcase scenarios**: text or video in the documentation and/or during presentations, focused on the opportunities and challenges of 3D and XR for cultural heritage. **Presentations and documentation** on more specific topics, such as the EUreka3D Data Hub, the common European data space for cultural heritage, metadata and paradata, file formats, preservation, 3D viewers, authenticity, etc.	**Online survey**

FORMAL TRAINING	**Apply** The content provider is able to connect to the EUreka3D Data Hub to store, manage and give access to their datasets. The content provider is able to approach the guidelines and good practices for 3D digitisation and for the implementation of XR in cultural heritage and apply them in the (digital) context of their own organisation. The content provider is able to explore the open source XR tools created in this project.	**Enabling documentation**, such as step-by-step manuals and guidelines ● 3D Digitisation Guidelines: Steps to Success, ● EUreka3D Data Hub User's Handbook ● workflows and best practices for transforming 3D content into XR scenarios **Demo** of the EUreka3D Data Hub and the XR tools. **Case studies and testimonials** (in documentation or during webinars or events) focused on the implementation of guidelines, standards, recommendations, etc., for example about a 3D digitisation project from a partnering organisation, the three showcase scenarios, etc. **Self-paced learning materials**: MOOC-format, video tutorials and e-learning activities, e.g. on the 3D digitisation steps to success and the use of the EUreka3D Data Hub and XR tools. **Online and onsite workshops** (more specifically 'Learning-by-doing') to support participants in handling the Data Hub and XR tools.	**Quizzes and tests** during live or online presentations (yes/no, multiple choice, …) **E-learning activities with exercises**, such as applying guidelines on real-life case studies **Observation during activities,** e.g. the attendee is able to upload assets to the EUreka3D Data Hub **Testimonials, questions and feedback** on the XR tools, guidelines, etc.
	Analyze The content provider is able to explore different technologies, methods, tools, and select the best solution for their context	**Webinars and online training,** for example the three sessions in 'Driving digital transformation in Cultural Heritage Institutions: An Online Training Programme' organised in collaboration with ICA.	**Quizzes and tests** during live or online presentations (yes/no, multiple choice, …) **E-learning activities with exercises**, such as

	and goals.	**Self-paced learning materials:** MOOC-format, video tutorials and e-learning activities, e.g. the technologies from the webinar series, **Strategic reflection workshops** (online or on site) with analysis of real cases.	using training datasets in an AI tool, … **Observation during activities** **Testimonials, questions and feedback**
	Evaluate The content provider is able to compare the advantages and disadvantages of each of the XR tools, depending on the heritage context and project.	**Focus groups** on the XR tools developed in EUreka3D-XR **Webinars** on specific results from EUreka3D-XR and the impact of the tools and showcase scenarios	**Observation during activities:** testing, detecting mistakes in the tools **Groups discussions**
	Create The content provider is able to design a prototype XR experience with one of the tools. The content provider is able to create high quality 3D models based on the guidelines from EUreka3D.	**Focus groups** on the XR tools developed in EUreka3D-XR **Demos** of the XR tools **Technical documentation and user manuals** of the XR tools **Collaborative workshop** to use the tools to design prototypes of XR experiences.	**Observation during activity**: sketching the scenario, design, actual creation of the prototype of the XR scenario **Creation of high quality 3D models** **Testimonials, questions and feedback**

4.5.3 ILOs for content users

Intended learning outcomes		Training delivery and content	Measurement of goals
Content users (can also be content providers, but also professionals in education, research, creative or tourism sectors, …)			
INFORMAL TRAINING	**Remember** The content user is able to name and define key concepts of 3D and XR technologies relevant to their sector.	**Documentation** on relevant topics (the difference between XR/AR/VR/MR, methods of 3D digitisation, relevant standards (and lack thereof) for 3D and VR), etc. **Presentations**: general overview of the EUreka3D-XR project, presentations on relevant topics.	**Online survey**
	Understand The content user knows where to find open access reusable content. The content user is able to explain the opportunities and challenges of 3D/XR for their field of expertise.	**Documentation,** such as an overview of repositories for high-value datasets. **Expert Testimonials and demonstration** of the showcase scenarios: text or video in the documentation and/or during presentations, demonstrating the opportunities and challenges of 3D and XR for education, research, tourism and creative sector.	**Online survey**
	Apply The content user is able to connect to	**Enabling documentation,** such as step-by-step manuals and guidelines on:	**Quizzes and tests during live or online presentations** (yes/no, multiple choice, …)

FORMAL TRAINING	relevant repositories to find high-value datasets. The content user is able to explore the open source XR tools created in this project. The content user assess the potential impact of XR experiences on the engagement with their own target audience.	• how to source, compare and select relevant content of interest; • how to retrieve datasets for reuse from these repositories; • licensing information, right statements and clearing rights; • best practices for transforming 3D content into XR scenarios. **Demo** of the EUreka3D Data Hub and the XR tools **Case studies and testimonials** (in documentation or during webinars or events) focused on the implementation of guidelines, standards, recommendations, etc., from the sectors of the different content users. **Self-paced learning materials**: MOOC-format, video tutorials and e-learning activities, e.g. on the use of the EUreka3D Data Hub and XR tools. **Online and onsite workshops** (more specifically 'Learning-by-doing') to support participants in handling the Data Hub and XR tools.	**E-learning activities with exercises**, determining copyright status and reuse possibilities of materials in training sets **Observation during activities,** e.g. the attendee is able find relevant datasets for reuse in the EUreka3D Data Hub or on Europeana.eu **Testimonials, questions and feedback** on the XR tools, guidelines, etc.
	Analyze The content user is able to select	**Webinars** on specific topics, for example on licensing information, right statements and clearing rights for reuse purposes, the role of metadata and paradata and high	**Quizzes and tests during live or online presentations** (yes/no, multiple choice, …)

	relevant content based on their needs and goals.	quality models for research purposes. **Self-paced learning materials** on clearing rights for reuse purposes.	**E-learning activities with exercises**
	Evaluate The content user is able to compare the advantages and disadvantages of each of the 5 XR tools, depending on the heritage context and project.	**Focus groups** on the XR tools developed in EUreka3D-XR **Webinars** on specific results from EUreka3D-XR and the impact of the tools and showcase scenarios	**Observation during activities:** testing, detecting mistakes in the tools **Groups discussions**
	Create The content user is able to design a prototype XR experience with one of the tools.	**Focus groups** on the XR tools developed in EUreka3D-XR **Demos** of the XR tools **Technical documentation and user manuals** of the XR tools Workshop on **using 3D models in an e-activity builder** (for educators)	**Observation during activity**: sketching the scenario, design, actual creation of the prototype of the XR scenario **Creation of high quality 3D models** **Testimonials, questions and feedback**

4.6 EXISTING TRAINING RESOURCES FROM EUREKA3D

As mentioned, this capacity building implementation plan will build upon the seminars, documentation, workshops and demonstrations already developed in the EUreka3D project. The table below identifies the effectiveness and barriers of each of the training resources in EUreka3D and provides the way the resource can be reused in EUreka3D-XR.

Existing training material	Effectiveness and barriers	Reuse in EUreka3D-XR
3D Digitisation Guidelines: Steps to Success	**Effectiveness** A notable outcome from EUreka3D, designed to help anyone on their 3D digitisation journey. It is specifically aimed at CH professionals and outlines and simplifies the recommended standards highlighted in the EU VIGIE Study 2020/654 (Study on quality in 3D digitisation of tangible cultural heritage). **Barriers** Language could be a barrier for local CHIs and other stakeholders: the guidelines are currently only available in English, the EUreka3D-XR project aims to translate the guidelines in at least six EU languages.	Translation of the guidelines into project partners' languages. Objective: reuse by local CHI. Europeana is reusing these guidelines in their Europeana Publishing Framework[8]. The guidelines are reused in a self-paced training course on the Europeana Academy, and will be expanded with new modules with relevant results from EUreka3D-XR.
3D Research Challenges in Cultural Heritage V: Paradata, Metadata and Data in Digitisation	**Effectiveness** This open access book presents a collection of papers focussing on 3D digitisation in the CH domain. A major focus of the 16 papers included in this state of the art survey is on all aspects of the documentation of the digitisation process, i.e. paradata, which alongside metadata, is critical to the scientific rigour, replicability and sustainability of digital heritage resources. **Barriers** This is a highly scientific publication, addressing researchers in CH rather than providing specific training to professionals.	Scientific publication attesting the state of the art in heritage documentation. Parts of it (e.g. specific papers) can be reused, if needed, but it is not planned to specifically develop new capacity building activities or resources from this publication

[8] Europeana Publishing Framework, https://pro.europeana.eu/post/publishing-framework, last accessed on 20/05/2025.

EUreka3D Content Provider Handbook	**Effectiveness** A document for those who use or want to use the EUreka3D Data Hub. **Barriers** It is more a working tool than a resource/manual.	The EUreka3D Data Hub will be a topic in the new capacity building programme, as it will be extended with relevant results from EUreka3D-XR. For this purpose and in addition to the expansion of content, the document should be streamlined and made more user-friendly and approachable, since this will be some of the first documentation new CHIs encounter when trying to start using the Data Hub. This will be highlighted in the upcoming demos of the EUreka3D Data Hub.
EUreka3D Final booklet: EUreka3D - Good Practices for the 3D Digitisation of Cultural Heritage	**Effectiveness** This is a very useful dissemination document to "break the ice" about the EUreka3D-XR project. Chapters that might be interesting in this light are the one on the case studies of the content providers' journeys, the Data Hub and the last one, about Impact and Sustainability, which links to the current project. **Barriers** It is a bit lengthy overall, and the main focus should be on the 3D digitisation guidelines.	We should consider a new effort on the Final Booklet dissemination. It was published in December 2024, and the approach as a 'Good practices guide' might be of interest for CHIs within the continuation project. It will be further distributed during the EUreka3D-XR project, for example during on-site presentations (on conferences) and workshops.
Videos and Recordings from online events	**Barriers** It is unlikely that the target groups of the capacity building programme in EUreka3D-XR will rewatch the videos. No validation of intended learning outcomes. This makes it difficult, or impossible, to get insight into what people learned from these events and recordings.	The videos will remain available as a resource we can link to for upcoming webinars, as suggested background information to be watched in preparation for a more enabling training activity. This also applies to the videos from ICA-EUreka3D webinar series in 2023 and 2024, available on Youtube..

4.7 PLATFORMS FOR PUBLISHING TRAINING RESOURCES

A preliminary list of platforms where the project aims to publish learning materials and resources includes the following:

- **EUreka3D(-XR) capacity building webpage**: This webpage provides an overview of the capacity building activities from the EUreka3D and EUreka3D-XR projects, including the external events where the project takes part in (presentations, participation in panels…).
- **Europeana Knowledge Base:** platform with capacity building resources aimed at CH professionals.
- **Europeana Academy:** self-paced and instructor-led training.
- **Europeana Pro**: platform for the publication of editorials aimed at the CH professionals.
- **Historiana**: platform offering cultural collections and other resources for educators.
- **Zenodo**: A Zenodo community was opened in 2024, to publish all the outcomes of the project, including the deliverables, training and learning resources and other publications.
- **meemoo knowledge base**: a collection of publications, tools and other resources created for and by the cultural heritage sector, mostly in Dutch.
- **EUreka3D(-XR) capacity building playlist on YouTube:** a playlist on the project's YouTube channel collecting Capacity Building activities recordings from EUreka3D and EUreka3D-XR projects, as well as presentations of the project in some of the main sectoral conferences and events.
- **Europeana Publishing Guide for 3D Content:** part of the Europeana Knowledge Base, specifically geared towards describing the steps CHIs need to take to publish their 3D content in Europeana.eu.

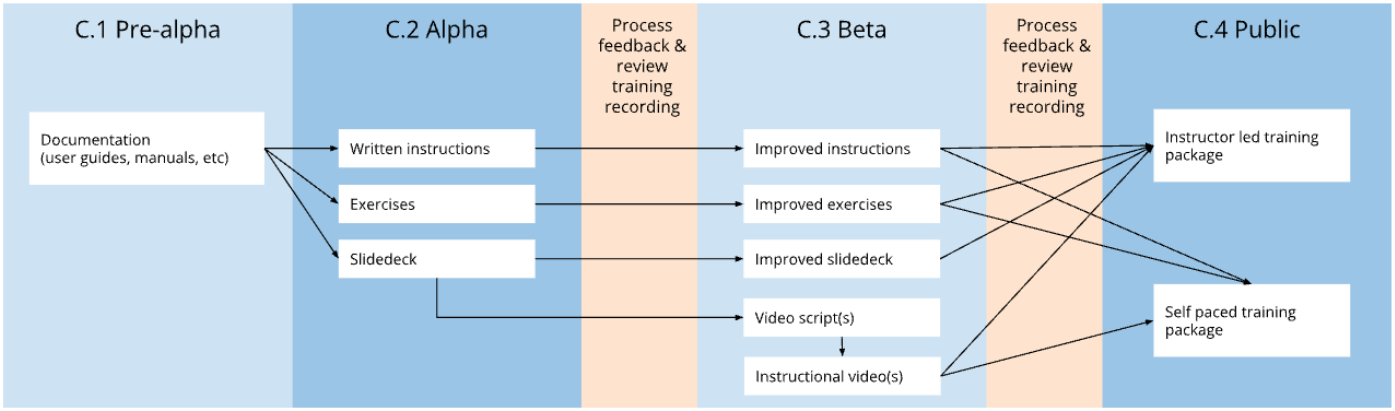
5. DEVELOPMENT AND PLANNING

5.1 GENERAL TIMING OF THE PROJECT AND RELEVANT MILESTONES

The EUreka3D-XR project started in February 2025 and will end in July 2026. Relevant deliverables in this project which will provide useful input for new capacity building activities are as follows:

2025		
July	D2.1	Pilot Specification and planning
	D3.1	Technical requirements
October	D3.4	EUreka3D-XR toolbox beta version
November	D3.2	Cloud infrastructure beta
2026		
January	D2.2	Girona Pilot Prototype v0.1
	D2.3	Bibracte Pilot Prototype v0.1
	D2.4	Cyprus Pilot Prototype v0.1
	D3.6	Quality assessment report
April	D2.8	Publication of content in Europeana
	D3.3	Cloud infrastructure final release
	D3.5	EUreka3D-XR toolbox final release
	D3.7	Formats and quality guidelines report
	D3.8	Paradata and sustainability report
July	D2.5	Girona Pilot Prototype v1.1
	D2.6	Bibracte Pilot Prototype v1.1
	D2.7	Cyprus Pilot Prototype v1.1

5.2 DEVELOPMENT STAGES AND AGREEMENTS



The figure above illustrates the development stages for training according to the Europeana Guidelines for Delivering Training and Development. The EUreka3D project takes this guidance into account, however, given the short duration of the project, it may not be feasible to conduct all development and delivery rounds as suggested by the Europeana Guidelines for every training module.

The **editorial, communications and capacity building Board** comes together every month to go over the schedule for the development and delivery/publication of training. Meemoo, Flemish institute for archives, responsible for the capacity building programme, tracks the scheduling, content creation, and execution of each component of the programme and assigns responsibilities to team members and partnering organisations.

To streamline the development of training resources and activities within the consortium, a briefing template is used to ensure that the methodology worked out in this deliverable is followed throughout the project. See Annex 1 *Briefing template for the development of training*.

The development process starts at the pre-alpha stage - the development and internal review of essential documentation needed for the training resources. Examples of these documents are user guides, manuals and glossaries. This could also be a list of available resources from external suppliers.

The partners responsible for a specific training resource create the first draft and share this for internal review with the project consortium at least 3 weeks before the publication date. After 2 weeks, the responsible partners move to the alpha stage.

The delivery and feedback on training activities and resources is discussed at the monthly gathering of the **editorial, communications and capacity building Board**, and if and where necessary, an approach for the improvement of the training resources, or the creation of additional training, testing and delivery (= beta stage). This internal workflow will be shared among partners and put into practice.

5.2.1 Alpha stage - collecting internal feedback

During the alpha stage, the first version of the training resources are developed, to contain at least:

1. **The training content that is fully written out**. These include text documents, slide decks, … The Europeana Guidelines for training development and delivery tips the approach "Relate, Tell, Show, Do" as an effective method to design training that reinforces the development of skills, knowledge and ideally also a behavioural change.
2. With **exercises** that fit the training delivery, ILOs, … (see 4.5.1 Exercises).
3. With explanatory (draft) **images and illustrations** to support learning.
4. **Advertising**: How are we going to address potential learners?
5. **Delivery of training and gathering feedback**: During the alpha stage feedback is gathered within the consortium. The Europeana Guidelines suggests the following **questions to collect internal feedback on the training**:
    - Were the ILOs clearly communicated? Was the relevance of ILOs clear to the trainees?
    - Did the training align with the ILOs:
        - Were the ILOs all featured in the training?
        - Did the trainees acknowledge that they've learned what was promised?
        - Did the exercises allow trainees to test and/or showcase their learning?
    - How much time did the training take? Are there opportunities to improve the flow of the training by splitting or combining exercises and/or breaks?
    - What was the overall satisfaction of this training? Did the participants feel that the duration and difficulty of the training were in balance with the ILOs?
    - Does the training answer to the needs determined in Section A and will it have the desired impact?
    - Based on the above and any other feedback gathered: what should and can be improved to the training resources?

5.2.2 Beta phase

In the beta phase, the training resource—now incorporating the internal feedback collected in the alpha stage —is **tested with at least one external stakeholder**. This includes promoting the training to new trainees and collecting external feedback to support further refinement. Key feedback questions include:

- How effective was the communication around the training? Would the trainees change anything to it?
- Why and how would they recommend this training to their peers?

5.2.3 Public release of the training materials

Following both testing rounds, processing feedback and incorporating necessary improvements, the training materials can be publicly released (v1). Before publishing, a final review is conducted in collaboration with WP4 Communication and Dissemination to ensure that the training resources:

- use accessible, inclusive language;
- are compliant with brand guidelines;
- are accessible.

5.3 CAPACITY BUILDING IMPLEMENTATION PLAN: OVERVIEW AND TIMING

This section covers the resources and onsite and online activities that are planned to be organised during the EUreka3D-XR project in order to transfer skills and knowledge to the target audiences. The list reflects the status of planning at M4, and can be expanded and adjusted in the course of the project. Additional information will be provided in the D1.2 Integration Report and regularly in the interim technical reports that are due every 6 months.

For each resource and activity, a title, short description and the estimated publication date is indicated, as well as the partner from the consortium that will provide the expertise and content of the training materials. Partner meemoo, Flemish institute for archives is responsible for following up on the scheduling, content creation, and execution of each component of the capacity building implementation plan.

5.3.1 Learning and training resources

Title	Description	Publication date
Translation of *3D Digitisation Guidelines: Steps to Success*	Translation of the guidelines into the EUreka3D-XR consortium's languages. Input provided by all partners.	2025
Online course on the EUreka3D digitisation guidelines	Reused guidelines for 3D digitisation as a training course on the Europeana Academy. This will be extended with new modules from EUreka3D-XR. Input provided by PHC and EF.	Q4 2025
Glossary	Glossary with terms such as XR/VR/AR/MR, metadata, paradata, different methods of 3D digitisation, … or terms relevant to the showcase scenarios. Input provided by all partners. Optionally translated into other languages in the consortium.	Q3 2025 and extended during the project

EUreka3D Data Hub Content Provider Handbook	User-friendly and extended version of the EUreka3D Data Hub Content Provider Handbook. Input provided by EGI.	Q1-Q2 2026
Video tutorial of the EUreka3D Data Hub	As a supplementary visual for the user manual. Input provided by EGI.	Q1-Q2 2026
Documentation on intellectual property and copyright for the reuse of 3D datasets	Resources on how to ensure that any online resources being accessed and reused have been properly authorised by the creators or owners, to be in line with a lawful reuse that prevents possible copyright infringement. Input provided by meemoo and EF.	2026
Technical documentation and video resources on all tools in the EUreka3D-XR toolbox	Technical documentation to support the use of the EUreka3D-XR toolbox, complemented with illustrative videos on how to access and use the tools. Input provided by imec, NTUA, Swing.it and MIRALAB.	Q2 2026
User manuals for all tools in the EUreka3D-XR toolbox	User manuals in appropriate formats and aimed at both content providers and content users, including video tutorials, Wiki instructions, step-by-step instructions, etc. Input provided by imec, NTUA, Swing.it and MIRALAB.	Q2 2026
Editorials and blogs	Editorials and blogs, published on different platforms, such as on Europeana Pro. For example, there will be a Europeana blog on AR/XR terminology, about a source collection in Historiana, … The editorials and blogs will be further disseminated during training activities, when and where this is relevant. Input provided by all partners.	Q1 2025 - Q3 2026
Case study: Girona	A case study to disseminate the impact and benefits of the reuse of 3D datasets and the new XR tools, demonstrated in the Girona scenario. Publication also on Europeana (Pro) Input provided by CRDI.	July 2026

Case study: Bibracte	A case study to disseminate the impact and benefits of the reuse of 3D datasets and the new XR tools, demonstrated in the Bibracte scenario. Publication also on Europeana (Pro) Input provided by Bibracte.	July 2026
Case study: Cyprus	A case study/testimonial to disseminate the impact and benefits of the reuse of 3D datasets and the new XR tools, demonstrated in the Cyprus scenario. Publication also on Europeana (Pro) Input provided by CUT.	July 2026
E-learning activities reusing datasets from EUreka3D-XR	These small educational modules covering different subjects of the EUreka3D-XR project can be used both to strengthen skills and to assess the acquired knowledge from the training. Input provided by Bibracte.	January - June 2026
Guidelines: how to use 3D models and XR experience in education?	These guidelines will cover what are the opportunities of 3D models and XR experience in education? Where can teachers find content? Which tools are available for teachers? Input provided by Bibracte and meemoo.	Q2 2026
Open Educational Resources (OER) about XR technologies	This OER will draw on the games and educational tools tested during the French Science Festival (October 2025) and provide resources that teachers can offer students to understand and experiment with XR technologies. Input provided by Bibracte and other interested partners.	July 2026
Final booklet	The final booklet will provide an overview of the EUreka3D XR project and its result. Input provided by all partners.	July 2026

5.3.2 Online and hybrid events

Title	Description	Publication date
Kick off in Pisa	Hybrid event hosted by the project coordinator. Introduction to the EUreka3D-XR project and the tools and scenarios that will be developed. Input provided by PHC, CUT, Bibracte and CRDI.	27 February 2025
Photography and archives: discovery, technology and innovation	Hybrid conference in Florence and online, to explore the evolving landscape of photographic archives looking at how new technologies impact the workflow of heritage professionals. co-organised by project coordinator Photoconsortium and the Historical Archives of the EU, in the frame of EUreka3D-XR capacity building action. Input provided by PHC, Bibracte and CRDI, with participation of Time Machine Organization.	29 May 2025
Reimagining culture in 3D and XR A hybrid capacity building event in Brussels	This capacity building event, organised in collaboration with Cultuurconnect, is built up in two parts. In the morning session - hybrid and in English, we will explore the challenges the cultural sector faces when it comes to 3D and XR. This will be followed by a deep dive in the EUreka3D-XR project and its goals (the toolkit, showcase scenarios). The afternoon session - on site and in Dutch - will further highlight the opportunities of 3D and XR, demonstrated by real life, inspiring use cases from the cultural sector. Participants will receive practical and hands on tips on how they can start to implement 3D and XR in their own organisation. Input provided by all partners.	26 September 2025
Driving digital transformation in Cultural Heritage Institutions: An Online Training Programme	Training programme on digital transformation in cultural heritage, organised in 3 sessions during 3 consecutive weeks. The structure of each session will include public presentation also streamed online + moderated workshop with interaction for a selected group of learners. A certificate of learning will be awarded to those who attended all 3 sessions. Input provided by PHC, CRDI and imec, in collaboration with ICA International Council on Archives.	19/11/2025 26/11/2025 03/12/2025

Focus group 1 - internal	This first focus group is organised within the project consortium to discuss and test the beta versions of the EUreka3D-XR toolbox and cloud infrastructure. The Advisory Board is also invited. See deliverables 3.2 and 3.4. Input provided by all partners.	Q4 2025
Pilot demonstration event in Girona	Hybrid event in Girona where the three showcase scenarios and the EUreka3D-XR toolbox will be demonstrated. This event will be linked to one of the external focus groups (see below). Input provided by all partners.	January 2026
The lifecycle of 3D data	A webinar series after expected results from April 2026 are delivered. ● Planning: Reusing the steps-to-success on 3D digitisation; practical view on how to prepare for a 3D project with expert testimonial and exercises. ● Data acquisition: Formats and quality guidelines; paradata and sustainability. ● Process, store and enrich: Final release of the cloud infrastructure; 3D and AI ● Publish and share: published content from EUreka3D-XR on Europeana.eu; a roundtable discussion on 3D viewers. ● (re)use: right statements and licensing in CH (case studies of reused 3D assets), case studies from CHIs and other content users; presentation of the 5 XR tools and showcase scenarios. A certificate of learning will be awarded to those who attended all sessions. Input provided by PHC, meemoo and other interested partners.	Q2 2026
PREAC training about XR	Online capacity-building event for education and cultural professionals, with workshops to introduce and familiarise the participants with the EUreka3D-XR tools. Input provided by Bibracte.	June 2026
Final event in Cyprus	A final event in Cyprus will be organised in 2026 by a synergic collaboration between CUT (the hosting partner), EF (to promote the event through a wide network) and CRDI (to support the	July 2026

	communication in the role of WP4 Leader). The aim of the event will be to share, in an appealing and accessible way for a wide audience, the lessons learnt, the development of the scenarios and, more in general, the experience in the whole project. The event will include keynotes, presentations on the results in the project and dedicated (on site and more interactive) sessions on AI for CH, the tools and scenarios created, etc. Input provided by all partners.	

5.3.3 Onsite events and Hands-on training activities

Title	Description	Publication date
First internal workshop at Bibracte	Presentation of the results from EUreka3D with a focus on metadata and paradata and interconnecting digital services and an introduction to the EUreka3D-XR objectives, with a focus on XR technologies and formats demonstrated with French study cases Input provided by Bibracte.	4 March 2025
French Science Festival	Practical and fun workshops for teachers, children and their parents organised at Dijon and Autun. The games that will be tested on this occasion will then be offered in the form of OER. Input provided by Bibracte.	3-13 October 2025
PREAC training Archaeology and young people: how do you show the invisible?	National training for education and culture trainers organised by Bibracte at Arles museum. One of the modules is a 2-hour 'speed dating' where trainees will be able to interact with specialists. Agathe Le Riche-Maugis will host the stand 'Visual mediation technologies: XR tools developed by EUreka3D-XR'. Input provided by Bibracte.	1-3 December 2025
Focus groups with external stakeholders	Focus groups to test and gather feedback on the EUreka3D-XR toolbox and cloud infrastructure from users from different target groups. Possible target groups that will be brought together are	Q1-Q2 2026

	professionals from ● Archive management sector ● Educational field ● Local communities and stakeholders of the showcase scenarios Input provided by all partners.	
Regional Heritage Meeting	Capacity-building event organised in Dijon for heritage site managers. Workshops to present and familiarise themselves with the tools. Input provided by Bibracte.	June 2026
Introduction of the XR toolkit and Data Hub for meemoo staff	Internal workshop for meemoo staff on the EUreka3D-XR toolbox and the EUreka3D Data Hub. Input provided by meemoo.	Q2-Q3 2026
Workshop(s) on 3D digitisation, preservation and reuse scenarios for partners in the meemoo network	Workshop(s) on 3D digitisation, preservation and reuse scenarios for partners in the meemoo network. These sessions are specifically aimed at the institutions for whom meemoo performed 3D digitisation. These are archives, museums and religious administrations from Flanders, but can be extended to a broader network. The session(s) will cover: ● birds-of-a-feather session: an informal roundtable discussion on the needs, wishes, plans of CHIs in Flanders concerning 3D and XR technologies. ● meemoo's approach in 3D digitisation projects ● EUreka3D guidelines for digitisation ● results of our research into 3D preservation and formats ● inspiring reuse scenarios in AR/XR from the Flanders region and EUreka3D-XR. ● EUreka3D-XR toolbox and Data Hub Input provided by meemoo.	Q2-Q3 2026

5.3.4 Collaborations and participation in conferences and events

Disclaimer: this is a provisional and not exhaustive list of conferences and other party's events that the project aims to attend or collaborate with, also beyond the end of the project. However, possible submitted papers or proposals may not be accepted. Regular reporting on the actual collaborations and attended events is provided in the interim technical reports.

Title	Description	Date
TMM-CH Transdisciplinary Multispectral Modelling and Cooperation for the Preservation of Cultural Heritage.	Participation in key panel of experts "From #DigitalTwin to #MemoryTwin: A New Horizon for Cultural Heritage". **Target audience → professionals from scientific and cultural heritage communities, research centres, and European projects** Input provided by PHC and CUT.	9 April 2025
EGI2025	The annual EGI conference focuses on research and innovation in data-intensive processing and analytics. A presentation about the EUreka3D Data Hub and the EUreka3D-XR project will be presented in the track Data Innovations: Data Spaces. Also, the postcards and EUreka3D final booklet will be distributed. **Target audience → international scientific communities, computing and service providers, European projects, security experts, community managers, and policymakers** Input provided by PHC and EGI.	2 - 6 June 2025
Europeana conference in Warsaw	A talk focusing on the results of EUreka3D and the new EUreka3D-XR project and its tools and scenarios, the capacity building programme, etc. will be presented. As complementary elements a short video on the project and the showcase scenario will be developed, and the postcards and EUreka3D final booklet will be distributed in a dedicated stand. **Target audience → Any working with or around the CH sector and interested in the preservation, protection and reuse of digital CH** Input provided by PHC and EF.	11 - 12 June 2025
International Archives Week	During International Archives Week (IAW), organisations worldwide share their events and participate alongside ICA in promoting the value and importance of archives and archivists.	9 - 13 June 2025

	Photoconsortium will participate in a panel during the International archives week organised by ICA. This session is about digital preservation and sustainability. **Target audience → archival community professionals** Input provided by PHC in collaboration with ICA International Council on Archives.	
DigitalHeritage 2025	Digital Heritage (DH) World Congress & Expo is a widely recognized event dedicated to the advancement of theory and practice within digital cultural heritage. DH 4th edition brings together leading international scientific organisations, initiatives and events, all in one venue with a prestigious joint publication. EUreka3D participates in panel organized by Time Machine Organization **Target audience → digital heritage professionals, organisations and initiatives** Input provided by PHC.	8 - 13 September 2025
ITADATA	ITADATA2025 aims to discuss and shape the future of Big Data and Data Science considering the multidisciplinary, complex, heterogeneous, and data-centric environment in which modern distributed systems are operating, including theoretical and practical aspects of Big Data and data science, policy making, ethics, laws, and regulations. A short paper about the EUreka3D Data Hub is submitted. **Target audience → researchers and professionals from academia, industry, government, and public administration** Input provided by EGI and PHC.	9 - 11 September 2025
SECreTOUR Hackathon	Hands-on event organised in collaboration with project SECreTOUR, aiming at connecting cultural heritage professionals with tourism and local managers. **Target audience → researchers and professionals from tourism, industry, government, and local administration** Input provided by PHC and EF.	Fall 2025

SITEM International Exhibition of Museums, Cultural and Tourism Venues (Paris)	Practical workshop or demonstration to present the tools and scenarios. **Target audience → CH professionals** Input provided by Bibracte.	March 2026
2and3D photography	2and3D Photography is organised by the Rijksmuseum in cooperation with the Association for Historical and Fine Art Photography (AHFAP). **Target audience → CH professionals** Partner responsible for input is TBD.	22 - 23 May 2026
Digital humanities Benelux	The annual DH Benelux Conference serves as a platform for the community of interdisciplinary Digital Humanities researchers to meet, present and discuss their latest research findings and to demonstrate tools and projects. **Target audience → the community of interdisciplinary Digital Humanities researchers** Partner responsible for input is TBD.	in 2026
DCDC: Discovering Collections, Discovering Communities	DCDC is an international conference for those working in the GLAMA sector and welcomes archives, libraries, special collections, museums, galleries, heritage organisations, academics, independent research organisations (IROs), charitable and community organisations, and research support and impact professionals to attend the event. **Target audience → anyone working in the GLAM sector; archives, libraries, special collections, museums, galleries, heritage organisations, academics, independent research organisations (IROs), charitable and community organisations, and research support and impact professionals** Partner responsible for input is TBD.	in 2026
Image & Research Conference	Image & Research conference offers the possibility to reflect and share knowledge on different aspects linked to the management of photographic and audiovisual heritage. **Target audience → professionals working with or around photographic and audiovisual heritage**	in November 2026

	Partner responsible for input is CRDI.	
EuroMed 2026	EuroMed is an international conference organized every 2 years, focusing on interdisciplinary research and technologies for the protection, preservation, conservation, and massive digitalisation of Cultural Heritage. **Target audience → cultural heritage institutions and professionals, ICT and data scientists, 3D and XR experts.** Partner responsible for input is CUT.	in Fall 2026
International Conference on Virtual Reality	ICVR is a forum designed to foster collaborations and knowledge-sharing of new advances and developments in VR, AR, and XR among researchers, technical people, domain experts, and academics from all around the world. **Target audience → anyone working with and around XR technologies** Partner responsible for input is TBD.	in 2026
EGI 2026	The 2026 edition of EGI conference will be attended with a presentation of the EUreka3D-XR results. **Target audience → scientists and professionals in digital infrastructures and ICT** Partner responsible for input is EGI.	in 2026
Europeana annual conference 2026	The 2026 edition of Europeana conference will be attended with a presentation of the EUreka3D-XR results. **Target audience → cultural heritage institutions and professionals** Partner responsible for input is PHC and EF.	in 2026

5.4 Communication and dissemination

The strategies for the communication and advertisement of the capacity building programme will be included in D4.1 *Dissemination and Exploitation Plan* due in M6 (July 2025)**.** This deliverable includes the communication and dissemination plan, and a roadmap to promote the project at key points throughout the duration of the action.

For the specific actions related to EUreka3D-XR capacity building, the approach of the plan will start from the target groups identified in this document, reflecting on the communication needs and the activities to be implemented in order to reach all targeted sectors, and thus succeed in delivering a sectoral capacity building programme throughout the project.

In addition to the communication for creating awareness of the capacity building actions (online, onsite or hybrid), the dissemination action will include recording and sharing of training events, with publication on the EUreka3D-XR YouTube channel, through dedicated playlists: this is a way of making these capacity building activities available as long term resources for a wide audience.

There will also be a distribution and promotion plan, specifically developed for the translated versions of the EUreka3D *3D Digitisation Guidelines: Steps to Success* and for the various other learning resources produced in the project. Other actions to promote the training activities and resources will be blogs and social media posts, as is also suggested by the Europeana Guidelines for training development and delivery.

The D4.1 will also illustrate initial roadmaps to exploitation of the project's results (including the capacity building and training resources), collecting partners' reflections and commitments for the use of project's results in their own activities, and the knowledge, data and IP management structures needed to enable exploitation by parties inside and outside the consortium. This deliverable will be timely published in July 2025.

6 TRAINING DELIVERY

Once the alpha and beta stages for developing training activities and resources are completed, it is possible to actually start training professionals from the various stakeholder sectors. Throughout this document, we made a general distinction between training **resources**, such as manuals and guidelines, and training **activities,** such as webinars and demonstrations. The delivery of the former is **self-paced training**, meaning that the learner goes through the training at their own pace and time. The delivery of the latter is **instructor-led**, meaning there are one or more trainers available during the training for a specific period of time in which the attendee gains new knowledge and skills.

Instructor-led training is best suitable for immediate assessment of the learning process, by asking questions, giving exercises and feedback. In self-paced training, it is possible to quiz the learner but there are no possibilities for immediate feedback from a trainer. The Europeana Guidelines for training development and delivery suggests to include contact information in training resources so the learner is able to reach someone in case they have questions or remarks.

6.1 CERTIFICATION

At the time of writing this deliverable, it is confirmed that there will be a certificate of attendance awarded to those who attend all three webinars in the training programme that is developed in collaboration with ICA in November 2025. Certification will be further looked at for other training activities during the project, but it will not be provided by default for all activities.

6.2 SCALING UP TRAINING

All resources and the recordings of the activities will remain available after the completion of the EUreka3D-XR project. During the project, existing resources will be monitored and updated if needed, and we will investigate possibilities for further upscaling them after the projects' deadline.

During the project, there will be no train-the-trainer activities or resources, as this is out of scope for this project, but depending on the implementation of the capacity building programme and its impact on the stakeholders (see D4.2 *Impact Assessment Report* due July 2026) we could look into developing these resources after the end of the project.

6.3 TRANSLATION OF RESOURCES

All training resources will be published in English. Possible translations of resources are done by experts in the EUreka3D-XR consortium, in which multiple European languages are represented: Italian, Spanish, Greek, Dutch, French and Catalan.

At the time of publication of this deliverable, the consortium started the translation of EUreka3D's *3D Digitisation Guidelines: Steps to Success.* During the project we will evaluate which resources are best suited for the stakeholder sectors to be translated into other languages. For example, the aim is to translate some of the Europeana Pro blogs into the partners' languages.

7 GATHERING FEEDBACK

Gathering feedback from users of online training resources or attendees at online/on site training can take place at different times:

1. **Before the training activity:** when signing up for an event, the participant can indicate what they expect from the training, what they are hoping to learn and what their level of expertise is on the topic.
2. **During the training activity**: the trainers evaluate the participation of attendees, assess if the ILOs are reached by participants.
3. **After completion of the training activity or resource**: attendees indicate their satisfaction with the training and to what extent their skills and knowledge has improved after completing the training.

These surveys will be held during the project to gather feedback on the learning resources and activities, so we can adjust and update them wherever necessary, and the results will enable us to perform the impact assessment (D4.2 due July 2026).

In the change pathways (see chapter 3.3) the short and long term outcomes and the impact on the different stakeholders - content providers and content users - as one of the project's intended outcomes are formulated. During development of this capacity building programme, these change pathways enabled the definition of needed resources and activities, the ILOs for each of the stakeholders and method of assessing if the ILOs are reached.

These methods will be put to use as **immediate, formative assessment during training**, which helps indicate that a knowledge transfer has taken place, it checks if the learners have mastered the content, skills and knowledge (see the **short term outcomes** for both content providers and users in the pathways).

Gathering additional information from the learners **before and after the training using surveys** helps us better evaluate the impact of the capacity building programme, adjust training where necessary and signals if extra materials need to be developed.

7.1 PRE- AND POST-ACTIVITY SURVEYING

In order to evaluate the impact of training on the learners after an activity, it is necessary to collect information on the level of expertise of the participants, their expectations of the training, … beforehand when the learner can subscribe for an event or via a survey before starting an online course.

Immediately after training the learner is asked to fill in a questionnaire on how they experienced the training, to what extent it will help them in their professional context and if they have any unfulfilled needs afterwards.

Pre-event	Post-event	Answer type
How would you rate your confidence level in this topic?	How confident do you now feel about this topic?	Multiple choice: ● Not confident at all ● Slightly confident ● Confident ● Very confident
How do you rate your skills and knowledge in this area?	How do you now rate your skills and knowledge in this area after this activity/event?	Multiple choice/scale ● 1 - I don't know anything ● 2 ● 3 ● 4 ● 5 - I am confident in my skills and knowledge in this area
N/A	To what extent did this activity/event improve your knowledge in these areas, or this specific theme or topic?	5 point scale, ranging from not at all (1) to a great deal (5)

Source: Europeana Standardised Question Bank

This method of surveying will help us evaluate if the long term outcomes from the change pathways are met during the project:

Long term outcomes for content providers

- Content providers use standards, skills, the XR toolbox and other resources in order to create high quality 3D datasets, give access to their datasets and transform their contents into innovative XR scenarios
- Capacity Building programme to build confidence in CHIs when it comes to creating tailored 3D and XR applications or experiences

Long term outcomes for content users

- Content users have skills and knowledge to source, compare and select 3D datasets that are fit for reuse in their professional context. They know how to reuse the high quality datasets published by the content providers by using the XR toolbox
- Content users can interact with XR contents, leading to deeper learning of specific CH objects and sites

Depending on the content and format of the training, it might be useful to add extra questions to the surveys. For this, the Europeana Standardised Question Bank is a helpful tool as "it aims to support cultural heritage institutions and our partners in their data collection and impact assessment practices, particularly surveying stakeholders".[9] The Question Bank is divided into different 'lenses' and sections, from which you can pick and choose. Especially the 'Learning lens' and 'Utility lens' (Practical knowledge and tangible outcomes) is interesting for the scope of the capacity building programme for this project to further enhance with questions specific to 3D and XR technologies in CH and other sectors. Below, the bold text are first additions that are relevant for training during the EUreka3D-XR project.

7.1.1 Learning lens

Question example	Answer type
As a result of event/activity, have you or your organisation: ● Applied the knowledge gained in my work ● Shared what I learned with colleagues inside my organisation ● Shared what I learned with others outside of my organisation ● Planning to digitise some or more of our collection **(in 3D)** ● In the process of digitising some or more of our collection (**in 3D)** ● **Started giving access to 3D data using the EUreka3D Data Hub** ● **Started sourcing 3D data for reuse scenarios** ● **Planning to create XR scenarios based on (my own) CH content**	Multiple choice/rating scale, matrix format ● Yes ● Partly ● No ● Unsure ● This change is not a result of the event/activity
As a result of the event/activity, how likely is it that you or your organisation will: <see options above>	Multiple choice/scale ● Extremely unlikely ● Unlikely ● Neutral ● Likely ● Extremely likely ● Any change will not be a result of the event/activity ● Unsure / N/A

[9] Europeana standardised question bank. https://pro.europeana.eu/page/europeana-standardised-question-bank?__cf_chl_tk=CPuVL1t2w9n.Cn6pChSfvuFIdY1rv9AP7me2cJ5VbNY-1746708506-1.0.1.1-gNG7W69N4nHb.xUshTxhPuMknmhk3l9UDrDOp.kPPOw, last accessed on 08/05/2025.

Has this activity encouraged you to learn more about the topic?	Multiple choice/scale ● Yes ● No ● Unsure/N/A
As a result of this activity, have you become more active in the broader community around digital cultural heritage? If yes, what does this involve?	Open text
We're interested to know what value the event/activity might have created for you. From the list below, please select up to three areas where the event/activity has had most value for you as a professional or for your organisation. The event/activity has helped me to: ● Learn knowledge, skills or information that I can use in my work ● Stay up to date with new trends and best practice in digital cultural heritage ● Extend my professional network ● Strengthen my professional network ● Learn new information that I can share with others ● Collaborate with others ● Awareness about relevant sector events and opportunities ● Become more confident in digital cultural heritage practices ● Apply for project funding ● Secure project funding ● Get more involved in the Europeana ecosystem ● Shape and drive policy and practice in the digital cultural heritage sector ● None of the above ● Other (please specify) Can you tell us more about your selections and any value that has been created for you as a Network member? *Please consider giving concrete examples e.g. increased funding, more connections to others, more focus on digital, etc.*	Checklist (multiple options or a restriction to a certain number of options) OR Multiple choice/scale for each of the options (using a matrix format, though it is quite long) ● Strongly disagree ● Disagree ● Neither agree nor disagree ● Agree ● Strongly agree Can be followed by open text

7.1.2 Utility lens

Question example	Answer type
To what extent do you agree with the following statements: • This webinar**/resource** was interesting • This webinar**/resource** was useful for my work • I will recommend this webinar**/resource** to others	Multiple choice/rating scale • Strongly disagree • Disagree • Neither agree nor disagree • Agree • Strongly agree
To what extent do you disagree or agree that, as a result of this event, you: • Gained skills or knowledge that you can apply in your work or professional setting • Feel more able to make a change in your organisation or otherwise professionally • Feel inspired to change how your organisation uses digital cultural heritage • Want to change your organisation's approach to open digital heritage data	Multiple choice/rating scale • Strongly disagree • Disagree • Neither agree nor disagree • Agree • Strongly agree
Can you report improved processes and / or tangible benefits as a result of the activity? If yes, can you tell us more?	Multiple choice with an open text option • Yes • No • Unsure/N/A Open text
Have you witnessed any professional or institutional changes taking place as a result of this event/activity?	Open text
Did the activity help bring about any changes in your organisation? For example, are you doing anything new or doing something differently?	Open text
Would you like the organiser(s) to provide more training on this topic? If yes, tell us more about what training you would like to see.	Multiple choice with open text for further explanation • Yes • No • Unsure/N/A Open text

Do you feel that you need further skills / knowledge development and guidance from the organiser(s)? If yes, please tell us more about how we might best support you.	Multiple choice with open text for further explanation ● Yes ● No ● Unsure/N/A Open text
Has anyone or any other organisation benefited from your participation in this event/activity?	Open response
What has this event/activity helped to achieve, if anything?	Open response
Do you feel that event/activity has had professional or personal value for you in some way?	Multiple choice: ● Yes ● No ● Unsure With an open text box to 'Please explain your answer'.

7.2 User satisfaction

Additionally, after training the attendees can indicate their general satisfaction with the training:

To what extent are you satisfied with the activity/resource/…?

- Completely dissatisfied
- Dissatisfied
- Neither satisfied nor dissatisfied
- Satisfied
- Completely satisfied

The % satisfaction = satisfied + completely satisfied

7.3 COLLECTING IDENTIFIABLE OR CONTACT INFORMATION, PRIVACY AND GDPR

In order to compare pre- and post-activity responses, assess the impact of the training on the attendees (from the different sectors) and the impact of the capacity building programme and outreach as a whole, it is necessary to collect minimal but useful personal data of the participants. Such fields are organisation/sector and nationality/country of residence. Participants' informed consent will be obtained and clearly documented, including information regarding the participant's right to refuse to participate and to withdraw their participation or data at any time, and how the project implements the principle of data minimisation and protection at all times. Legal and ethical issues and mitigation measures are described in D1.6 *Ethics Issues Mitigation Measures*[10].

7.4 PROCESSING FEEDBACK

The feedback provided by participants and users of online resources will be analysed and discussed at the monthly editorial, communications and capacity building Board. When and where necessary, based on the feedback received, the Board will decide what updates and changes should be made to existing resources or recurring presentations, and/or which extra resources should be developed. All updates and new content follows the same development process described in chapter 5.2. The feedback will also be used for the D4.2 *Impact Assessment Report* (due July 2026).

7.2 MEASURING TRAINING IMPACT

In order to truly measure the impact of the capacity building programme on the different stakeholders, the EUreka3D-XR project might be too short. The desired impact on the stakeholders is as follows:

Impact for content providers

- Behavioural change in the way stakeholders approach 3D digitisation, preservation and giving access and re-using their datasets in the workflows they undertake;
- Increased user engagement with 3D models and related physical cultural heritage;
- Greater use of 3D assets and increased engagement with 3D models and XR tools and scenarios.

Impact for content users

- User confidence and behavioural change in the way stakeholders approach finding, selecting and re-using high quality 3D datasets and XR tools;
- Greater use of 3D assets and 3D engagement using 3D models and XR tools;
- Increased understanding related to physical CH that can be shared in innovative ways and experienced by others.

[10] D1.6 Ethics issues mitigation measures. https://eureka3d.eu/wp-content/uploads/2025/05/EUreka3D-XR-D1.6-Ethics-issues-mitigation-measures.pdf, last accessed on 20/05/2025.

These impact areas will become clear when CHIs and content users start to really use the tools and other resources from this project. Then it is possible to check whether participants of the training activities from EUreka3D-XR have actually implemented the guidelines and best practices that come forth from this project and what the impact actually is on 3D and XR technologies in the identified sectors.

After the project, it would be interesting to survey the users of the XR tools and the EUreka3D Data Hub on how the existing training resources support them in starting 3D/XR projects, creating 3D datasets and XR scenarios, what challenges still arise and what additional resources could help them.

CONCLUSIONS

This plan lays an extensive foundation for the development and delivery of EUreka3D-XR training that will equip CHIs, educators, researchers, tourism professionals and creatives with the necessary tools, skills and knowledge to create, source and meaningfully engage with 3D and XR technologies. Guidance to project partners and coordination in planning the various training activities of EUreka3D-XR is provided by responsible partner meemoo.

By following the *Europeana Guidelines for Delivering Training and Development*, the capacity building implementation plan ensures a structured, standardised and scalable approach to the training offered in this project that includes the needs of the different stakeholders identified at the beginning of the research, and provides a balanced offer between informal and formal training activities that are in scope within the timing of EUreka3D-XR.

By performing a needs determination, describing sector specific use cases and learning pathways and defining ILOs for both content providers and content users, the capacity building implementation plan offers a method to implement a sectoral capacity building programme that aims for maximum outreach, engagement and impact for a wide audience. Initial reflections on expected impacts and change pathways for relevant stakeholders are also presented.

The capacity building activities will not only focus on theory and general project presentations, but also focuses on practical engagement with the XR toolbox developed in the project, demonstrations of the showcase scenarios and other real word use cases to inspire and reinforce the stakeholders to experiment and create using 3D and XR technologies.

In following deliverables D4.1 *Dissemination and Exploitation Plan* (due July 2025), D4.3 *Sustainability Plan* (due January 2026) and D4.2 *Impact Assessment Report* (due July 2026) attention will be given to the results laid out in this report to ensure a wide and sustainable impact during and beyond the project's duration. The capacity building activities planned in this deliverable also serve to feed the *D1.2 and D1.5 Integration Report 1 and 2* (respectively due July 2025 and July 2026) that illustrate how the outcomes of the project are integrated in the common European data space for cultural heritage. Reporting on the performed activities also take place regularly in the Interim technical reports due every six months along the entire project's duration.

ANNEX 1. BRIEFING TEMPLATE FOR THE DEVELOPMENT OF TRAINING

Before filling in this briefing, please refer to the decision tree for training design (4.4.3 in D5.1) and assess the following: • the maturity of the topic, tool or service • the need for accredited/validated learning outcomes • needed resources (time, budget, pm) • The goal(s) of the training
Practical
What is the title of your activity/resource?
Short description
Publication date or data of the activity?
Is any other organisation or project involved in the organisation or development of the training?
Who should review the training materials?
What is the format of the training?
• Documentation (such as manuals, guidelines, …) • Self-paced course • On site event • Hybrid event • Online event • Other   • …
What are the technical needs and functional requirements for the tools used for the training activity?
E.g. the possibility to livestream a presentation, assessment tools in Zoom, …

Audience and goals
Who is your target audience?
Please refer to chapter 3.2 in D5.1
Do the learners need any pre-existing knowledge or skills before starting the training? If so, do we have resources to share with those without that knowledge?
What needs are answered by the training?
Please refer to chapter 3.2 in D5.1
What are the Intended Learning Outcomes?
Please refer to chapter 4.5 in D5.1
Content
Essential and needed documentation for the development of the training?
How are you going to measure if the ILOs are reached by the learners?
Please refer to chapters 4.5.1 - 4.5.2 in D5.1
What images/charts/… are useful or needed for the training?
Gathering feedback
Pre-activity: what (additional) questions do you want the learner to answer before starting the training?
Please refer to chapter 8.1.1 in D5.1 and the Europeana Standardised Question Bank.
Post-activity: what (additional) questions do you want the learner to answer after completing the training?
Please refer to chapter 8.1.1 in D5.1 and the Europeana Standardised Question Bank.