



## D1.4 Technical progress report 2

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## EXECUTIVE SUMMARY

This deliverable illustrates the progress in the various areas of the Eureka3D project that has just completed its first twelve months.

Besides a general progress in all the project areas, it is especially noteworthy the effort on supporting the development of the Eureka3D platform dedicated to Cultural Heritage Institutions (CHIs) in need of solutions for storage, management and sharing of 3D collections. The Eureka3D pilot platform has the potential to be the project's most important impact area, to the cultural heritage community and for the advancement of the Data Space for Cultural Heritage.

The vision towards decentralising the aggregation of collections, enabling Europeana as a discovery place for content that is hosted and accessible in various repositories, needs supporting platforms that are at direct disposal of European cultural institutions. Most institutions have proprietary websites to showcase their content, which the Europeana website points to, but the requirements in handling collections of 3D objects are more complex than what CHIs are used to. Therefore, new services and tools are needed to support this complexity. Digitized 3D objects cannot be easily shared due to large file sizes and proliferation of file formats, compounded by the need of 3D viewers, that provide an adequate user experience on the Web, both in speed and in accurate rendering of the 3D models. Although the 3D industry is well developed and provides multiple options, the lack of standardisation agreements causes problems. The variety of 3D formats and conversion tools, complicate the path towards a common standard, from digitisation, metadata and paradata annotation, and the process of delivering 3D assets to end users.

Therefore, in the last period, a great effort was dedicated to untangle these layers of complexity to create a platform that includes the following features:

- Secure authentication and authorisation mechanisms, to protect 3D objects from manipulation or unauthorised access
- Storage of models in original formats (often with very large sizes, depending on the CH object they represent and the quality of digitisation), and conversion/visualisation features that enable the object to be displayed online. This conversion should not compromise the quality of the result
- Metadata and paradata models compatible with EDM
- Interoperability with established mapping tools like MINT and with Europeana METIS aggregation tools, including embedding of the visualisation tool for Europeana display
- Harvesting facility to provide the individual object or datasets to Europeana for publication.

The demo event organised by the Eureka3D consortium in December 2023 was a milestone in the presentation of the progress of the development to stakeholders, with 98 unique participants, and allowed for feedback, advice and recommendations to be collected. During the event, some of the project's 3D models were shown publicly for the first time. An outcome of the digitisation effort ongoing by project partners, which will form the collections to be later aggregated in Europeana for integration in the Data Space for Cultural Heritage. Figure 1 depicts the Eureka3D workflow that was presented during the demo event, covering three big blocks: the digitisation process (*capture*), the upload and management of data in the Eureka3D platform (*cloud*) and the release of data and services to end users and external applications (*delivery*).

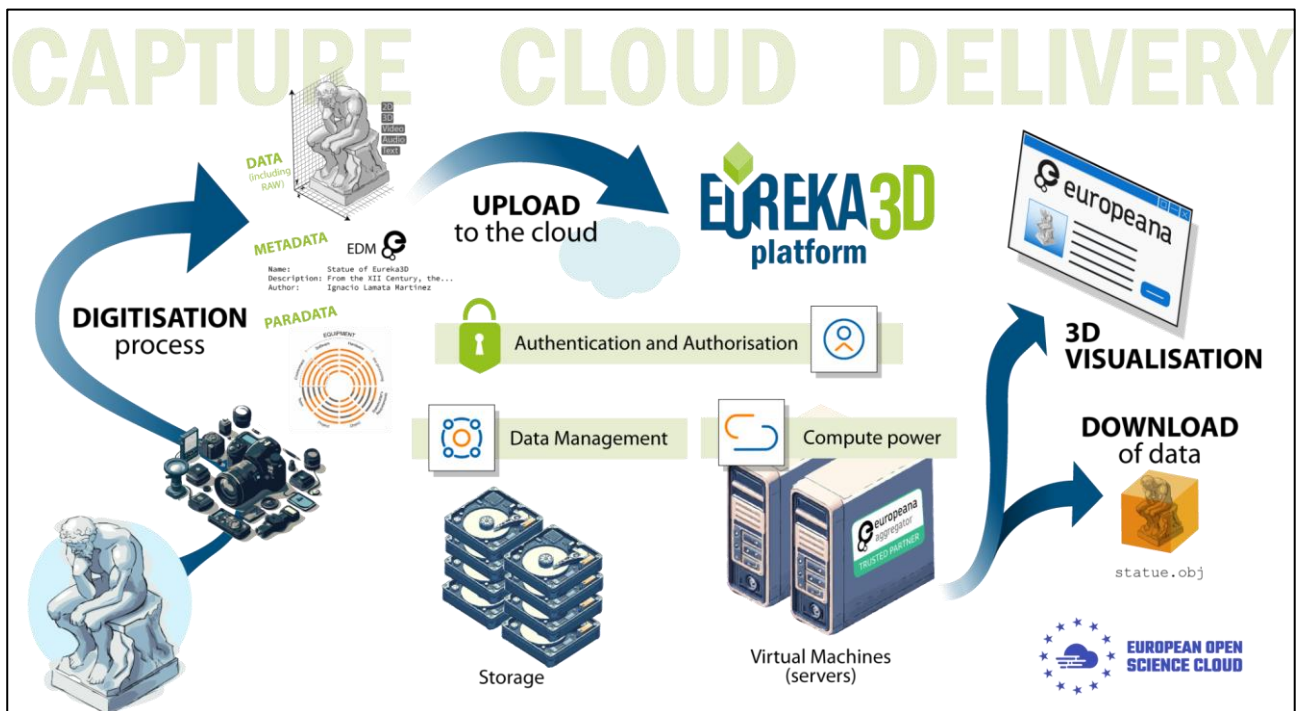


Fig. 1: the Eureka3D workflow, presented at the demo event on 15/12/2023

Parallel to this development work, the period under examination experienced a boost in the capacity building programme, particularly leveraging the collaboration with ICA, the International Council on Archives, with which a cooperation agreement was established. A high participation rate in Eureka3D online events (over 500 until now) and very lively feedback from the audience showed how the CH sector in Europe and abroad is eager to discover knowledge and tools in this new 3D digitisation scenario. Simplified training materials on 3D digitisation extracted from the VIGIE Study 2020/654, meta and paradata guidelines, recommendations on formats and standards, and support in online sharing are desperately needed in the sector, both in Europe and internationally - as it is witnessed by the geographic variety of CH institutions and professionals reached with the online webinars organised with ICA. The effort in supporting CHIs will continue in the next period with more events, publication of materials, stakeholder surveys and engagement of experts (on the Eureka3D Advisory Board and from wide CH networks, e.g. ENA, ICOM and others).

The digitization work of the content providers in the project is progressing at different paces, with all partners completing or nearly completing the process of capture, and in some cases the rendering phase for the models is ongoing or nearly completed. Due to the variety of objects in the project (spanning from terrain models, wide terrestrial monuments, big objects and small artefacts), the capture process adopted different technologies and tools, on the basis of the level of complexity. Guidelines for paradata creation were shared and support for the metadata creation process, in line with the requirement of the Europeana Data Model, was provided. Some of the completed 3D models have already been uploaded in the Eureka3D Pilot platform for testing purposes.



Fig. 2: Some images from EUreka3D’s providers about their digitization work.

Communication and dissemination actions promoted the EUreka3D project and its events, and helped growing a network of stakeholders to be reached with a variety of communication tools such as online presence, participation in events, newsletters and Europeana editorials. Another big area of effort is dedicated to impact analysis, with feedback collection from a variety of stakeholders, and with reflections on the changes that CHIs are experiencing in adapting to the new knowledge and workflows required in 3D digitisation and sharing.

This deliverable is composed of the following chapters:

1. Introduction
2. Overview of the progress
3. Details on Work Packages and Activities
4. Conclusions.

## 1. INTRODUCTION

According to the project's Grant Agreement, this document *D1.4 Technical progress report 2* is the second instance of progress report with detail of the activities, data added or updated, updated risk assessments, the progress towards the project objectives in percentages, highlighting and justifying possible deviations from the original plan.

In accordance with the provision of the Grant Agreement, the periodic reports are submitted following the templates published on the EU Funding & Tenders Portal. On this basis, the deliverable D1.4 is composed by the content provided on the EC Portal (Part A of the Technical Report) and by this document that contains the narrative parts of the Technical Report (Part B). The Financial Report is not part of D1.4 and is expected to be submitted to EC at the end of the Action.

This document provides an overview of the progress achieved at Month 12 and the status of execution of the work plan, including details on the progress of each WP and task, and information about achieved milestones and deliverables.

### ROLE OF THIS DELIVERABLE IN THE PROJECT

This deliverable summarizes the activities performed in the project towards the expected objectives. It serves as a recap of the work done in the various work packages for future reference in the coming months, given the majority of project's deliverables of year 2 are due in the final period of the project. It contains reflection on the impact of the project's activities towards the various stakeholders. This deliverable D1.4 is the verification mean for Milestone 2 that is timely achieved.

## 2. OVERVIEW OF THE PROGRESS, BASED ON THE TECHNICAL REPORT TEMPLATE (PART B CHAPTER 1)


### Summary of work performed and achievements, results and impacts

#### Work performed and main achievements

Short summary of progress towards the project objectives. Highlight significant activities and achievements. Provide clear and measurable details.

Analyse the outcome of the project (so far) and its (actual and expected) impact (on target groups, change, innovation etc.), including a description of the European dimension and added value. For the Final Report, include the conclusions of the action.

Report on objectives not fully achieved or not on schedule.

 Do not simply cut and paste the project summary (filled in online on the Summary for Publication screen). Contrary to the summary, this section is for reporting to the EU and will not be published.

#### PROGRESS TOWARDS THE PROJECT OBJECTIVES

The project is concluding its first year with valuable results in the different work packages:

**Management and coordination (WP1):** the progress **monitoring** is on track, with regular project and WP meetings to review status and plans for the various tasks. Review for the status of expenditure at each partner is currently ongoing basing on available data collected from the partners. In person **meetings** are also organized: kick-off meeting in Pisa (23-24 January 2023), a second project meeting in Roma (6-7 June 2023) and a third plenary in Brussels (14-15 December 2023). The due deliverables and milestones were **timely submitted**. An amendment procedure was agreed with the PO, approved and in force. An informal progress meeting with the PO was held on 26 June 2023 and a next one is planned on 19 January 2024, to present the progress of the project.

#### 3D digitization and capacity building (WP2):

The data acquisition/digitisation: During the first half period of the project, we launched the data acquisition process. Content selection, digitization and metadata preparation activities are ongoing at various paces by the content providers along with testing of the mapping for Europeana ingestion, for which a service contract was established with company Datoptron for support in the use of MINT mapping tool.

In particular, the partners digitised the following objects:

- CUT: digitised all three monuments in 2D and 3D: (a) the Holy Cross / Timios Stavros in Pelendri village (UNESCO WH site), (b) the Chrysoroyiatissa Monastery in Pafos district (a monument under risk) and (c) the oldest fishing boat in Cyprus Lambousa
- CRDI: 3D digitization of n. 50 objects of precinema and equipment, on display at the Cinema Museum in Girona, a type of heritage that is fragile and cannot be touched or examined
- BIBRACTE: 3D digitization of a selection of archaeological artefacts and ceramics from the collection of the Bibracte Museum, plus a variety of terrain models produced with aerial photogrammetry for the entire archaeological site.
- MUSEO DELLA CARTA: 3D digitization of two ancient paper moulds, a type of heritage almost unknown from the traditional paper manufacturing industry in Tuscany. In addition to the two models, a bulk of ca. 5,000 documents will be published in Europeana.

The [first capacity building event](#) of the project was successfully delivered as a hybrid event on 6/6/2023 in person in Roma (ca. 50 participants) and online (overall ca. 120 participants connected). [Three online events](#) on capacity building took place in Autumn 2023, realised in collaboration with ICA the International Council on Archives, **reaching out to a vast audience in Europe and internationally** (according to Zoom report, unique participants in the three events were 140+121+69, for a total of 330 from all over the world including but not limited to Nepal, Indonesia, Philippines, Chile, Mozambique, Lebanon, South Africa, US, Japan, Mexico). Additionally, an [online demo event](#) was organized in December 2023, to present how the Eureka3D platform and process is envisioned to operate from the perspective of a CHI that wants to create and share online collections of 3D objects. The demo was very successful with 98 unique participants according to Zoom record, and various interesting questions from the audience. These events also supported the EC Twint! Campaign. An [Advisory Board](#) of experts was formed and engaged with the project's progress, particularly



the members were invited in the Brussels plenary and provided an interesting feedback following the demo, **with advice and recommendation** on the proposed solutions and development of the project. Also, Photoconsortium representatives are part of the Europeana 3D working group, collaborating to the revision of EDM in order to better accommodate information related to 3D models, and participating in the revision and update of Europeana Publishing Guidelines on 3D.

**Cloud-based services and tools (WP3):** This WP is organised with weekly meetings between the technical partners (EGI, Cyfronet, CUT and imec) where progress on the different tasks is reported, supported by valuable knowledge sharing and discussions which are critical at the early development phases to minimise the level of optimisation when the Pilot platform is independently operational for stakeholders (initially the project's content partners). The primary objective at this stage of the project is to resolve the main technical design aspects. In this respect, **different 3D formats** have been analysed to be used in the project, which has highlighted the variety of options available but the lack of unique standards that are ready to use in the Web. Crucial characteristics of the formats are storage efficiency, delivery efficiency, preservation and global support from tools and software. The organisation of the data has been discussed, together with different requirements, such as language and versioning. CUT has been enabled in the EUreka3D platform as a content provider and real 3D models from content providers (CUT, Bibracte, Museo della Carta) and associate partners (INSPAI) have been **uploaded** into the platform (DataHub). Different activities have been conducted for the **integration with Europeana**: (i) A proof of concept to test the OAI-PMH communication between DataHub and Europeana. (ii) Some preliminary work has been done to implement the required oEmbed software artefacts. (iii) Analysis of the EDM data format has been done. EDM will be used for metadata, probably with the assistance of the MINT tool. However, there is not yet a unique option available for paradata, and a bespoke RDF-based solution (to be compatible with EDM in future) is envisioned. (iv) Different options for the visualisation of 3D objects have been tested, including 3DHOP (run from an associate partner tool, Archeovision) and an open-source library. Possible other tools will be considered too. This is highly related to 3D formats, and choosing a visualisation technology (tested with the available CUT models in DataHub) has proved to be more challenging than initially anticipated. External advice has been collected from different discussions with the creator of the Nexus format and 3DHOP (Federico Ponchio, CNR-ISTI).

#### **Communication, dissemination and impact (WP4):**

Tools and **communication and dissemination activities** published on D4.1 (dated 06/30/2023) have been implemented: the newsletter management platform has been developed and **project's newsletters** have been sent regularly since October 2023, social media channels have been deployed and constantly updated (X/Twitter, Instagram, LinkedIn, YouTube). The **marketing plan actions** aim to endorse the EUreka3D capacity building programme by reaching cultural heritage professionals and communities working with digital cultural heritage (including educators, researchers and creatives industries, organization in tourism), as well as 3D digitisation professionals and service providers. In terms of internal communication, the **Communication and Editorial Subgroup** meets monthly, and workflows are working properly. Basecamp is also used as a tool to share visual materials to be disseminated by partners.

#### **OUTCOMES ANALYSIS**

Looking at the various project activities and their outcomes on the target groups addressed by the project, it is possible to mention the following:

*1 Communication and dissemination - Target: Cultural Heritage Institutions and professionals, technology and service providers, students and researchers, other groups (teachers and cultural educators, other users of cultural data).*

The project deployed a wide range of outreach activities, which made the project known in the CH community and especially in (but not limited to) the Europeana network:

- online channels: project website, project blog and social media are constantly kept updated and expanded. Partners are promoting the project via their own channels. A project's newsletter was launched and the network of followers is growing (currently +400 registered in the EUreka3D newsletter).
- participation in events: in the period M6-M12, the project was presented in the international Europeana event in the context of the Spanish EU presidency (17 October), in the Europeana Aggregators Forum (2-3 November), and in the EAF Outreach event on 23 November.
- Advisory Board and cooperation agreements: the network of stakeholders is being built by establishing connections with other CHIs, technology projects and groups of interest. An Advisory Board of experts was established with the aims of providing valuable knowledge and also the cooperation was expanded to support project's development.
- Relationships with the other DEP-funded projects (AI4Europeana, DE-BIAS, 5DCulture) are ongoing, with participation in common meetings.

It is worth to mention that the promotion of the capacity building webinars organized with ICA helped communicate the



project to a larger basin of European and international archival and cultural heritage professionals. According to the post event surveys delivered by participants in these events, on average half of the participants haven't heard (before the webinars) about the EC recommendation on digitization of cultural heritage. They were completely satisfied or satisfied of the event and felt that the event encouraged them to learn more. It is possible to interpret these insights as a signal from the CH sector, where more information on these subjects is wanted and needed, not only in Europe but also more globally.

Some quotes, sourced from audience via the post event surveys, stimulate interesting reflections:

Webinar 1 on digitization guidelines, keynote speech by Ismo Malinen and Hannu Häkkinen, Museovirasto:

*I am concerned about how these standards can be used by developing countries that may not have the resources that Finland has.*

Webinar 2 on 3D digitization recommendations, keynote speech by Marinou Ioannides CUT:

*How does this practice apply to preservation of indigenous heritage.*

Webinar 3 on 3D and creativity, keynote speech by Valentine Chales, Europeana:

*In Uganda, we are very much interested in moving in this direction of being digital, but many things limit us. For example, capacity building (skills not there), e-infrastructure missing, storage resources, and equipment or tools to use is lacking.*

## *2 Data Hub and services - Target: Project partners, CHI professionals, technology and service providers, users of cultural data*

Major topics of discussions in the period include the definition of appropriate data formats to be used for 3D content, the metadata models and potential support tool to obtain EDM data, data files organisation, and visualisation solutions for 3D content in different formats. In this respect, the collaboration with technology experts from CNRS Bordeaux and CNR-ISTI proved very useful. Different proofs of concept were conducted to test the communication between EUreka3D systems and Europeana, which is expected to be implemented in the next phase. A test account was requested from B2Handle (EUDAT) to retrieve PIDs for the 3D objects. A survey was launched among project partners to collect more information about their digitisation process and the requirements in terms of data formats and meta/para-data collection and compilation. A demo event to showcase the EUreka3D Data Hub, its services and workflow was organised in December and thoroughly discussed with the Advisory Board members. All this work generated a vast and valuable amount of new knowledge, which served not only the platform development but also to feed the capacity building programme in EUreka3D.

## *3 Capacity building and training - Target: Cultural Heritage Institutions and professionals, technology and service providers, students and researchers, other groups (teachers and cultural educators, other users of cultural data)*

The first year of the project concludes with a number of capacity building events successfully delivered to a varied scenario of cultural professionals, students and technology partners. The project website makes available information about those [capacity building actions](#) and a growing collection of [useful resources](#) that can be of interest of the CH community dealing with new workflows and requirements of 3D digitization.

As mentioned above, interesting feedback was received, especially via post-event surveys submitted to participants in the 3 webinars organized with ICA and in the demo session. Such surveys and other less structured feedback allowed to complement the requirements expressed by the project partners, in terms of needs:

- Need to access tools and resources (especially storage)
- Need to better understand the formats available for different purposes of preservation and reuse of 3D models
- Need to better understand what types of information about the creation process for 3D models (i.e. the paradata) are important to be collected by CHIs (and why they are important).

Following the above feedback and requirements, several outcomes will be delivered in the course of year 2 as capacity building resources, addressing both project partners and prospect users/content providers. Collaborations will be established with other networks, organizations and projects to maximise outreach, as we did with ICA in the Fall 2023. A dedicated webinar to present formats for 3D models is being planned for Spring 2024, together with the compilation of a registry of available formats for CHIs to choose from according to their needs. Guidance on the importance of paradata for scientific preservation of 3D models will be provided, also by developing user-friendly factsheets distilled from the comprehensive but complex VIGIE 2020/654 Study.

#### 4 Editorials - Target: Europeana users and community

An editorial calendar with expected publication dates on Europeana website and Europeana Pro was agreed, as indicated in D4.1. In the reporting period, the following editorials were published, with an extra effort to implement multilingualism:

- [3D digitisation - its history and future](#): A short history and possible future of 3D digitisation in cultural heritage.
- The same blog was [translated in Spanish](#) and republished on the occasion of the Spanish Presidency Europeana Conference on 17/10/2023. Translation in Italian was also done.
- [Optical views: a way to travel through Europe](#): The fascination for discovering the world through optical views endures over time. Blog in English, Spanish, Italian.
- [New blogpost about Bibracte's archaeological site and collections](#), with an angle on supporting visitor's engagement and research via digitization: this is currently in preparation and will also be translated in various languages.
- New Pro blog: a collaborative Europeana Pro blog among Eureka3D partners is being finalised and is planned to be published in January 2024 within the context of the TwinIt! campaign. The Europeana Pro goal is to increase awareness on ongoing 3D digitisation projects among the professional audience.

Three galleries are also published:

- o [Famous monuments in 3D](#)
- o [3D archaeological treasures](#)
- o [3D wonders](#)

In addition, a gallery has been prepared by Bibracte to be published alongside the blog about Bibracte, published in both English and French: [Treasures of Bibracte](#)

News items about the project are regularly published in the project's blog and reported via Feed RSS in the project's website.

#### IMPACT ASSESSMENT AND SUSTAINABILITY

Eureka3D is committed to measuring the impact of the project to a variety of stakeholders who have a vested interest in 3D. The primary stakeholders are smaller CHIs, interested in digitising their 3D objects, which require the Capacity Building to ensure that they are aware of the standards outlined in the [VIGIE 2020/654 Study](#). This will result in digitised 3D assets, associated metadata and paradata, that meet a quality that are fit for purpose to fulfil the needs of the users (the beneficiaries / recipient stakeholders).

Eureka3D is making use of the Europeana Impact Playbook, and project representatives attended a series of 4 Impact Assessment workshops run by Europeana from July to November 2023. Each 3-hour workshop session covered a different phase of the playbook resulting in a detailed overview of methodology it outlines, to assess and effectively measure impact. As a result, the Eureka3D project objectives, which were drafted into an impact workflow and presented in the project meeting in Rome in June 2023, have been converted into Change Pathways which conform to the Europeana Playbook. These change pathways clearly outline the anticipated behavioural impact changes that a given stakeholder may/should have as a result of the Eureka3D project activities, resources and tools (notably the Pilot platform). Short term outcomes can be assessed but many of the longer term outcomes can only be anticipated, as the path is laid for stakeholders to follow beyond the project.

Finally, Eureka3D's documentation resources and dissemination activities are critical creating a sustainability framework for the project. The knowledge gathering and sharing of projects, such as Eureka3D, is the cornerstone for the Capacity Building required to meet the [EC Recommendation 2021/1970](#) for Member States to digitise all moments and sites at risk in 3D by 2030. Eureka3D is committed to producing a Final Booklet which collates, and will further disseminate, the knowledge gained in the project beyond its funded lifecycle. The information for this booklet is being collected and the experiences of the content partners are being recorded to serve as case studies in 3D digitisation. A task force has been created to assess whether a simplification of the VIGIE study can be produced, within the project duration, to make it easier for CHIs to assess the complexity of 3D objects to effectively digitise and record the relevant metadata and paradata for user needs. At the current stage of development, the project believes that the proof of concept, Pilot platform, has a good potential to be scaled and serve as an independently sustainable cloud solution for CHIs who are unable to handle and deliver 3D digitisations in a local infrastructure. A cost assessment of this will be done to investigate what is feasible by a variety of funding models, starting from analysis of storage costs with different user profiles basing on levels of services requested. The funding models could be different, such as a) the registered CHI bears the whole cost b) the EU/National or other funded source will support part of the costs c) there is a subsidised EU/National funding so that the ongoing cost to a CHI is affordable/achievable.

## Implementation plan and efficient use of resources

### Implementation plan

Report on changes to the implementation plan (if any).

Following the amendment's approval and entry in force in July 2023, no other modifications in the implementation plan occur in the reporting period.

### Project management, quality assurance and monitoring and evaluation strategy

Report on changes to the overall project management concept, quality assurance and monitoring and evaluation strategy (if any).

No changes occurred in the management strategy and in project and expenditure monitoring.

It is worth to mention that, in the light of potentiating the task on impact assessment and evaluation of the project, representatives of the coordinator Photoconsortium participated in a series of 4 impact workshops organized by Europeana Foundation in September-October 2023. The workshops were based on the Europeana Impact Playbook methodology. The participation in the workshops also supported the work in T4.4 Impact assessment.

In August 2023, imec joined the consortium as a new partner to the Eureka3D project. imec has collaborated with several consortium partners in the past and has a proven track record at the technical level as well as project management and technology integration. Therefore, this strategic addition will contribute to the overall efficiency of the project.

imec's primary role is that of a catalyst for collaboration, specifically between partners with a technical background on the one hand, and content providers on the other. Imec helps to facilitate seamless communication, knowledge exchange, and synergies among all participating partners and as such contributes to the successful delivery of the projects' objectives. More specifically, the main focus area is bridging the gap between work packages 2 and 3.

Since joining the consortium, imec has participated in the weekly progress meetings of WP3 to get a good understanding of the technical developments within the project. A survey was conducted to better align the Eureka3D platform development with the current practices of the content providers. The survey gathered information from content providers regarding the capturing equipment, software tools, and file formats they utilize for digitization. A first round of the survey was delivered by partners and more iterations are being planned in the year 2 as long as the project progresses. The goal is to gain insights into existing workflows, allowing for a more informed alignment of the Eureka3D platform development with their current practices.

### Cost effectiveness and financial management *(n/a for Lump Sum Grants)*

Inform about significant budget overruns or important changes in the financial management (if any).

Nothing to report in the period.

### Critical risks and risk management strategy

Report on the state of play concerning the risks and risk mitigation measures (if any).

No specific issues are reported in the period under examination, as none of the risks occurred and no additional risks are envisaged.

**Consortium cooperation and division of roles (if applicable)**

*Report on changes in the way the participants work together (Beneficiaries, Affiliated Entities, Associated Partners, etc.).*

Nothing to report in the period: the consortium cooperation and division of roles is effective and does not present any difficulty among the partners. The connection role of imec proved helpful in the complex path of developing the EUreka3D pilot infrastructure, improving the flow of communication between WP2 and WP3.

The network of followers of the project is growing, as witnessed by the number of registrations at the project's newsletter (currently +400 people). Cooperation agreements are also established for fostering collaboration, cross-dissemination and other joint activities with stakeholder institutions and other projects and groups.

Notable in the period is the willingness of associate partner INSPAI to participate in the Pilot who offered 3D content for testing purposes. The records are being processed with the aim of publishing them in the Data Space along with partners' collections. It was mentioned before the collaboration with Archeovision and CNR-ISTI in the research for candidate visualization tools that would be integrated in the platform.

Finally, the Advisory Board of experts provided excellent commentary and good advice about the Eureka3D Pilot platform, and it is expected to leverage such expertise in more consultations during the second year.

**Project teams and staff**

*Report and explain deviations from Annex 1 of the Grant Agreement regarding the organisation of staff or project teams. .*

No deviations occur from the GA relating to project team and staff, except a minor change at Europeana Foundation. Previously appointed reference person for EUreka3D was Lianne Heslinga. Due to maternity leave, the new appointed person of reference for EUreka3D project by Europeana Foundation is Jolan Wuyts, who was already engaged in EUreka3D Communication and Editorial group.

**Consortium management and decision-making (if applicable)**

*Report on important changes in the management or decision-making mechanisms.*

Nothing to report from Grant Agreement and Consortium Agreement provisions.

**Impact**

**Impact**

*Report on changes in your impact analysis/strategy (if any) and the effects on the project/need for adaptations.*

*Please also describe any innovations or potential innovators emerging from the project with the potential to benefit other activities of the Digital Europe Programme.*

EUreka3D attended a series of Impact Assessment workshops run by Europeana. As a result, the initial project plan was reassessed and refocused into Europeana Impact Playbook "change pathways". This clarified the Impact indicators and how to measure them. The EUreka3d project's Impact, results mainly from the Pilot Infrastructure system and Capacity Building activities. In relation to the Pilot, the experience of the internal partners will be assessed to see how impactful a cloud infrastructure would be to external stakeholders for the storage and delivery of digital assets and

metadata to end users, particularly in relation to 3D models which can be difficult to manage using local systems.

Also the role of the Advisory Board of experts that the project engaged supported the assessment of project's progress. During the discussion on the first formal meeting of the AB, on 15/12/2023, some interesting comments were made. Among those, Monika Hagedorn-Saupe mentioned how paradata and 3D documentation is a challenge, because it is new and it can be difficult to implement in CHIs' workflow, so it is important to show the added value and innovation it brings, that would motivate CHIs. Isto Huvila suggested that, while in the future there will be tools for automated capturing of paradata, at the moment the decisions on what information to capture and preserve is on the shoulders of CHIs according to their resources and constraints. For this reason, a suggestion would be to keep a working document, i.e. open models that can be updated as long as requirements are clear, also to trace the versioning of datasets. Finally, Costas Papadopoulos acknowledged that in terms of storage and visualization of 3D models many CHIs now use Sketchfab, but this is not optimal due to various implications: to provide an equivalent but safer solution as it is in the aim of the project is of high value for CHIs. Regarding viewers, a recommendation is not to reinvent the wheel, there are many valuable viewers developed by European institutions (e.g. CNR-ISTI) and US (e.g. the Smithsonian) that could be considered.

The Pilot "Eureka3D Platform" is an innovation that has the potential for significant impact to the Data Space for Cultural Heritage, see details above. In creating the Pilot, a significant amount of research and effort has been made in relation to the 3D viewers and visualisation of 3D assets. This effort was not included in the Description of Action but has proved essential to create both independence and interoperability for the Pilot Platform. As a result, this research may prove valuable to other DEP projects.

Eureka3D has created a task force to assess whether a simplification of the VIGIE study can be produced, within the project duration. This simplification is not part of the Description of Action but has warranted focus due to the impact it would have to CHIs entering the 3D digitisation process and/or to establish the standards that the study recommends

### Communication, dissemination and visibility of funding

*Report on the communication and dissemination activities undertaken (to whom, which format, how many, etc.) as foreseen in your Dissemination and communication plan. Please inform and justify any changes regarding dissemination and exploitation in comparison with the initial plan.*

*Describe how the visibility of EU funding was ensured.*

*If you described your project on your website(s) and/or social media accounts, please provide the links.*

During the period M6-M12, tools and communication and dissemination activities published on D4.1 (dated 06/30/2023) have been implemented. In July 2023, CRDI, as the partner responsible for WP4, suggested an internal monthly meeting of the Communication and Editorial Working Subgroup. Since then, monthly meetings are taking place and workflows are working properly.

After the approval of the communication and dissemination plan in June 2023, several communication actions have been carried out as it follows:

- Publication and constant updating of the webpage, following the project needs, with content such as the [Media, Advisory Board, Stakeholders and collaborations](#) pages or the updates on the [Resources](#) page.
- Publication of articles related to the project on the blog, hosted by [DigitalMeetsCulture](#). These articles display more in depth content about project's events, collaborations and capacity building activities.
- Complete activation of social media channels. After M6, the main social media channels have been constantly updated ([Twitter](#), [LinkedIn](#)) and the [Instagram](#) account and [YouTube channel](#) have been created.
- The [project's newsletter](#) management platform has been developed and the subscription campaign has been successfully carried out (+400 subscribers, surpassing the GA commitment of 200 subscribers). Since M10, frequent newsletters have been sent to strengthen the project dissemination: by promoting training activities and project's events, and sharing knowledge and resources on 3D and cultural heritage. During Y2, the number of newsletters planned is between 6-10, depending on the project's activities final calendar.

The marketing plan for the Eureka3D capacity building programme aims to reach cultural heritage professionals and communities working with digital cultural heritage (including educators, researches and creatives industries), as well as 3D digitisation professionals and service providers.

In this light, communication activities have been developed to foster the capacity building programme as follows:

[Transforming heritage: from 2D to 3D digitisation webinar series](#), organised in collaboration with International Council on Archives. The promotion of these sessions has been endorsed with the following communication activities:

- Website dissemination, social media posting, newsletter sending, and cross-dissemination actions with ICA and Europeana. Supporting communication actions by project partners (Photoconsortium, CRDI, EGI, CUT,



Europeana)

- Visual materials adapted to different communication channels (social media, website, newsletter) and shared with ICA and Eureka3D partners.
- Video recordings of the webinars available on the [Eureka3D YouTube playlist](#) for future use in the cultural heritage sector.
- A recap of the webinar series is foreseen for next January. This will include a video summary and an article on the project's blog.

For this webinar series, Eureka3D consortium has applied for the [TwinIt! label](#), as an activity that fosters and promotes the 3D digitisation in the cultural heritage sector.

[Eureka3D Data Hub](#) is the online demo event to showcase how the project is implementing a Data Hub and services in the Data Space for Cultural Heritage. The main communication activities have been aimed at reaching cultural heritage professionals facing the challenge of creating 3D models of their collections:

- Website dissemination, social media posting, and newsletter sending. Supporting communication actions by project partners (Europeana, Photoconsortium, CRDI, EGI).
- Visual materials adapted to different communication channels (social media, website, newsletter) and shared with Eureka3D partners.
- The recording of the demo event will be used for dissemination purposes. It is also expected to link it to a blog post on Europeana Pro.

This event also was labelled with the [TwinIt! label](#)

The capacity building marketing plan has also endorsed some external events strongly linked to the project goals, where the project has been showcased in different ways:

- [Europeana Tech Conference 2023](#). The project Eureka3D has been showcased at the conference through [a presentation video](#) about 3D digitisation in cultural heritage, which starts from the needs of content providers and arrives to end-users. Moreover, the EGI Foundation booth at the conference has displayed the video and [brochures about the project](#).
- [Spanish Presidency Europeana Conference](#). Eureka3D takes part at the conference with the discussion about 3D data governance and access. This participation has been promoted through website, social media and newsletter.
- [Mnemosyne Summer School](#). As part of the training, a session about the Eureka3D project, coordinated by the project leader Antonella Fresa (Photoconsortium) and Marinos Ioannides (Cyprus University of Technology), specifically focused on the use of Cloud Infrastructures and the process of aggregating and harvesting high quality 3D models for its publication on Europeana. This participation has been promoted through website and social media.
- [Europeana Aggregators Forum 2023](#). Updates on Eureka3D development were presented to colleague institutions, partners and Europeana aggregators by the Project Coordinator Antonella Fresa. This participation has been promoted on the project's blog and social media.

Since M6, when most communication channels were already active, a KPIs table for the project communications channels has been created and updated every month. Indicators about website, newsletter, social media and media communication are being tracked and will be used as a tool for communication activities assessment.

Eureka3D enrolled in the Europeana Impact Assessment training, based on Europeana Impact Playbook. The importance of impact assessment in European projects has been highlighted [on the project's blog](#) and [social media](#).

The visibility of EU funding has been taken into account in communication actions. The EU emblem, GA number and Digital Europe Programme are visible in communication channels such as [project's website and blog](#), [newsletter's footer](#), and [video final slide](#). On social media project's posting, Digital Europe Programme has been tagged whenever possible.

The upcoming main communication tools and activities will be deployed to foster the Capacity Building Programme by reaching cultural heritage professionals, to showcase the project's achievements and practices (specifically related to the cloud-based Data Hub and tools developed in the project) and to strengthen awareness about the importance of cultural heritage 3D digitisation.

A promotional video about the project will be developed during January 2024, with the aim of offering an overview on the project's goals to the various stakeholder communities (researchers, creative industry, education, tourism, and general public) and as a visual material to present the project in upcoming events of the cultural heritage and 3D digitisation fields. This video will highlight the digitisation process by content providers and the development of e-infrastructure services.



The digitisation progress by content providers is being showcased through the project's social media accounts. The stories of digitisation of pre-cinema and early cinema objects by CRDI were followed by the promotion of digitisation steps taken by CUT to create an advanced 3D model for the Lambousa boat; and more stories from Bibracte and Museo della Carta digitization experiences in the following weeks. In the same light, a webpage will be created during Y2 to collect information and images on the various digitisation processes within the pilot.

Additionally, Museo della Carta is also finalizing a promotional video to share the importance of the digitization for their collections, which represent a very peculiar type of heritage (i.e. ancient paper manufacturing in Tuscany) including tangible objects and stories of the local communities, unique and at risk.

One of the major upcoming milestones will be the preparation of the final conference that will take place in Girona in December 2024. The event represents a core communication activity, focused on sharing the project outcomes to cultural heritage institutions professionals and 3D digitisation and service providers, offering capacity building activities, and reaching a wide general audience of citizens and end-users.

### Sustainability, long-term impact and continuation

Report on *changes* in your sustainability analysis/strategy (if any).

For the Final Report, describe the follow-up of the project after the end of the EU grant. How will the results be used or further developed. Describe the strategy to ensure sustainability of results and long-term impact. Comment on possible synergies/complementarities with other (EU funded) activities (if any).

As a heavily Capacity Building led project, EUreka3D is collating a great deal of knowledge to serve as best practice documents that will be available beyond the life of the project. The Pilot "EUreka3D Platform" is also being assessed as an ongoing sustainable cloud infrastructure solution. Not only to maintain some longevity for the 3D assets made available to Europeana, from the EUreka3D Platform, but also how easily it can transform to a readily available storage option for external CHI stakeholders and to advance the Data Space for Cultural Heritage.

The technical work to grant integration and interoperability is ongoing. It is planned that the EUreka3D platform would be enabled to dialogue with different other platforms:

- Firstly, the EUreka3D Data Hub's functionalities will permit to aggregate the 3D collections and publish them to the Europeana portal, in line with the requirements of the Europeana Technical Framework and taking into account the recommendation of the Europeana Publishing Framework. The result will be to aggregate high quality collections in EDM format that meet the contractual requirements of tiers.
- Secondly, the EUreka3D Data Hub, tools and services will be interoperable with the Data Space for Cultural Heritage, so to enable different actors of the Data Space to access EUreka3D facilities, in the light of granting continuity and seamless operations, with sustainable long-term availability of the services and tools under development.
- Thirdly, the collections, services and tools from EUreka3D will be published in EOSC, the European Open Science Cloud, for additional operators, research organizations and professionals (also outside the cultural heritage sector) to access the EUreka3D outcomes. This will support the reuse of (3D) cultural collections for scientific research in cultural studies and other research areas such as for example material conservation, architecture, engineering..

As the Pilot "EUreka3D Platform" matures along with the Data Space for Cultural Heritage, and the opportunities of the EOSC network become clearer, the opportunity of a sustainable business model to support the continuation of the EUreka3D outcomes was discussed during the project meeting in December 2023. A working group has been established to explore further details and perform a cost analysis. The scenario taken in consideration will be based on the needs of external CHIs with two different options: (i) hiring the services to upload, store and deliver/promote 3D (or 2D) assets independently; (ii) using the EUreka3D Platform to publish data in interoperable sites such as Europeana. As a preliminary consideration that follows the processes and experience of the project's content partners who use the EUreka3D project platform, it is anticipated that a system, within a scalable framework, will be affordable to run and an attractive option for CHIs to use.

The project website is expanding various sections to provide access to a wide range of resources, both resources external to the project and those produced by EUreka3D. Most notable material added in the period is the video recording and presentations of the 3 online webinars organized in the fall 2023, and of the demo session, which will remain accessible on the EUreka3D website as well as on the Photoconsortium portal, for future reference.

In relation to sustainability and future accessibility to EUreka3D resources, coordinator Photoconsortium takes part in the Europeana Capacity Building Working Group and in the Europeana 3D Working Group. Both groups will deliver outcomes that can be leveraged for sustainability of EUreka3D outcomes, such as training and learning materials to be part of the new Europeana Learning Platform, and useful information and guidance for the publication of 3D models in Europeana to be included in the Europeana Knowledge Base.

As a part of the continuation strategy for the EUreka3D concept, a proposal is in preparation for the next DEP call in January 2024.

### Follow-up to EU recommendations

#### Follow-up to EU recommendations

*Highlight corrective actions taken as a result of EU monitoring activities (including follow-up to EU project reviews, if any). List each recommendation/comment and explain how they have been followed up.*

Not applicable

### 3. WORK PACKAGES, ACTIVITIES, RESOURCES AND TIMING, BASED ON THE TECHNICAL REPORT TEMPLATE (PART B CHAPTER 2)

Work Package 1: Project management and coordination			
Activities			
Report on the implementation status of the activities that were to be implemented during the reporting period and explain <u>deviations</u> from Annex 1 of the Grant Agreement. In case an activity was not implemented or a deliverable not produced, please explain why.			
Task No (continuous numbering linked to WP)	Task Name	Implemented? (Yes/No/Partially)	Justification (explain what was done and by whom; explain what was not done and why not; indicate how you intend to handle the situation and new timing; indicate if it was a one-off issue or how you intend to avoid similar issues in the future)
T1.1	Project management	YES, on going	Kick-off meeting (Pisa) and two plenaries (Rome and Brussels) were organized. Regular progress monitoring happens via telcos and dedicated meetings. The internal communication platforms are up and running and in use by the consortium. Reporting guidelines are provided. A progress meeting took place with the PO on 26/6/2023 and a second one is planned on 19/1/2024. The D1.3 and D1.4 are timely delivered.
T1.2	Quality control and Data Management	YES, on going	As indicated in the previous Technical Report at M6: activities relating to quality criteria of actions and project monitoring with alignment of WP and task progress are regularly performed. GDPR compliance and data management provisions are provided in the D1.1. A disclaimer and privacy policy information is provided in the project's website: <a href="https://eureka3d.eu/privacy-policy/">https://eureka3d.eu/privacy-policy/</a> . Nothing additional to report in the period.
T1.3	Reporting on integration with Europeana CSP operator	YES, on going	As indicated in the previous Technical Report at M6: Discussions about technical and procedural integration of the project's services and outcomes in the Europeana environment and in the common European Data Space for Cultural Heritage have started since the very beginning. The D1.2 is timely delivered. Nothing additional to report in the period.

<p>Other issues</p> <p><i>Mention and explain unexpected events and adjustments that had to be made. Explain impact on other tasks, available resources and planning/timing.</i></p>	<p>The WP is on track, and it is possible to estimate a progress of 50% against its completion.</p>
<p><b>Milestones and deliverables (outputs/outcomes)</b></p>	
<p>The following due deliverables and milestones are timely delivered:</p> <ul style="list-style-type: none"> <li>- D1.4 Technical progress report 2</li> <li>- MS2 Second technical report</li> </ul>	

<p><b>Work Package 2: Capacity building for CH digital transformation and 3D digitisation</b></p>			
<p><b>Activities</b></p> <p><i>Report on the implementation status of the activities that were to be implemented during the reporting period and explain <u>deviations</u> from Annex 1 of the Grant Agreement. In case an activity was not implemented or a deliverable not produced, please explain why.</i></p>			
Task No (continuous numbering linked to WP)	Task Name	Implemented? (Yes/No/Partially)	Justification (explain what was done and by whom; explain what was not done and why not; indicate how you intend to handle the situation and new timing; indicate if it was a one-off issue or how you intend to avoid similar issues in the future)
T2.1	Pilot with content providers	YES, on going	<p>All the content providers are at work for digitization and preparation of datasets, with different levels of readiness. Some records which were more advanced were used for testing the Eureka3D platform and presented in the online demo on 15/12.</p> <p>Guidance and examples are provided for metadata and paradata preparation, in compliance with the recommendations of the VIGIE Study 2020/654.</p>
T2.2	Training and capacity building	YES, on going	<p>In close collaboration with Europeana and following the protocols and standards of the Europeana Capacity Building Framework (ECBF), a programme of online and onsite</p>

			events is unfolding. Noteworthy in the period: participation in Mnemosyne Summer School organized by CUT in the Fall; 3 webinars organized in collaboration with ICA; a public demo session to showcase the status of Eureka3D data hub and services. Work to produce guidance and simplified materials derived from the VIGIE Study 2020/654 is ongoing.
T2.3	Aggregation in Europeana	YES, on going	A first dataset relating to existing online collections by Museo della Carta was mapped to EDM and prepared for aggregation. Test in the METIS Sandbox proved successful. The aggregation to Europeana via MINT is possible anytime; at the moment the set is being used as a testbed for enabling aggregation of collections via the Eureka3D data hub, as a service provided to users of the platform.
Other issues <i>Mention and explain unexpected events and adjustments that had to be made. Explain impact on other tasks, available resources and planning/timing.</i>		The WP is on track, and it is possible to estimate a progress of 50% against its completion.	
<b>Milestones and deliverables (outputs/outcomes)</b>			
No deliverables and milestones due in this reporting period.			

<b>Work Package 3: Digital infrastructure and integration of services and tools</b>			
<b>Activities</b> <i>Report on the implementation status of the activities that were to be implemented during the reporting period and explain <u>deviations</u> from Annex 1 of the Grant Agreement. In case an activity was not implemented or a deliverable not produced, please explain why.</i>			
<b>Task No</b> (continuous numbering linked to WP)	<b>Task Name</b>	<b>Implemented?</b> (Yes/No/Partially)	<b>Justification</b> (explain what was done and by whom; explain what was not done and why not; indicate how you intend to handle the situation and new timing; indicate if it was a one-off issue or how you intend to avoid similar issues in the future)

T3.1	Analysis of technical requirements	YES, on going	Different sessions were organised by EGI between all partners, to discuss and capture the technical requirements of the project. These have been enriched with additional input from the regular WP3 meetings between the technical partners (EGI, CUT, Cyfronet, imec). Requirements are currently contained in an informal document, but a formal report is expected to be produced in the coming weeks.
T3.2	Cloud Provisioning of the Eureka3D services and resource hub	YES, on going	The computing resources have been fully allocated by Cyfronet. Partial storage resources have been allocated and will be expanded according to the needs of the project.
T3.3	Set-up the authentication and authorization infrastructure for the project	YES, on going	Check-in, responsible for the authentication and authorisation infrastructure, has been configured for the project and the required structures have been created to manage the permissions of the end users and the community in general (through a Virtual Organisation or VO).
T3.4	On-boarding of the Eureka3D service in EOSC	YES, on going	Preliminary tasks have been started by EGI to explain EOSC to the project partners and to plan the coming months of work. Formally, the activity will be conducted in 2024.
T3.5	Interoperability with Europeana CSP	YES, on going	Preliminary work has been started to conduct a few proof of concepts to test the correct communication between Eureka3D systems and Europeana. This work will have to be continued with the real implementation. The core of this task is expected to be completed in the next few months, with possible minor adjustments during the latest months of the project.
Other issues <i>Mention and explain unexpected events and adjustments that had to be made. Explain impact on other tasks, available resources and planning/timing.</i>		The WP is on track, and it is possible to estimate a progress of 50% against its completion.	
<b>Milestones and deliverables (outputs/outcomes)</b>			
No deliverables and milestones are due in the reporting period (M7-12). The deliverables and milestones due in the previous reporting period (M1-6) were timely submitted.			



Work Package 4: Communication, dissemination and impact assessment			
Activities			
Report on the implementation status of the activities that were to be implemented during the reporting period and explain <u>deviations</u> from Annex 1 of the Grant Agreement. In case an activity was not implemented or a deliverable not produced, please explain why.			
Task No (continuous numbering linked to WP)	Task Name	Implemented? (Yes/No/Partially)	Justification (explain what was done and by whom; explain what was not done and why not; indicate how you intend to handle the situation and new timing; indicate if it was a one-off issue or how you intend to avoid similar issues in the future)
T4.1	Dissemination and exploitation plan	YES, on going	Tools and communication & dissemination activities published on D4.1 (dated 06/30/2023) have been implemented during period M6-12. The foreseen communication channels are completely activated and a marketing plan has been deployed to foster the capacity building programme. Internal communication workflows are working appropriately, mainly based on monthly meetings and Basecamp communications. During the last project plenary (14/12/2023), the main upcoming communication activities have been agreed among partners.
T4.2	Editorials and publications	YES, on going	The foreseen editorial publications indicated in D4.1 have been deployed following the editorial calendar. Numerous blogs and galleries by partners are already published in Europeana and early next January more blogs linked to the project will be published on Europeana and Europeana Pro. In the context of the project, greater linguistic diversity in these publications is taken as an objective. The project's blog is also regularly updated and reported via Feed RSS in the project's website.
T4.3	Final booklet and final conference of EUreka3D	YES, on going	During the last project plenary (14/12/2023), the general aims of the final booklet have been broadly defined: the final booklet will collect digitization experiences in the context of the project as good practices for future use by cultural heritage institutions. The dates and basic structure of the final conference have been initially defined. The event is considered a core communication activity, focused on sharing the project outcomes to cultural heritage institutions professionals and 3D digitisation and service providers, offering capacity building activities, and reaching a wide general audience of citizens and end-users.
T4.4	Impact assessment	YES, on going	As extensively described above, the impact assessment action is taken in high consideration in the project, with dedicated resources. A series of Europeana Impact

		Assessment workshops was attended to verify, refine and better focus the Impact strategies in the project. The Advisory Board of experts was consulted to assess the progress of the project and its potential benefits for different types of users. Using their collective experience, the Board also provided advice in relation to challenges and constraints that CHIs are likely to face when implementing innovation into their workflows.
Other issues <i>Mention and explain unexpected events and adjustments that had to be made. Explain impact on other tasks, available resources and planning/timing.</i>	The WP is on track, and it is possible to estimate a progress of 50% against its completion.	
<b>Milestones and deliverables (outputs/outcomes)</b>		
- No deliverables and milestones are due in the reporting period (M7-12). The deliverables and milestones due in the previous reporting period (M1-6) were timely submitted.		

<b>Budget implementation — Use of resources (deviations)</b> <i>(n/a for Lump Sum Grants) (n/a for Additional Prefinancing Report)</i> <i>Explain <u>deviations</u> from the budget planning (i.e. differences between actual and planned use of resources, especially for personnel). Include explanations on transfers of cost categories in the estimated budget (if applicable) /If needed, add explanations linked to the report on the use of resources filled in online. Ensure consistency with that report.</i>	
Nothing to report in the period	
Other issues	Nothing to report in the period

### Timetable

No changes from the Grant Agreement.

#### 4. CONCLUSIONS

This document illustrates the progress of Eureka3D project in its first year. It constitutes the Part B of the Technical Report. The Technical Report refers also to the information provided in the EC Portal, which constitutes the Part A of the report.

D1.4 Technical Report 2 is timely delivered on M12 and the corresponding milestone 2 is timely achieved.

The project is on track with excellent collaboration among partners and all activities progressing, with the outcomes expected in Y1 delivered as planned. No risks materialized and no deviation is expected.

The Eureka3D Pilot for digitization, storage and sharing of 3D cultural collections is progressing. Work to implement [integration with Europeana and interoperability with the Data Space](#) is ongoing.

A first series of capacity building events was delivered and more are planned for Y2. Efforts to raise awareness of the project and of its capacity building programme are ongoing, and [the Eureka3D a stakeholders network](#) is growing.

The impact of the project is being tracked, particularly for the capacity building actions.

[The plan for the sustainability of the project's results is under study in the consortium.](#)