

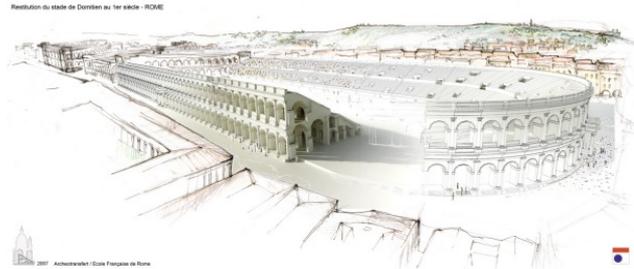
## Year 1: Publishable Summary

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<http://www.3dicons-project.eu>

## Project objectives

The 3D-ICONS project, which started in February 2012 and lasts for three years, focuses on digital content that includes 3D models and reconstructions, enlarged models of important details and related images, texts and videos. It will also include and re-contextualize in 3D, objects belonging to a monument but presently located elsewhere, for example in museums. The project's activities will include both new digitisation as well as the conversion of some existing 3D data into formats which are accessible for Europeana users. 3D-ICONS is expected to make a significant impact by making accessible through Europeana an unprecedented quantity of high-quality, 3D, well-organized and attractive information about the masterpieces of European architecture and archaeology.

The project aims to complement the collections which are being made accessible to Europeana via CARARE, Europeana Local, Athena and other projects which have developed the content base for the architectural and archaeological heritage. Most notably, the results of 3D-ICONS will complement the 3D content brought to Europeana via the CARARE project and to increase the critical mass of this engaging content. It is also an important objective of the project to build on the results of previous EU projects, most notably on CARARE, for the aggregation services and guidelines on the publication of 3D for Europeana, and on 3D-COFORM for the 3D creation, management and visualization tools.

The target users of the 3D-ICONS include:

- members of the general public, tourists and students who wish to be able to explore and enjoy architectural and archaeological masterpieces which are often inaccessible to visitors either as a result of their remote locations or because conservation management restricts access to only parts of the monuments.
- Europeana users who wish to access, explore and enjoy 3D models together with the related high-quality information.
- The cultural institutions who are in charge of internationally and nationally important monuments and buildings and who need tried and tested mechanisms to produce high quality 3D documentation and publish the results for Europeana as well as on their own websites.
- UNESCO and cultural institutions wishing to find new ways of delivering their missions to promote understanding and increase the sustainability of world and European heritage.
- Content providers and creative industry SMEs wishing to identify sustainable business processes and models.

3D-ICONS will both contribute to the expansion of Europeana's content base and also offer enhanced experiences for its users by bringing exciting and engaging content for archaeological monuments and historic buildings. The content will comprise of a range of formats including 3D models, movies, texts and 2D images.

### **Progress during Year 1 (February 2012 – January 2013)**



*Laser scanning Moyne Abbey, Ireland*

The selection of the monuments and related items is well underway and an inventory of pre-existing datasets (from which 3D models can be created) and those which are planned to be acquired has been created as an initial list and implemented as an editable database which will also support the progress monitoring. The list will require regular updating over the project lifetime as some monuments may not obtain the necessary permission from the IPR owners for use of the datasets or for scanning new datasets and other monuments may be added as these become available. For example, due to acquisition of new scanning equipment which makes data acquisition much faster, the Discovery Programme has been able to increase the number of datasets it can supply to 3D-ICONS.

IPR and licensing are extremely important in that the project cannot make any 3D models available unless they have the necessary licences and permissions from the relevant rights holders. Several of the partners have spent some time negotiating licences and access to sites in order to undertake scanning and data collection with the relevant authorities. Within the project, the partners have all agreed to allow access internally to their datasets (where permission is given if owned by a third party) and have signed a Consortium Agreement. In order to supply the necessary metadata to Europeana, each content provider has to sign the Europeana Data Exchange Agreement (DEA) before any metadata can be published. A total of five partners (of twelve content providers) have already signed the DEA. Work has already started on looking at IPR practices across Europe so that a framework can be developed as part of the 3D model production pipeline. Ultimately, 3D-ICONS aims to demonstrate best practice in dealing with IPR for making 3D models available through Europeana and the 3D-ICONS portal.

3D-ICONS will employ a range of technologies which will include several different types of scanning equipment, software packages for processing the data and applications for presenting the final output to the end user. Some preparatory investigations into different methods of data acquisition and processing, evaluating the quality levels and aspects such as capture and processing

times and resolution in relation to end requirements (e.g. from high resolution for research purposes to low resolution for display on the Web) have already taken place. Quality control of the process used to produce the 3D models by 3D-ICONS is also important and criteria have been specified for monitoring this aspect.

Individual partners have started acquiring new datasets:

- DISC has already surveyed several sites in Ireland and acquired datasets using phased based laser scanning as well as images.
- ISTI-CNR has carried digitisation campaigns on the entire Insula VI of Pompeii, the Ruthwell Cross and Villa Medicea in Montelupo Fiorentino.
- CNR ITABC has been preparing datasets for a number of Roman buildings and monuments such as the Villa of Volusii in Rome and the Acquae Patavinae thermal complex.
- PoliMi made several acquisitions of objects from the Archaeological Museum of Milan resulting in nine models created from an optimised set up. a considerable portion of Certosa di Pavia has also been scanned to produce two 3D models of the the whole set of buildings facing the Small Cloister and the Certosa's library.
- CETI has completed the 3D digitisation of the Kioutouklou Baba Tekke monument located in the village Selino, near the city of Xanthi, Greece.
- CAAI has digitised two sculptures from Porcuna, four Greek cratera of the Burial Chamber of Piquía and the Palace of Puente Tablas, all from the Jaén region.
- CNRS has collected new sets of 3D data from sites already surveyed in France – these include the Petit Trianon in Versailles, the “Antique Amphitheatre” in Arles and the Chapel of the Vieille Charité in Marseille.
- MNIR are in the process of digitising Saint Michael's Cathedral and the Sarmizegetusa site.

3D-ICONS has based its metadata on the CARARE schema and use the same technology established by CARARE for the mapping and ingestion of metadata into Europeana, i.e. the MINT2 and MoRe tools developed by NTUA. To meet this requirement, the CARARE 2.0 schema has been extended to include additional metadata to support provenance, transformation and London Charter paradata as well as some minor modifications being made to improve the mapping of existing metadata to the Europeana Data Model (EDM).

Finally, dissemination about the project has been very active with the launch of a website, social networking via Twitter and LinkedIn, the presentation of two papers at international conferences EVA and VSMM, the publication of a project postcard and several other activities by the partners such as national project launch events and publications in journals.

## **Main results achieved**

The main results achieved to date are:

- An initial inventory of monuments and buildings has been prepared as an online database,
- Licenses and access agreements have been obtained for most of the selected sites,
- Several new datasets acquired and processed,
- Testing has taken place on appropriate hardware and software tools for the digitisation of monuments and to define criteria for the digitisation schedules,

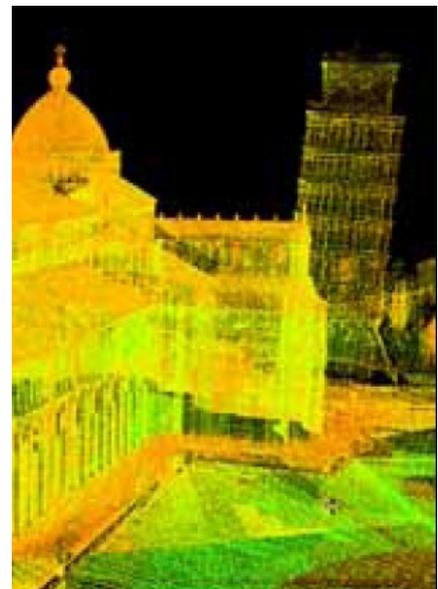
- Several new datasets were acquired by DISC with some new ones being added to the inventory,
- A metadata schema, CARARE 2.0, designed for 3D models has been published,
- All partners signed the Consortium Agreement, the last outstanding issues being resolved just after the end of M6,
- Four partners signed the Europeana Data Exchange Agreement bringing the total to seven,
- The project website was launched by M2 and two papers presented at international conferences,
- The first deliverables addressing Digitisation Planning (D2.1), IPR (D7.1), Metadata and Thesauri (D6.1) and Dissemination (D8.1) have been published.

## **Expected final results and potential impact**

Over the next two years, 3D-ICONS will provide a wealth of world heritage sites and associated objects for visualization via Europeana, bridging the gap between complex models produced for scientific research purposes and exciting and engaging new 3D content. The anticipated challenges will be to find suitable formats for representation of the larger, highly complex 3D models and the means by which these can be reduced and simplified without sacrificing quality or the potential enjoyment of the model by the end user. By the end of the project, 3D-ICONS will be able to provide a tried and tested process for the conversion and production of 3D content and the associated metadata which includes the technology and tools, a metadata schema tailored for 3D models, best practice guidelines and wide expertise built on many years of partner experience. This will enable other cultural heritage owners of 3D content to likewise contribute their models to Europeana, raising awareness and increasing the knowledge base of all the identified stakeholders. This process along with other additional information about 3D models such as different formats available, associated IPR and other options for viewing the models will be made available on the 3D-ICONS portal.

End users of Europeana will be able to search and find several thousand high quality 3D models of historic buildings and monuments, archaeological sites and related articles and view these on standard computers and mobile devices. Through 3D models, the general public can visit sites which may be in remote locations, fragile and, in some cases, difficult to understand. For example, 3D PDF provides an excellent solution for smaller models (under 20MB in size) as the models may be embedded in text which provides content and explanations for the end user. 3D models can be enjoyed by a wide range of end users with an interest in cultural heritage, for educational purposes and to engage and enthuse people about archaeology and architecture, raising the profile of the institutions such as museums who provide access and knowledge within this sector across Europe.

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*Point cloud of the Dome of Pisa*