CARARE brings together a network of heritage agencies and organisations, archaeological museums and research institutions and specialist digital archives from all over Europe to establish an aggregation service for Europeana. The project’s main objectives are to:

- make digital content for Europe’s unique archaeological monuments and historic sites available to Europeana’s users;
- establish tools and services to support and enable its network of partners to make their digital content interoperable with Europeana, and to share best practices;
- enable access to 3D and Virtual Reality content through Europeana; and
- establish the business model for sustainability.

Summary of Activities

The focus of activities during the third year of the project has been on providing content to Europeana with over two million items of content being delivered by the end of the year. An important milestone was the publication of the first 3D content from a CARARE partner in Europeana. The dataset, illustrated below, from the Centre for Educational Technology in Greece, consists of 3D models of churches, castles and the town of Xanti in northern Greece. Further 3D content followed from Pompeii, Cyprus, Poland, Slovenia and a UK research project at Amarna in Egypt. All CARARE’s 23 content partners have been working hard to deliver their collections for Europeana with significant collections from Denmark, the Czech Republic, Brussels, the German Archaeological Institute and others going live by the end of the year. During the year the CARARE aggregator has been fully live and in active service as partners have uploaded, mapped, ingested and made their content available for harvesting by Europeana. CARARE developed a pilot map-based enhancement for the project website to demonstrate potential uses of the content in mobile and other applications. In November a successful conference was held in Copenhagen to share the results of the project with related initiatives and to discuss future plans.
CARARE Aggregation Service

The CARARE aggregation service has been live and in active use throughout the year. The service has successfully supported the:

- harvesting of metadata from the project’s content providers
- mapping of native metadata schema’s to the CARARE schema
- analysis and quality checking of metadata
- ingesting of metadata to the CARARE repository
- transforming of metadata in CARARE schema format to EDM
- supply of metadata for harvesting by Europeana.

The aggregator consists of the MINT and MORE platforms, which together provide a seamless service that has enabled content providers to provide their metadata to Europeana, and a reliable service for Europeana providing metadata in an EDM compliant format. During the year CARARE has been the largest provider of EDM metadata to Europeana.

The MINT system is the first interface used by CARARE content providers. During the project content providers have uploaded more than 220 datasets varying in size from 1 to 840,000 items. The experience of CARARE has prompted NTUA to develop MINT’s capabilities and performance in handling very large datasets. One of the components of MINT that has proved invaluable to content providers provides statistics and an analysis of the data being provided both before and after transformation to the CARARE schema. This allows providers to check the quality of their data and for content issues such as uniqueness of identifiers, use of indexing terms and more.

After the mapping is finalised, content providers publish their metadata to MORE, where records are re-published EDM format using the XML transformation engine and then made available to Europeana for harvesting. Three different transformation routines were developed during the year each containing different rules to give the best results depending on the original content. A case study highlighting the challenges that the project faced when modelling data to EDM was published with Europeana and is available online at: http://pro.europeana.eu/carare-edm.

In EDM each provided cultural heritage object gives rise to an aggregation, which gathers together the object with available web resources. CARARE has established unique identifiers for each of these aggregations and during the year a landing page was developed for each object on the CARARE store. This provides both a unique identifier and also a visual representation of the heritage asset with its related digital resources and collection information.

Another service that CARARE has offered to providers is the conversion of coordinates from national systems to the international WPS84 system used in Europeana, which supports use in web-mapping applications.

http://www.carare.eu
Content

The CARARE project aimed to make over two million items for Europe’s unique archaeological monuments, historic buildings and heritage places to Europeana including 3D, text and images. Each content provider has worked to establish its content repositories and to prepare metadata for harvesting and aggregation by CARARE, and supply to Europeana. The main bulk of the content supply has taken place during 2012-13 with all partners being extremely active in using MINT and the MORE repository. By the end of the year CARARE partners had delivered over 2 million items of content including 1,570 3D models and 1,155 videos.

The content provided includes information about nationally protected archaeological monuments and buildings in Sweden, Denmark, Brussels, Malta, Slovenia, Slovakia, Poland, Romania, Iceland, the Czech Republic and the Netherlands, and also photographic archives from Lithuania and the German Archaeological Institute, and research archives from the UK, the Netherlands, Spain, Greece and Italy.

Map-based search application

The geographic location of archaeological and architectural sites is one of their most important attributes. Most of the item records provided by CARARE partners to Europeana include geographic information such as coordinates and place names. This has made it possible for CARARE to develop a web application that demonstrates the potential of map interfaces for displaying and browsing cultural heritage sites.

The map application is a prototype based on data from the Europeana API plus coordinates taken directly from the CARARE MORE repository. Four components have been developed: mapping; search; route planning (illustrated below); and a mobile application for tablets. The application is online at: http://carare.eculturelab.eu.

The route-planning component illustrates the archaeological heritage of a locality.

http://www.carare.eu
**Dissemination**

During the autumn and winter of 2012-13 CARARE partners held a series of national workshops to disseminate the project’s results and Europeana to local partners within their countries. In November this series of national workshops culminated in the project’s final conference that was held at the National Museum of Denmark in Copenhagen. The aim of the conference was to bring together partners, stakeholders and interested parties together to debate the impact, future and sustainability of CARARE.

The sessions of the conference covered Europeana, the application and impact of digitisation on the cultural heritage domain, success stories and experiences from CARARE partners and initiatives such as EU Screen, JISC and EuroClio. The results of the highly successful “Hack” for Denmark were presented. A prize was awarded to “Kulturarv” an augmented reality application that turns a smartphone into a video camera viewer with information about nearby heritage sites.

**Sustainability**

The participants in the CARARE project have established a strong network over three years of working together. Today there is a close network of European colleagues from cultural heritage organisations whose main interest is in the archaeological and architectural heritage and in making their information resources interoperable and accessible to the broad public. A Community Interest Group has been set up to sustain this network after the end of project funding, with the first meeting to be help at the European Archaeologist’s Association conference in September 2013. During the year work has been completed to investigate possible business models to support the continuation of the CARARE aggregation service. Membership models were considered but were not found to be viable in the current complex aggregation landscape. In the short term the CARARE aggregator will be sustained through new projects such as 3D ICONS, LoCloud and the Ariadne research infrastructure.

**Impact**

CARARE content partners have provided Europeana with a significant mass of geographically referenced content that can be exploited in map-based applications and in mobile devices. Published in EDM format under the CCO public domain licence this content has a significant impact on Europeana’s move to Linked Open Data. CARARE’s cooperation with Wiki Loves Monuments shows the potential for engaging with users interested in the cultural heritage. In addition to these impacts CARARE has stimulated several institutions to establish sustainable content repositories that are fully interoperable with Europeana.

**Contacts**

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CARARE has 29 partners in 21 countries: [http://www.carare.eu/eng/About/Partners](http://www.carare.eu/eng/About/Partners)

http://www.carare.eu