Review of 3D content in Europeana

Introduction

This document provides a review of the approx 28,573 items in Europeana which are currently tagged as 3D. The document does not make any substantial recommendations around best practice for 3D content in Europeana. It is intended, rather, as input to initiatives such as the 3D Content in Europeana Task Force and the Europeana Common Culture Project's 3D Functional Application.

Formats

This section identifies the file formats and 3D viewers in use by 3D content within Europeana. Some datasets contain more than one 3D format, e.g. a 3DPDF or link to an embedded 3D viewer along with a download link for the actual source OBJ or X3D file. In this document such datasets are listed under each applicable section.

Where numbers of objects within a dataset are given, this refers to the total number of objects and may not accurately reflect the number for a particular file format where the dataset contains mixed formats.

3DPDF

3DPDF is the most popular format currently in use for 3D materials in Europeana.

Adobe is dropping support for the creation of 3D PDF and although still viewable, 3DPDF files can only be viewed in a small subset of the available PDF viewers. The format does not allow the 3D source object to be easily extracted for reuse.

Most institutes provide a direct link to the 3DPDF file, usually in isShownBy, but occasionally in edm:isShownAt or edm:Object. There are two exceptions to this:

1. Zavod za varstvo kulturne dediščine Slovenije provides an image file for edm:isShownBy, but does include a link to download the 3DPDF file from the landing page specified in edm:isShownAt.
2. Jugendstilsenteret has a broken link to the 3DPDF in edm:isShownBy while the landing page at edm:isShownAt provides a working link to download the 3DPDF.

Data Provider	No. Objects
Instituto de Arqueología Ibérica-Universidad de Jaén	1,735
Technical University of Cluj-Napoca	560
Politecnico di Milano - Computer Vision & Reverse Engineering Lab	513

Carmentis - Online museum catalogue	457
The Cyprus Institute - STARC	240
Dublin Institute of Advanced Studies	236 objects, some of which are 3DPDF
Zavod za varstvo kulturne dediščine Slovenije	164
The Cyprus Institute - STARC / Mediterranean Archaeological Research Institute-Vrije Universiteit Brussel	151
Muzej za umjetnost i obrt, Zagreb	138
Muzeul Naţional de Istorie a României	100
Jugendstilsenteret	85
eheritage.si, Urbanistični inštitut Republike Slovenijeeheritage.si, Urbanistični inštitut Republike Slovenije	64
Manx National Heritage	60
National Museum of Natural History - University of Lisbon	32 objects, most of which are 3DPDF
Total	4,535

Web Viewers

A number of datasets link to an embeddable 3D viewer, or to a webpage with an embedded viewer from either edm:isShownAt or edm:isShownBy. Such viewers enable the user to interact with the 3D content within a web browser. Some of these viewers have additional useful features to promote reuse, for example, a link to view in Google Cardboard, or a link to download the source files.

This section identifies the viewers currently used by 3D datasets in Europeana.

3Dsom

The 3Dsom viewer is used by six Data Providers in Europeana. 3Dsom provides a WebGL viewer, however, all of the Europeana content is currently using the older Flash viewer. As Flash is becoming obsolete and may be difficult to access in the future, it would be beneficial if these institutes could upgrade to the newer WebGL viewer. All six institutes rely on the Hungarian National Digital Archive (mandadb.hu) to host the 3D viewer so a single upgrade of this service would likely result in the future-proofing of all of these materials.

Data Provider	No. Objects
Balatoni Múzeum - Keszthely	665
Finta Múzeum - Túrkeve	544
Ferenczy Múzeumi Centrum - Szentendre	265
B. A. P. Macimúzeum és Kiállítóterem - Rákóczifalva	93
Magyar Nemzeti Múzeum - Budapest	72
Szépművészeti Múzeum és Magyar Nemzeti Galéria - Budapest	13
Total	1,652

Sketchfab

The Sketchfab viewer is used by three Data Providers in Europeana. This is a JavaScript-based viewer developed by Sketchfab which can display 3D models hosted on the Sketchfab platform.

Data Provider	No. Objects
Technical University of Cluj-Napoca	560
The Discovery Programme	238
Visual Dimension bvba	101
Total	899

SCENE WebShare

The SCENE WebShare viewer is used by one Data Provider in Europeana. Although the viewer allows both 3D and panorama versions of an object to be viewed, the materials in Europeana appear to include panorama only.

Data Provider	No. Objects
Общински институт Старинен Пловдив / Ancient Plovdiv Municipal Institute	17
Total	17

Custom 3D viewers

The remaining viewers could not be identified, or appeared to be custom-built solutions integrated with the data provider's own website.

The viewers for "Εφορεία Αρχαιοτήτων Χανίων – Αρχαιολογικό Μουσείο Χανίων", "CNR - Consiglio Nazionale delle Ricerche" and "Athena R.I.C., ILSP, Xanthi" all appear to be based on X3DOM. "FBK - Fondazione Bruno Kessler" uses a viewer based on jsc3d.

It is not clear whether these various viewers have been released as open source and are therefore available for reuse by other CHIs. This would be a worthwhile topic to investigate further.

Data Provider	No. Objects
Εφορεία Αρχαιοτήτων Χανίων – Αρχαιολογικό Μουσείο Χανίων	250
CNRS-MAP Modèles et simulations pour l'Architecture et le Patrimoine	238
ISTI-CNR -Istituto di Scienza e Tecnologie dell Informazione	166
CNR - Consiglio Nazionale delle Ricerche	150
FBK - Fondazione Bruno Kessler	60
Athena R.I.C., ILSP, Xanthi, (former Cultural and Educational Technology Institute (CETI))	34
Total	898

Panoramic images

"Generalitat de Catalunya Departament de Cultura" provides 334 objects with 3D Panoramic JPEG images. These can be downloaded or viewed online in an embedded viewer.

As mentioned above the dataset from "Общински институт Старинен Пловдив / Ancient Plovdiv Municipal Institute" may also consist of panoramic images.

Downloadable 3D models

The "Dublin Institute of Advanced Studies" dataset contains 236 objects, some of which are X3D and OBJ format. "Εφορεία Αρχαιοτήτων Μεσσηνίας" has 28 objects with OBJ and FBX files.

Some of the embedded viewers also provide an option to download a 3D source file.

Providing an option to download the 3D models greatly increases the possibility of reuse, for example for 3D printing or computer games.

Items without 3D files or which may be incorrectly tagged as 3D

The "Digitalne vsebine kulturne dediščine Slovenije site, eheritage.si", has four 3D datasets in Europeana. Of these, only one dataset "eheritage.si, Urbanistični inštitut Republike Slovenijeeheritage.si, Urbanistični inštitut Republike Slovenije" has a downloadable 3DPDF available on the landing page linked to from edm:isShownAt. Although the other datasets are clearly intended as 3D materials (i.e. they are not mislabeled) there is no link available to access the 3DPDF.

The other datasets, those from the Data Providers "Europeana 1914-1918" and "Ajuntament de Girona" may have been mistagged as 3D as they appear to contain only regular JPEG images.

Broken links

Several datasets appear to have broken links for most or all of their resources. Items with broken links do not meet the requirements of the Europeana Publishing Framework and so it is possible that these datasets may be targeted for deletion if this cannot be rectified.

Although many of the affected datasets are small, the largest 3D dataset, that from PROBADO also has broken links for isShownBy, isShownAt and edmObject. If these materials were to be deleted from Europeana it would result in a significant reduction in the number of 3D items. The PROBADO project appears to be completed but as some members of the project are also members of the 3D Content in Europeana Task Force it may be possible to look at ways to reestablish the servers hosting the PROBADO content.

It is possible that some of these datasets may have been temporarily unavailable at the time of testing and so the list may not be entirely accurate.

Data Provider	No. Objects
PROBADO 3D	13,617
Digital Mechanism and Gear Library - www.dmg-lib.org	419
Ελληνική Ολυμπιακή Επιτροπή	355
MAK - Österreichisches Museum für angewandte Kunst / Gegenwartskunst	126
Archeotransfert	108
Muzeul Naţional de Istorie a României	100

Jugendstilsenteret	85
CISA -Interdipartimental Center for Archaeology	70
Vast-Lab	50
Εφορεία Αρχαιοτήτων Φωκίδος	36
CMC - CMC Associates Ltd.	29
Εφορεία Αρχαιοτήτων Μεσσηνίας	28
Victoria and Albert Museum	22
Historic Scotland	12
Public Monuments and Sculpture Association	11
History of Art at University of Glasgow (UG), UK	10
Total	15,078