

# Data quality in Europeana

Designing extensive EDM records :  
The Universitätsbibliothek Heidelberg study case



|   |    |          | Martius            |                          | Der       |       | Son    |       |
|---|----|----------|--------------------|--------------------------|-----------|-------|--------|-------|
|   |    |          | Mertz hat xxxj tag |                          | Aufspring | Minut | Abgang | Minut |
|   |    |          |                    |                          | Grund     | Grund | Grund  | Grund |
| f | 1  | d        | <b>RP</b>          | Albin martir             | 6         | 16    | 5      | 44    |
| g | 2  | e        | 6 nös              | Simplianus pabst         | 6         | 14    | 5      | 46    |
| h | 3  | f        | 5 nös              | Eingund scheidung        | 6         | 13    | 5      | 47    |
| i | 4  | g        | 4 nös              | Adrianus martir          | 6         | 11    | 5      | 49    |
| k | 5  | <b>A</b> | 3 nös              | Milavianus pishoff       | 6         | 9     | 5      | 51    |
| k | 6  | b        | 2 nös              | Victor martir            | 6         | 8     | 5      | 52    |
| l | 7  | c        | Nomis              | Perpetua vnd felicitas   | 6         | 6     | 5      | 54    |
| m | 8  | d        | 8 idus             | Candidus pishoff         | 6         | 4     | 5      | 56    |
| n | 9  | e        | 7 idus             | Vierzigte ritter martir  | 6         | 2     | 5      | 58    |
| o | 10 | f        | 6 idus             | Magdalena bekerung       | 6         | 0     | 6      | 0     |
| p | 11 | g        | 5 idus             | Gumprecht pishoff        | 5         | 58    | 6      | 2     |
| q | 12 | <b>A</b> | 4 idus             | Gregorius pabst          | 5         | 56    | 6      | 4     |
| r | 13 | b        | 3 idus             | Macedon priester         | 5         | 54    | 6      | 6     |
| s | 14 | c        | 2 idus             | Gloswinde unndfraw       | 5         | 53    | 6      | 7     |
| s | 15 | d        | Idibus             | Matrona unndfraw         | 5         | 51    | 6      | 9     |
| t | 16 | e        | 17 kal             | April: Patricius pishoff | 5         | 49    | 6      | 11    |
| u | 17 | f        | 16 kal             | Gertraut unndfraw        | 5         | 48    | 6      | 12    |
| u | 18 | g        | 15 kal             | Anthonium erhebung       | 5         | 46    | 6      | 14    |
| x | 19 | <b>A</b> | 14 kal             | Joseph marie pfleger     | 5         | 44    | 6      | 16    |
| y | 20 | b        | 13 kal             | Lucas ritter             | 5         | 42    | 6      | 18    |
| z | 21 | c        | 12 kal             | Benedictus apt           | 5         | 40    | 6      | 20    |
| z | 22 | d        | 11 kal             | Affodiosus pishoff       | 5         | 38    | 6      | 22    |
| z | 23 | e        | 10 kal             | Priscus martir           | 5         | 37    | 6      | 23    |
| a | 24 | f        | 9 kal              | Quirinus martir          | 5         | 35    | 6      | 25    |
| b | 25 | g        | 8 kal              | Marie bindung            | 5         | 33    | 6      | 27    |
| r | 26 | <b>A</b> | 7 kal              | Casulus martir           | 5         | 31    | 6      | 29    |
| d | 27 | b        | 6 kal              | Kuprecht pishoff         | 5         | 29    | 6      | 31    |
| r | 28 | c        | 5 kal              | Gottramin löng           | 5         | 27    | 6      | 33    |
| f | 29 | d        | 4 kal              | Eingund bekerung         | 5         | 26    | 6      | 34    |
| g | 30 | e        | 3 kal              | Erwidon apte             | 5         | 24    | 6      | 36    |
| h | 31 | f        | 2 kal              | Salbina unndfraw         | 5         | 22    | 6      | 38    |



**I**ch bin gehassen meertz  
Den pflug ich hie auff meertz  
In disem monadt lassen kam plutt  
Doch ist swaispad den lewten gutt

Heidelberger Schicksalsbuch (Regensburg, after 1491),  
Universitätsbibliothek Heidelberg Cod. Pal. germ. 832, CC BY-SA  
(source : [Europeana](#))

Europeana Foundation  
February 2017

Editor : Pierre-Edouard Barrault  
Contributors : Valentine Charles, Antoine  
Isaac, Marjolein de Vos, Kirsten de Hoog





# Table of contents

|  |           |
|--|-----------|
| <b>Table of contents</b>                             | <b>2</b>  |
| <b>Introduction</b>                                  | <b>5</b>  |
| <b>Note</b>  | <b>6</b>  |
| <b>Glossary</b>                                      | <b>6</b>  |
| <b>IIIF implementation</b>                           | <b>7</b>  |
| Highlights   | 7         |
| Raw files  | 8         |
| Transformed files (EDM)                              | 9         |
| Published records                                    | 11        |
| <b>General normalization &amp; additional fields</b> | <b>12</b> |
| Highlights   | 12        |
| Raw files  | 14        |
| Transformed files (EDM)                              | 15        |
| Published records                                    | 17        |
| <b>Creators and contributors normalization</b>       | <b>19</b> |
| Highlights   | 19        |
| Raw files  | 21        |
| Transformed files (EDM)                              | 22        |
| Published records                                    | 25        |
| <b>Hierarchies implementation</b>                    | <b>27</b> |
| Highlights   | 27        |
| Raw files  | 28        |
| Transformed files (EDM, child & parent record)       | 30        |
| Published records                                    | 34        |
| <b>Conclusion</b>                                    | <b>37</b> |
| <b>Table of figures</b>                              | <b>38</b> |
| <b>Appendix</b>                                      | <b>41</b> |
| <b>Document history</b>                              | <b>42</b> |



## Introduction

At Europeana, data quality enhancement is most of the time a matter of subtle changes aligning data to match specific quality standards, or improving it by richer mappings (richer metadata fields to support advanced information needs and discovery features).

The focus of this task is to normalize existing metadata values to match patterns that will enable the [Europeana automatic semantic enrichment](#), and to implement more systematically controlled vocabularies resources available as [Linked Open Data](#). Thanks to this strategy, not only do the records from cultural heritage institutions get enriched with additional and semantically richer metadata, but they are also being connected to a wider network of knowledge and content.

Even if metadata improvements are not always obvious on a result page in the Europeana Collections portal, they nevertheless have a strong impact on search and overall findability. Data quality is critical to support users focused discovery scenarios<sup>1</sup>, and strategy to improve it should be considered *de facto* by any cultural institutions, as a leverage to reach a wider audience.

This report, based on the Universitätsbibliothek Heidelberg study case, was therefore designed to highlight such improvements. We focused our work on this specific provider with the hope for improving its collections thanks to IIIF metadata, since it had implemented IIIF features on its side. We based our investigation on METS records, a very rich format in this case. In addition to finding the core elements for implementing IIIF metadata, we eventually discovered an amazing source of information from which improving the overall metadata. We ended up developing extended EDM records, embedded with IIIF compliant resources and refined metadata.

The metadata mapping improvements that have been addressed are :

- Implementation of IIIF specific fields and classes ;
- Normalization of mandatory or important fields (dc:date, dc:type, dc:subject and related skos:Concept) ;
- Implementation of new fields (dc:description, dcterms:spatial) ;
- Normalization of creator and contributor fields (dc:creator/dc:contributor and edm:Agent) ;
- Implementation of hierarchical relationships.

---

<sup>1</sup> Most of Europeana users rely on the search functionality, and 59% of them use extra filtering options to refine their search. More than half of the users search items based on specific geographical location. (Source: Europeana Collections Online Survey, April 2016)



## Note

We deliberately excluded screenshots of the METS records, as they could reach an output length of 180 pages for some of our examples. However, we included links to these resources and additional ones in the [Appendix](#) section.

## Glossary

|                               |   |
|-------------------------------|---|
| <b>Raw file</b>               | Refers to the data directly received or harvested from an institution. This is the data in its most original and untouched shape.   |
| <b>Transformed file (EDM)</b> | Refers to the data after its conversion to EDM based on an XSLT transformation. At this stage, no enrichment has been applied.  |
| <b>Published record</b>       | The record as it is displayed in the Europeana platform. Refers to the final data, resulting from its process through the Europeana Semantic Enrichment and the Hierarchical Object plugin. |



# IIIF implementation

Study case : [/07931/diglit\\_zantani1548](#)

## Highlights

Everything started from the Universitätsbibliothek Heidelberg implementing IIIF visualisation features into [their own website](#). On the other hand, they would expose ESE records lacking of [IIIF compliant metadata](#) (e.g. JSON manifest/resources/services URIs), or either no reusable data for retrieving these IIIF components. Indeed, in order to implement it from scratch, one needs **data elements** from which specific **IDs** can be **extracted**. Such data can however be found in the METS records. In this case, these IDs were first used to **reconstruct the URL** of the 1st picture exposed by the IIIF service and map it both as an edm:WebResource and as the mandatory element edm:isShownBy, for each record:

```
2311         xlink:href="http://digi.ub.uni-heidelberg.de/diglitData/image/zantani1548/3/060a.jpg"
2312     />
2313     </mets:file>
2314     <mets:file ID="filedefault00121" MIMETYPE="image/jpg">
2315         <mets:Flocat LOCTYPE="URL"
2316             xlink:href="http://digi.ub.uni-heidelberg.de/diglitData/image/zantani1548/3/060b.jpg"
2317         />
2318     </mets:file>
2319     <mets:fileGrp USE="MAX">
2320         <mets:file ID="filemax00001" MIMETYPE="image/jpg">
2321             <mets:Flocat LOCTYPE="URL"
2322                 xlink:href="http://digi.ub.uni-heidelberg.de/diglitData/image/zantani1548/4/000_ROEM_1.jpg"
2323             />
2324         </mets:file>
2325     </mets:fileGrp>
2326     <mets:fileGrp USE="MAX">
2327         <mets:file ID="filemax00001" MIMETYPE="image/jpg">
2328             <mets:Flocat LOCTYPE="URL"
2329                 xlink:href="http://digi.ub.uni-heidelberg.de/diglitData/image/zantani1548/4/000_ROEM_1.jpg"
2330             />
2331         </mets:file>
2332         <mets:file ID="filemax00002" MIMETYPE="image/jpg">
2333             <mets:Flocat LOCTYPE="URL"
2334                 xlink:href="http://digi.ub.uni-heidelberg.de/diglitData/image/zantani1548/4/001_Poem_1.jpg"
2335             />
2336         </mets:file>
2337         <mets:file ID="filemax00003" MIMETYPE="image/jpg">
2338             <mets:Flocat LOCTYPE="URL"
2339                 xlink:href="http://digi.ub.uni-heidelberg.de/diglitData/image/zantani1548/4/001b.jpg"
2340             />
2341         </mets:file>
2342     </mets:fileGrp>
2343 </mets:structMap>
2344 </mets:mets>
```

**Re-usable data**  
Key variable extracted from the URL of the 1st child of the HD pictures cluster  
`<xsl:variable name="resource_id" select="substring-after(`

**IIIF isShownBy / WebResource IDs**  
Re-used as a defining component for JSON manifest & Service URIs

Figure 1 : highlight of the most critical data for implementing IIIF, from the METS record (see [Appendix](#) for a link to this file)

And from these IDs and newly reconstructed URLs, it is also possible to add the **connected** WebResource, which will eventually be described with its dependencies to the (both reconstructed) **IIIF JSON manifest and IIIF Service URLs**, the latter being also represented as a separate class.

Once these IIIF elements are embedded in EDM records, the automatic display of the newly retrieved main representation (i.e. edm:isShownBy) triggers the Europeana IIIF Viewer, which itself fetches the next images of the cultural object from the related Service and JSON Manifest.



## Raw files

### ESE (formerly ingested data)

```
1 <?xml version="1.0" encoding="UTF-8"?>
2 <OAI-PMH xmlns="http://www.openarchives.org/OAI/2.0/"
3   xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
4   xsi:schemaLocation="http://www.openarchives.org/OAI/2.0/http://www.openarchives.org/OAI/2.0/OAI-PMH.xsd" >
5   <responseDate>2016-12-15T13:28:23Z</responseDate>
6   <request identifier="digi_ub.uni-heidelberg.de:1063" verb="GetRecord" metadataPrefix="ese">
7     http://diglit.ub.uni-heidelberg.de/cgi-bin/digioai.cgi </request>
8   <GetRecord>
9     <record>
10      <header>
11        <identifier>oai:digi_ub.uni-heidelberg.de:1063</identifier>
12        <timestamp>2016-06-17T14:38:19Z</timestamp>
13      </header>
14      <metadata>
15        <oai_dc:dc xmlns:dcterms="http://purl.org/dc/dcterms/"
16          xmlns:europa="http://www.europeana.eu/schemas/ese/"
17          xmlns:oai_dc="http://www.openarchives.org/OAI/2.0/oai_dc/"
18          xmlns:dc="http://purl.org/dc/elements/1.1/">
19          <dc:creator>Zantani, Antonio; Vico, Enea [Ill.] </dc:creator>
20          <dc:title>Le Imagini Con Tvtti I Riversi Trovati Et Le Vite De Gli Imperatori
21            Tratte Dalle Medaglie Et Dalle Historie De Gli Antichi </dc:title>
22          <dcterms:alternative> Le imagini con tutti i riversi trovati et le vite de gli
23            imperatori tratte dalle medaglie et dalle historie de gli antichi </dcterms:alternative>
24          <dc:date>1548 [cicognara Nr. 3055] </dc:date>
25          <dcterms:issued>1548 [cicognara Nr. 3055] </dcterms:issued>
26          <dc:identifier>http://digi_ub.uni-heidelberg.de/diglit/zantani1548 </dc:identifier>
27          <dc:identifier>urn:nbn:de:bsz:16-diglit-10639</dc:identifier>
28          <dc:language>it</dc:language>
29          <dc:type>Monograph</dc:type>
30          <dc:ispartof>Archäologische Literatur </dc:ispartof>
31          <dc:ispartof>Cicognara</dc:ispartof>
32          <dc:ispartof>Druckschriften</dc:ispartof>
33          <dc:ispartof>Heidelberger historische Bestände - digital: Archäologische
34            Literatur </dc:ispartof>
35          <dc:subject>Archäologie; Porträt; benannte Porträts </dc:subject>
36          <dc:subject>archaeology; portrait; named portraits </dc:subject>
37          <dc:subject> Archäologie; Bildthemen; öffentliches und politisches Leben </dc:subject>
38          <dc:subject> archaeology; iconographic themes; public and political life </dc:subject>
39          <dc:subject>Archäologie; Numismatik; römische Münzen </dc:subject>
40          <dc:subject>archaeology; numismatic; Roman coins </dc:subject>
41          <dc:subject> Cicognara; Parte Seconda; Numismatica, e Pietre Intagliate </dc:subject>
42          <dc:subject> Cicognara; Parte Seconda; Numismatica, e Pietre Intagliate </dc:subject>
43          <dc:subject>Münze</dc:subject>
44          <dc:subject>Imperator</dc:subject>
45          <dc:subject>Römerzeit</dc:subject>
46          <europa:object>
47            http://digi_ub.uni-heidelberg.de/diglitData/introimage/zantani1548.jpg </europa:object>
48          <europa:provider>UniversitätsbibliothekHeidelberg </europa:provider>
49          <europa:rights>
50            http://www.ub.uni-heidelberg.de/helios/digi/nutzung/Welcome.html </europa:rights>
51          <europa:type>TEXT</europa:type>
52          <europa:isShownAt>http://digi_ub.uni-heidelberg.de/diglit/zantani1548
53          </europa:isShownAt>
54        </oai_dc:dc>
55      </metadata>
56    </record>
57  </GetRecord>
58 </OAI-PMH>
59
```

**No re-usable data**  
From these links,  
one cannot guess  
the useful piece of data  
to reconstruct the IIF components

Figure 2 : commented export of the ESE file related to this record  
(see [Appendix](#) for a link to this file)



## Transformed files (EDM)

### From ESE (former Europeana record)

```
1 <?xml version="1.0" encoding="utf-8"?>
2 <rdf:RDF xmlns:edm="http://www.europeana.eu/schemas/edm/"
3   xmlns:rdf="http://www.w3.org/1999/02/22-rdf-syntax-ns#"
4   xmlns:dcterms="http://purl.org/dc/terms/" xmlns:svcs="http://rdfs.org/sioc/services#"
5   xmlns:ore="http://www.openarchives.org/ore/terms/" xmlns:doap="http://usefulinc.com/ns/doap#"
6   xmlns:dc="http://purl.org/dc/elements/1.1/">
7   <edm:ProvidedCHO rdf:about="/07927/diglit_zantani1548"/>
8     <ore:Aggregation rdf:about="http://digi.ub.uni-heidelberg.de/diglit/zantani1548">
9       <edm:aggregatedCHO rdf:resource="/07927/diglit_zantani1548"/>
10      <edm:dataProvider>UniversitätsbibliothekHeidelberg </edm:dataProvider>
11      <edm:isShownAt rdf:resource="http://digi.ub.uni-heidelberg.de/diglit/zantani1548"/>
12      <edm:object
13        rdf:resource="http://digi.ub.uni-heidelberg.de/diglitData/introimage/zantani1548.jpg"/>
14      <edm:provider>UniversitätsbibliothekHeidelberg </edm:provider>
15      <dc:rights>http://www.ub.uni-heidelberg.de/helios/digi/nutzung/Welcome.html</dc:rights>
16      <edm:rights rdf:resource="http://creativecommons.org/licenses/by-sa/3.0/de/">
17    </ore:Aggregation>
18    <ore:Proxy rdf:about="/07927/diglit_zantani1548">
19      <dc:creator>Zantani, Antonio; Vico, Enea [Ill.] </dc:creator>
20      <dc:date>1548 [cicognara Nr. 3055] </dc:date>
21      <dc:identifier>urn:nbn:de:bsz:16-diglit-10639</dc:identifier>
22      <dc:language>it</dc:language>
23      <dc:rights>http://www.ub.uni-heidelberg.de/helios/digi/nutzung/Welcome.html</dc:rights>
24      <dc:subject>Archäologie; Porträt; benannte Porträts </dc:subject>
25      <dc:subject>archaeology; portrait; named portraits </dc:subject>
26      <dc:subject>Archäologie; Bildthemen; öffentliches und politisches Leben </dc:subject>
27      <dc:subject>archaeology; iconographic themes; public and political life </dc:subject>
28      <dc:subject>Archäologie; Numismatik; römische Münzen </dc:subject>
29      <dc:subject>archaeology; numismatics; Roman coins </dc:subject>
30      <dc:subject>Cicognara; Parte Seconda; Numismatica, e Pietre Intagliate </dc:subject>
31      <dc:subject>Cicognara; Parte Seconda; Numismatica, e Pietre Intagliate </dc:subject>
32      <dc:subject>Münze</dc:subject>
33      <dc:subject>Imperator</dc:subject>
34      <dc:subject>Römerzeit</dc:subject>
35      <dc:title>Le Imagini Con Tvtti I Riversi Trovati Et Le Vite De Gli Imperatori Tratte Dalle
36        Medaglie Et Dalle Historie De Gli Antichi </dc:title>
37      <dc:type>Monograph</dc:type>
38      <dcterms:alternative>Le imagini con tutti i riversi trovati et le vite de gli imperatori
39        tratte dalle medaglie et dalle historie de gli antichi </dcterms:alternative>
40      <dcterms:isPartOf>Archäologische Literatur </dcterms:isPartOf>
41      <dcterms:isPartOf>Cicognara</dcterms:isPartOf>
42      <dcterms:isPartOf>Druckschriften</dcterms:isPartOf>
43      <dcterms:isPartOf>Heidelberger historische Bestände – digital: Archäologische
44        Literatur </dcterms:isPartOf>
45      <dcterms:issued>1548 [cicognara Nr. 3055] </dcterms:issued>
46      <edm:type>TEXT</edm:type>
47    </ore:Proxy>
48    <edm:EuropeanaAggregation rdf:about="http://digi.ub.uni-heidelberg.de/diglit/zantani1548">
49      <edm:aggregatedCHO rdf:resource="http://digi.ub.uni-heidelberg.de/diglit/zantani1548"/>
50      <edm:country>Germany</edm:country>
51      <edm:language>de</edm:language>
52      <edm:rights rdf:resource="http://creativecommons.org/licenses/by-sa/3.0/de/">
53    </edm:EuropeanaAggregation>
54  </rdf:RDF>
55
```

#### EDM record lacking of IIIF Components

The original record is basically transformed into EDM, without any implementation of IIIF components (compliant resources, services or JSON manifest)

Figure 3 : commented export of the transformed file (ESE to EDM) related to this record (see [Appendix](#) for a link to this file)



## From METS (current Europeana record)

```
1 <?xml version="1.0" encoding="utf-8"?>
2 <rdf:RDF xmlns:edm="http://www.europeana.eu/schemas/edm/"
3   xmlns:rdf="http://www.w3.org/1999/02/22-rdf-syntax-ns#"
4   xmlns:dc="http://purl.org/dc/elements/1.1/" xmlns:dcterms="http://purl.org/dc/terms/"
5   xmlns:svcs="http://rdfs.org/sioc/services#" xmlns:ore="http://www.openarchives.org/ore/terms/"
6   xmlns:doap="http://usefulinc.com/ns/doap#" xmlns:rdaGr2="http://rdvocab.info/ElementsGr2/"
7   xmlns:skos="http://www.w3.org/2004/02/skos/core#"
8   <edm:ProvidedCHO rdf:about="/07931/diglit_zantani1548"/>
9   <edm:WebResource
10     rdf:about="http://diglit.uni-heidelberg.de/image/zantani1548/000_ROEM_1.jpg/full/full/0/default.jpg">
11     <dc:format>image/jpeg</dc:format>
12     <dcterms:isReferencedBy>http://digi.uni-heidelberg.de/diglit/iiif/zantani1548/manifest.json</dcterms:isReferencedBy>
13     <svcs:has_service
14       rdf:resource="http://diglit.uni-heidelberg.de/image/zantani1548/000_ROEM_1.jpg"/>
15   </edm:WebResource>
16   <edm:Agent rdf:about="http://d-nb.info/gnd/133724603">
17     <rdaGr2:professionOrOccupation>Author</rdaGr2:professionOrOccupation>
18   </edm:Agent>
19   <edm:Agent rdf:about="http://d-nb.info/gnd/119099950">
20     <rdaGr2:professionOrOccupation>Illustrator</rdaGr2:professionOrOccupation>
21   </edm:Agent>
22   <skos:Concept rdf:about="http://d-nb.info/gnd/4040629-5">
23     <skos:prefLabel xml:lang="de">Münze</skos:prefLabel>
24   </skos:Concept>
25   <skos:Concept rdf:about="http://d-nb.info/gnd/4435136-7">
26     <skos:prefLabel xml:lang="de">Imperator</skos:prefLabel>
27   </skos:Concept>
28   <skos:Concept rdf:about="http://d-nb.info/gnd/4076769-3">
29     <skos:prefLabel xml:lang="de">Römerzeit</skos:prefLabel>
30   </skos:Concept>
31   <ore:Aggregation rdf:about="zantani1548_Aggregation">
32     <edm:aggregatedCHO rdf:resource="/07931/diglit_zantani1548"/>
33     <edm:dataProvider>UniversitätsbibliothekHeidelberg </edm:dataProvider>
34     <edm:isShownAt rdf:resource="http://digi.uni-heidelberg.de/diglit/zantani1548"/>
35     <edm:isShownBy
36       rdf:resource="http://diglit.uni-heidelberg.de/image/zantani1548/000_ROEM_1.jpg/full/full/0/default.jpg"/>
37     <edm:object
38       rdf:resource="http://digi.uni-heidelberg.de/diglitData/introimage/zantani1548.jpg"/>
39     <edm:provider>UniversitätsbibliothekHeidelberg </edm:provider>
40     <dc:rights>http://www.uni-heidelberg.de/helios/digi/nutzung/Welcme.html</dc:rights>
41     <edm:rights rdf:resource="http://creativecommons.org/licenses/by-sa/3.0/de"/>
42   </ore:Aggregation>
43   <ore:Proxy rdf:about="/07931/diglit_zantani1548">
44     <dc:creator rdf:resource="http://d-nb.info/gnd/133724603"/>
45     <dc:contributor rdf:resource="http://d-nb.info/gnd/119099950"/>
46     <dc:description>Shelfmark: Universitätsbibliothek Heidelberg, 85 A 5675 RES </dc:description>
47     <dc:description xml:lang="de">Antonio Zantani (1509-1567) Ausgabe römischer Kaiserbildnisse
48       enthält für jeden der 12 Kaiser eine kurze Biographie sowie daran anschließend mehrere
49       Seiten mit Darstellungen der Münzreverso. Zantani unterteilte die Medaillen nach ihrem
50       Material: Gold, Silber und Bronze. Die auf einigen Seiten vorhandenen leeren
51       Medaillenrahmen sollte der Dokumentation neu aufgefunderer Medaillien dienen. Die
52       Zeichnungen stammen von Enea Vico (1523-1567). </dc:description>
53     <dc:identifier>urn:nbn:de:bsz:16-diglit-10639</dc:identifier>
54     <dc:identifier>ciognara Nr. 3055 </dc:identifier>
55     <dc:identifier>oai:digi.uni-heidelberg.de:1063</dc:identifier>
56     <dc:language>it</dc:language>
57     <dc:rights>http://www.uni-heidelberg.de/helios/digi/nutzung/Welcme.html</dc:rights>
58     <dc:source>UniversitätsbibliothekHeidelberg </dc:source>
59     <dc:subject rdf:resource="http://d-nb.info/gnd/4040629-5"/>
60     <dc:subject rdf:resource="http://d-nb.info/gnd/4435136-7"/>
61     <dc:subject rdf:resource="http://d-nb.info/gnd/4076769-3"/>
62     <dc:subject xml:lang="en">archaeology</dc:subject>
63     <dc:subject xml:lang="en">portrait</dc:subject>
64     <dc:subject xml:lang="en">named portraits</dc:subject>
65     <dc:subject xml:lang="de">Archäologie</dc:subject>
66     <dc:subject xml:lang="de">Porträt</dc:subject>
67     <dc:subject xml:lang="de">benannte Porträts</dc:subject>
68     <dc:title xml:lang="it">Le Imagini Con Tvtti I Riversi Trovati Et Le Vite De Gli Imperatori
69       Tratte Dalle Medaglie Et Dalle Historie De Gli Antichi </dc:title>
70     <dc:type xml:lang="de">Urkunde</dc:type>
71     <dcterms:isPartOf xml:lang="de">Ciognara</dcterms:isPartOf>
72     <dcterms:isPartOf xml:lang="de">Druckschriften</dcterms:isPartOf>
73     <dcterms:isPartOf xml:lang="de">Heidelberger historische Bestände - digital: Archäologische
74       Literatur </dcterms:isPartOf>
75     <dcterms:isPartOf xml:lang="de">Sammlung16 - Archäologie </dcterms:isPartOf>
76     <dcterms:created>1548</dcterms:created>
77     <dcterms:spatial>[Venedig]</dcterms:spatial>
78     <edm:type>TEXT</edm:type>
79   </ore:Proxy>
80   <edm:EuropeanaAggregation rdf:about="http://digi.uni-heidelberg.de/diglit/zantani1548">
81     <edm:aggregatedCHO rdf:resource="http://digi.uni-heidelberg.de/diglit/zantani1548"/>
82     <edm:country>Germany</edm:country>
83     <edm:language>de</edm:language>
84     <edm:rights rdf:resource="http://creativecommons.org/licenses/by-sa/3.0/de"/>
85   </edm:EuropeanaAggregation>
86   <svcs:Service rdf:about="http://diglit.uni-heidelberg.de/image/zantani1548/000_ROEM_1.jpg">
87     <dcterms:conformsTo rdf:resource="http://iiif.io/api/image"/>
88     <doap:implements rdf:resource="http://iiif.io/api/image/2/level2.json"/>
89   </svcs:Service>
90 </rdf:RDF>
```

**IIIF**  
**Connected WebResource**  
- fetching the related **JSON**  
**manifest**  
- fetching the related **Service**

**IIIF**  
**Compliant edm:isShownBy**

**IIIF**  
**Connected Service**

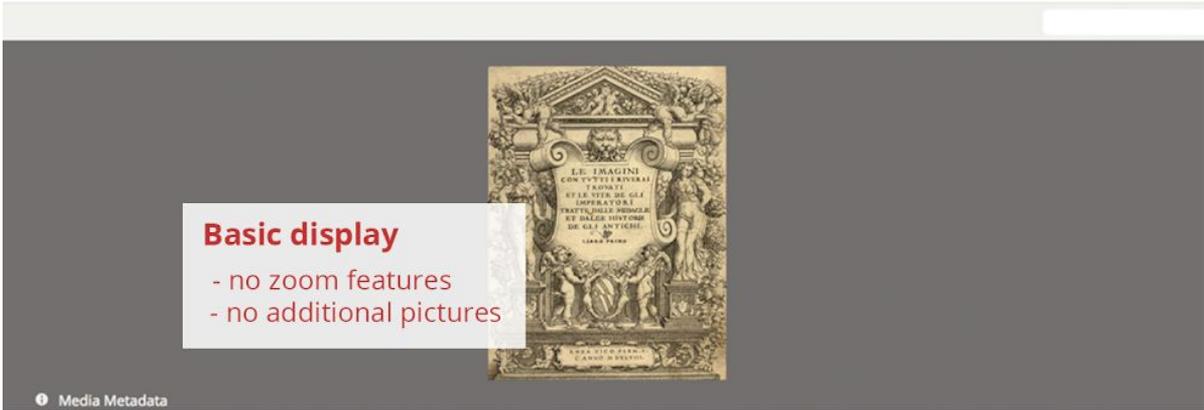
Figure 4 : commented export of the transformed file (METS to EDM) related to this record (see [Appendix](#) for a link to this file)



## Published records

### From ESE (former Europeana record)

actions ▾ Explore ▾ Exhibitions ▾ Blog ▾



**Basic display**

- no zoom features
- no additional pictures

Media Metadata

**Title** Le Imagini Con Tvtti I Riversi Trovati Et Le Vite De Gli Imperatori Tratte Dalle Medaglie Et Dalle Historie De Gli Antichi | Zantani, Antonio; Vico, Enea [Ill.]

**FIND OUT MORE**  
View at Universitätsbibliothek Heidelberg [↗](#)

### From METS (current Europeana record)

actions ▾ Explore ▾ Exhibitions ▾ Blog ▾



**Zoom features**

**Additional fetched pictures**

Media Metadata

**Title** Le Imagini Con Tvtti I Riversi Trovati Et Le Vite De Gli Imperatori Tratte Dalle Medaglie Et Dalle Historie De Gli Antichi | Zantani, Antonio

**FIND OUT MORE**  
View at Universitätsbibliothek Heidelberg [↗](#)

Figure 5 & 6: commented screenshots of the related pages in Europeana (see [Appendix](#) for a link to the latter resource, the former being now unavailable/updated with the data improvement)



## General normalization & additional fields

Study case : [/07931/diglit\\_zantani1548](#)

### Highlights

For this section, most of the work was based on mapping clear and separate instances for important or mandatory fields such as **dcterms:created**, **dc:type**, **dc:subject (and related skos:Concept)**, and to implement new fields such as **dc:description** and **dcterms:spatial**.

#### Mapping dc:subject with separate instances

For this specific field, we previously received metadata records in which multiple values for a given field were mapped in only one instance of this field, such as :

```
<dc:subject>Archäologie; Porträt; benannte Porträts </dc:subject>
<dc:subject>archaeology; portrait; named portraits </dc:subject>
<dc:subject> Archäologie; Bildthemen; öffentliches und politisches Leben </dc:subject>
<dc:subject> archaeology; iconographic themes; public and political life </dc:subject>
<dc:subject>Archäologie; Numismatik; römische Münzen </dc:subject>
<dc:subject>archaeology; numismatics; Roman coins </dc:subject>
<dc:subject> Cicognara; Parte Seconda; Numismatica, e Pietre Intagliate </dc:subject>
<dc:subject> Cicognara; Parte Seconda; Numismatica, e Pietre Intagliate </dc:subject>
```

Figure 7 : screenshot of an export of the ESE file related to this record (see [Appendix](#) for a link to this file)

Having single strings introduced in a single metadata field with separators prevents the Europeana automatic semantic enrichment from detecting the appropriate string and enriching the record based on the matching string.

#### Normalizing dc:date into dcterms:created ; Optimizing dc:type

We restructured the temporal data by using the more specific field dcterms:created, and we populated it from more relevant and consistent data. Same approach was followed for dc:type, which took benefit from stricter mapping conditions.

Expanding metadata in both quality and range brought us to perform specific refinements such as :

- **Normalization of existing field values**
  - Fetching more standardized temporal fields and mapping them to dcterms:created instead of dc:date ;
  - Mapping dc:type with more specific conditions (e.g. rejecting 'Monograph', an over broad term) ;
  - Mapping dc:subject with separate instances, either with :
    - If [GND entities URIs](#)<sup>2</sup> are available in the original records, resources populated with these URIs (and creating the related skos:Concept instances, connected to one another by their respective attributes @rdf:resource and @rdf:about) ;

<sup>2</sup> The **Integrated Authority File** (German: *Gemeinsame Normdatei*, also known as: *Universal Authority File*) or **GND** is an international [authority file](#) for the organisation of personal names, subject headings and corporate bodies from catalogues. The GND is managed by the [German National Library](#) in cooperation with various regional library networks in German-speaking Europe and other partners (source: Wikipedia).



- If no GND entities URIs are available, literals with related @lang attributes ;
- **Creating new field values**
  - Including a new dc:description field with related @lang attribute ;
  - Creating a 2nd *ad-hoc* dc:description, populated with a concatenated string made out of physical location information ;
  - Including a new dcterms:spatial field.

The idea behind this extension of the metadata records is to have either **normalised literals that can be automatically enriched by Europeana, or URIs from a controlled vocabulary**. These improvements<sup>3</sup> increase the degree of multilinguality of these records and their findability in Europeana Collections by removing a level of ambiguity.

---

<sup>3</sup> For further details, see <http://pro.europeana.eu/page/europeana-semantic-enrichment>



## Raw files

### ESE (old data)

```
1 <?xml version="1.0" encoding="UTF-8"?>
2 <OAI-PMH xmlns="http://www.openarchives.org/OAI/2.0/"
3   xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
4   xsi:schemaLocation="http://www.openarchives.org/OAI/2.0/http://www.openarchives.org/OAI/2.0/OAI-PMH.xsd" >
5   <responseDate>2016-12-15T13:28:23Z</responseDate>
6   <request identifier="digi_ub.uni-heidelberg.de:1063" verb="GetRecord" metadataPrefix="ese">
7     http://diglit.uni-heidelberg.de/cgi-bin/digioai.cgi </request>
8   <GetRecord>
9     <record>
10       <header>
11         <identifier>oai:digi_ub.uni-heidelberg.de:1063</identifier>
12         <timestamp>2016-06-17T14:38:19Z</timestamp>
13       </header>
14       <metadata>
15         <oai_dc:dc xmlns:dcterms="http://purl.org/dc/dcterms/"
16           xmlns:europa="http://www.europeana.eu/schemas/ese/"
17           xmlns:oai_dc="http://www.openarchives.org/OAI/2.0/oai_dc/"
18           xmlns:dc="http://purl.org/dc/elements/1.1/">
19           <dc:creator>Zantani, Antonio; Vico, Enea [Ill.] </dc:creator>
20           <dc:title>Le Imagini Con Tvtti I Riversi Trovati Et Le Vite De Gli Imperatori
21             Tratte Dalle Medaglie Et Dalle Historie De Gli Antichi </dc:title>
22           <dcterms:alternative>Le imagini con tutti i riversi trovati et le vite de gli
23             imperatori tratte dalle medaglie et dalle historie de gli antichi </dcterms:alternative>
24           <dc:date>1548 [Cicognara Nr. 3055] </dc:date>
25           <dc:dcterms:issued>1548 [Cicognara Nr. 3055] </dc:dcterms:issued>
26           <dc:identifier>http://digi_ub.uni-heidelberg.de/diglit/zantani1548 </dc:identifier>
27           <dc:identifier>urn:nbn:de:bsz:16-diglit-10639</dc:identifier>
28           <dc:language>it</dc:language>
29           <dc:type>Monograph</dc:type>
30           <dc:ispartof>Archäologische Literatur </dc:ispartof>
31           <dc:ispartof>Cicognara</dc:ispartof>
32           <dc:ispartof>Druckschriften</dc:ispartof>
33           <dc:ispartof>Heidelberger historische Bestände - digital: Archäologische
34             Literatur </dc:ispartof>
35           <dc:subject>Archäologie; Porträt; benannte Porträts </dc:subject>
36           <dc:subject>archaeology; portrait; named portraits </dc:subject>
37           <dc:subject>Archäologie; Bildthemen; öffentliches und politisches Leben </dc:subject>
38           <dc:subject>archaeology; iconographic themes; public and political life </dc:subject>
39           <dc:subject>Archäologie; Numismatik; römische Münzen </dc:subject>
40           <dc:subject>archaeology; numismatics; Roman coins </dc:subject>
41           <dc:subject>Cicognara; Parte Seconda; Numismatica, e Pietre Intagliate </dc:subject>
42           <dc:subject>Cicognara; Parte Seconda; Numismatica, e Pietre Intagliate </dc:subject>
43           <dc:subject>Münze</dc:subject>
44           <dc:subject>Imperator</dc:subject>
45           <dc:subject>Römerzeit</dc:subject>
46         <europa:object>
47           http://digi_ub.uni-heidelberg.de/diglitData/introimage/zantani1548.jpg </europa:object>
48         <europa:provider>UniversitätsbibliothekHeidelberg </europa:provider>
49         <europa:rights>
50           http://www.ub.uni-heidelberg.de/helios/digi/nutzung/Welcome.html </europa:rights>
51         <europa:type>TEXT</europa:type>
52         <europa:isShownAt>http://digi_ub.uni-heidelberg.de/diglit/zantani1548
53       </oai_dc:dc>
54     </metadata>
55   </record>
56 </GetRecord>
57 </OAI-PMH>
```

**Date Issues**  
Non-standard values

**Type Issues**  
- no lang attributes  
- missing values

**Subjects Issues**  
- several instances concatenated in the same field  
- no lang attributes (English & German)

Figure 8 : commented export of the ESE file related to this record (see [Appendix](#) for a link to this file)



## Transformed files (EDM)

### From ESE (former Europeana record)

```
1 <?xml version="1.0" encoding="utf-8"?>
2 <rdf:RDF xmlns:edm="http://www.europeana.eu/schemas/edm/"
3   xmlns:rdf="http://www.w3.org/1999/02/22-rdf-syntax-ns#"
4   xmlns:dcterms="http://purl.org/dc/terms/" xmlns:svcs="http://rdfs.org/sioc/services#"
5   xmlns:ore="http://www.openarchives.org/ore/terms/" xmlns:doap="http://usefulinc.com/ns/doap#"
6   xmlns:dc="http://purl.org/dc/elements/1.1/">
7   <edm:ProvidedCHO rdf:about="/07927/diglit_zantani1548"/>
8     <ore:Aggregation rdf:about="http://digi.ub.uni-heidelberg.de/diglit/zantani1548">
9       <edm:aggregatedCHO rdf:resource="/07927/diglit_zantani1548"/>
10      <edm:dataProvider>UniversitätsbibliothekHeidelberg </edm:dataProvider>
11      <edm:isShownAt rdf:resource="http://digi.ub.uni-heidelberg.de/diglit/zantani1548"/>
12      <edm:object
13        rdf:resource="http://digi.ub.uni-heidelberg.de/diglitData/introimage/zantani1548.jpg"/>
14      <edm:provider>UniversitätsbibliothekHeidelberg </edm:provider>
15      <dc:rights>http://www.ub.uni-heidelberg.de/helios/digi/nutzung/Welcome.html</dc:rights>
16      <edm:rights rdf:resource="http://creativecommons.org/licenses/by-sa/3.0/de/" />
17    </ore:Aggregation>
18    <ore:Proxy rdf:about="/07927/diglit_zantani1548">
19      <dc:creator>Zantani, Antonio; Vico, Enea [Ill.] </dc:creator>
20      <dc:date>1548 [Cicognara Nr. 3055] </dc:date>
21      <dc:identifer>urn:nbn:de:bsz:16-diglit-10639</dc:identifer>
22      <dc:language>it</dc:language>
23      <dc:rights>http://www.ub.uni-heidelberg.de/helios/digi/nutzung/Welcome.html</dc:rights>
24      <dc:subject>Archäologie; Porträt; benannte Porträts </dc:subject>
25      <dc:subject>archaeology; portrait; named portraits </dc:subject>
26      <dc:subject>Archäologie; Bildthemen; öffentliches und politisches Leben </dc:subject>
27      <dc:subject>archaeology; iconographic themes; public and political life </dc:subject>
28      <dc:subject>Archäologie; Numismatik; römische Münzen </dc:subject>
29      <dc:subject>archaeology; numismatics; Roman coins </dc:subject>
30      <dc:subject>Cicognara; Parte Seconda; Numismatica, e Pietre Intagliate </dc:subject>
31      <dc:subject>Cicognara; Parte Seconda; Numismatica, e Pietre Intagliate </dc:subject>
32      <dc:subject>Münze</dc:subject>
33      <dc:subject>Imperator</dc:subject>
34      <dc:subject>Römerzeit</dc:subject>
35      <dc:title>Le Imagini Con Tvtti I Riversi Trovati Et Le Vite De Gli Imperatori Tratte Dalle
36        Medaalie Et Dalle Historie De Gli Antichi </dc:title>
37      <dc:type>Monograph</dc:type>
38      <dcterms:alternative>Le imagini con tutti i riversi trovati et le vite de gli imperatori
39        tratte dalle medaglie et dalle historie de gli antichi </dcterms:alternative>
40      <dcterms:isPartOf>Archäologische Literatur </dcterms:isPartOf>
41      <dcterms:isPartOf>Cicognara</dcterms:isPartOf>
42      <dcterms:isPartOf>Druckschriften</dcterms:isPartOf>
43      <dcterms:isPartOf>Heidelberger historische Bestände – digital: Archäologische
44        Literatur </dcterms:isPartOf>
45      <dcterms:issued>1548 [Cicognara Nr. 3055] </dcterms:issued>
46      <edm:type>TEXT</edm:type>
47    </ore:Proxy>
48    <edm:EuropeanaAggregation rdf:about="http://digi.ub.uni-heidelberg.de/diglit/zantani1548">
49      <edm:aggregatedCHO rdf:resource="http://digi.ub.uni-heidelberg.de/diglit/zantani1548"/>
50      <edm:country>Germany</edm:country>
51      <edm:language>de</edm:language>
52      <edm:rights rdf:resource="http://creativecommons.org/licenses/by-sa/3.0/de/" />
53    </edm:EuropeanaAggregation>
54  </rdf:RDF>
55
```

Remaining  
Date Issues

Remaining  
Subjects Issues

Remaining  
Type Issues

Figure 9 : commented export of the transformed file (ESE to EDM) related to this record (see [Appendix](#) for a link to this file)





# Published records

## From ESE (former Europeana record)

Europeana Collections · Explore · Exhibitions · Blog · OUR SITES · LANGUAGE

Media Metadata

**Title** **Le Imagini Con Tvtti I Riversi Trovati Et Le Vite De Gli Imperatori Tratte Dalle Medaglie Et Dalle Historie De Gli Antichi | Zantani, Antonio; Vico, Enea [III.]** **FIND OUT MORE**  
View at Universitätsbibliothek Heidelberg

Le imagini con tutti i riversi trovati et le vite de gli imperatori tratte dalle medaglie et dalle historie de gli antichi

**People** **Creator:** Zantani, Antonio; Vico, Enea [III.] **CAN I USE IT?**  
Free Re-use  
CC BY-SA

**Classifications** **Type issue**  
Not specific enough value

**Type:** Monograph  
**Subject:** Archäologie; Porträt; benannte Porträts, Archaeology; portrait; named portraits, Archäologie; Bildthemen; öffentliches und politisches Leben, Archaeology; iconographic themes; public and political life, Archäologie; Numismatik; römische Münzen, Archaeology; numismatics; Roman coins, Cicognara; Parte Seconda; Numismatica, e Pietre Intagliate, Münze, Imperator, Römerzeit

**Properties** **Language:** It

**Time** **Date issue**  
Fields populated with un-normalized data

**Date:** 1548 [cicognara Nr. 3055]  
**Creation Date:** 1548 [cicognara Nr. 3055]  
**First Issued:** 1548 [cicognara Nr. 3055]

**Provenance** **Identifier:** Urm:nbn:de:bsz:16-diglit-10639  
**Institution:** Universitätsbibliothek Heidelberg  
**Provider:** Universitätsbibliothek Heidelberg  
**Providing Country:** Germany  
**First Published in Europeana:** 2013-11-25  
**Last Updated In Europeana:** 2016-12-12

**Additional Rights Information** **Rights:** [Http://www.uni-heidelberg.de/helios/digi/nutzung/Welcome.html](http://www.uni-heidelberg.de/helios/digi/nutzung/Welcome.html)

**References And Relations** **Physical sequence**

**Is Part Of:** Archäologische Literatur, Cicognara, Druckschriften, Heidelberger historische Bestände — digital: Archäologische Literatur  
**Dataset:** 07927\_L\_DE\_UniLibHeidelberg\_druckschriften

**Similar Items**

- Le Imagini Con Tvtti I Riversi Trovati Et Le Vite De Gli Imperatori Tratte Dalle Medaglie Et Dalle Historie De Gli Antichi
- Capita Deorum Et Illvstrum Hominum P...
- Imperatorum Romanorum A Julio Caesare ad He...
- Sylloge Nvmismatvm Elegantiorvm, Quae ...  
[show more... \(3,959,396\)](#)

Figure 11 : commented screenshot of the related page in Europeana (now unavailable, as the page was updated with the data improvement)



## From METS (current Europeana record)

Collections - Explore - Exhibitions - Blog - OUR SITES

tem

|                                      |  |   |
|--------------------------------------|--|---|
| <b>Title</b>                         | <b>Le Imagini Con Tvvti I Riversi Trovati Et Le Vite De Gli Imperatori Tratte Dalle Medaglie Et Dalle Historie De Gli Antichi   Zantani, Antonio</b>   | <b>FIND OUT MORE</b><br>View at Universitätsbibliothek Heidelberg <a href="#">↗</a>   |
| <b>Description</b>                   | Physical location: Universitätsbibliothek Heidelberg, 85 A 5675 RES  | <b>CAN I USE IT?</b><br>Free Re-use<br>   |
| <b>People</b>                        | Creator: Zantani, Antonio ( — 1567)<br>Contributor: Vico, Enea ( — 1567)   | <b>EXPLORE BY COLOUR</b><br>  |
| <b>Classifications</b>               | Type: Druckschriften<br>Subject: Archaeology, Portrait, Named portraits, Archaeology, Portrait   | <b>SHARE</b><br>  |
| <b>Properties</b>                    | Language: It   | <b>Normalized concept fields</b><br>Aligned values with relevant lang attributes<br><b>NB</b> : the duplicated values come from a display bug currently being addressed |
| <b>Time</b>                          | Date: <a href="http://semium.org/time/15xx">Http://semium.org/time/15xx</a><br>Creation Date: 1548<br>Period: Chronological period<br>First Issued: 1548   | <b>Normalized temporal fields</b><br>- aligned values<br>- more specific field dcterms:created  |
| <b>Provenance</b>                    | Provenance: Universitätsbibliothek Heidelberg<br>Identifier:<br>Urn:nbn:de:bsz:16-diglit-10639, Cicognara Nr. 3055, Oai:digi.ub.uni-heidelberg.de:1063<br>Institution: Universitätsbibliothek Heidelberg<br>Provider: Universitätsbibliothek Heidelberg<br>Providing Country: Germany<br>First Published In Europeana: 2016-09-01<br>Last Updated In Europeana: 2016-12-02 |   |
| <b>Additional Rights Information</b> | Rights: <a href="http://www.ub.uni-heidelberg.de/helios/digi/nutzung/Welcome.html">Http://www.ub.uni-heidelberg.de/helios/digi/nutzung/Welcome.html</a>  |   |
| <b>References And Relations</b>      | Is Part Of:<br>Cicognara, Druckschriften,<br>Heidelberger historische Bestände — digital: Archäologische Literatur ,<br>Sammlung16 - Archäologie<br>Dataset: 07931_L_DE_UniLibHeidelberg_druckschriften_IIIF   |   |
| <b>Location</b>                      | Location: [Venedig]  |   |
| <b>Similar Items</b>                 |  |   |

Figure 12 : commented screenshot of the related page in Europeana (see [Appendix](#) for a link to this resource)



## Creators and contributors normalization

Study case : [/07931/diglit\\_kieser1664](#)

### Highlights

#### Value normalisation and sharper mapping

This section is rather similar to the section [General normalization & additional fields](#), as the described work mainly consisted here in mapping clear and separate instances for the agent related fields **dc:creator** and **dc:contributor**. Indeed, for these specific fields, we previously received metadata in which multiple values for a given field were mapped altogether in only one instance:

```
<dc:creator> Wölfflin, Christoph; Kieser, Johann Theodor [Hrsg.]; Schertlin, Peter [Hrsg.]; Schabhard, David [Hrsg.]; Vischer, Philipp Christoph [Hrsg.]; Scholl, Johann Andreas [Hrsg.]; Gross, Christoph [Hrsg.]; Roschüz, Matthäus [Hrsg.]; Odor, Janos [Hrsg.]; Häberlin, Georg Heinrich [Hrsg.] </dc:creator>
```

Figure 13 : screenshot of an export of the ESE file related to this record (see [Appendix](#) for a link to this file)

Comparing these values with what was available in the MODS files, we noticed that not only individual instances (e.g. agents) were **merged together in one unique field** (with [Hrsg.] trails), but the **distinction between creators and contributors was also lost** in the process :

```
<mods:name type="personal" authority="gnd" authorityURI="http://d-nb.info/gnd/" valueURI="http://d-nb.info/gnd/117453455">
  <mods:namePart type="family">Wölfflin</mods:namePart>
  <mods:namePart type="given">Christoph</mods:namePart>
  <mods:displayForm>Wölfflin, Christoph </mods:displayForm>
  <mods:role>
    <mods:roleTerm authority="marcrelator" type="code">aut</mods:roleTerm>
  </mods:role>
</mods:name>
<mods:name type="personal" authority="gnd" authorityURI="http://d-nb.info/gnd/" valueURI="http://d-nb.info/gnd/1036692027">
  <mods:namePart type="family">Kieser</mods:namePart>
  <mods:namePart type="given">Johann Theodor </mods:namePart>
  <mods:displayForm>Kieser, Johann Theodor </mods:displayForm>
  <mods:role>
    <mods:roleTerm authority="marcrelator" type="code">edt</mods:roleTerm>
  </mods:role>
</mods:name>
<mods:name type="personal" authority="gnd" authorityURI="http://d-nb.info/gnd/" valueURI="http://d-nb.info/gnd/1036692124">
  <mods:namePart type="family">Schertlin</mods:namePart>
  <mods:namePart type="given">Peter</mods:namePart>
  <mods:displayForm>Schertlin, Peter </mods:displayForm>
  <mods:role>
    <mods:roleTerm authority="marcrelator" type="code">edt</mods:roleTerm>
  </mods:role>
</mods:name>
```

'Author' agent, mapped as creator

Not 'Author' agent ('Editor' here), mapped as contributors

Figure 14 : commented screenshot of an export of the METS file related to this record (see [Appendix](#) for a link to this file)



An intermediary **fixed value mapping** based on <http://loc.gov/marc/relators/relacode.html> was therefore performed to normalize these **Marc Relator codes to their literal value**. These codes were also used as **filtering conditions** to differentiate creators (code = 'aut', for 'author') from other contributors (e.g. above data, where code = 'edt', for 'editor').

```
<xsl:variable name="map_marcRelator">
  <map value="Abridger">abr</map>
  <map value="Art copyist">acp</map>
  <map value="Actor">act</map>
  <map value="Art director">adi</map>
  <map value="Adapter">adp</map>
  <map value="Author of afterword, colophon, etc.">aft</map>
  <map value="Analyst">anl</map>
  <map value="Animator">anm</map>
  <map value="Annotator">ann</map>
  <map value="Bibliographic antecedent">ant</map>
  <map value="Appellee">ape</map>
  <map value="Appellant">apl</map>
  <map value="Applicant">app</map>
  <map value="Author in quotations or text abstracts">aqt</map>
  <map value="Architect">arc</map>
  <map value="Artistic director">ard</map>
  <map value="Arranger">arr</map>
  <map value="Artist">art</map>
  <map value="Assignee">asg</map>
  <map value="Associated name">asn</map>
  <map value="Autographer">ato</map>
  <map value="Attributed name">att</map>
  <map value="Auctioneer">auc</map>
  <map value="Author of dialog">aud</map>
  <map value="Author of introduction, etc.">au<del>i</del></map>
  <map value="Screenwriter">aus</map>
  <map value="Author">aut</map>
  <map value="Binding designer">bdd</map>
  <map value="Bookjacket designer">bjd</map>
  <map value="Book designer">bkd</map>
  <map value="Book producer">bkp</map>
  <map value="Blurb writer">blw</map>
  <map value="Binder">bnd</map>
```

**Normalizing role code with related label**  
Example here with the string 'aut' being replaced by 'Author'

Figure 15 : commented screenshot of an export of the fixed value mapping implemented in the XSLT used to transform the METS files to EDM



## Raw files

### ESE (old data)

```
1 <?xml version="1.0" encoding="UTF-8"?>
2 <OAI-PMH xmlns="http://www.openarchives.org/OAI/2.0/"
3   xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
4   xsi:schemaLocation="http://www.openarchives.org/OAI/2.0/http://www.openarchives.org/OAI/2.0/OAI-PMH.xsd" >
5   <responseDate>2016-12-15T13:28:23Z</responseDate>
6   <request identifier="digi.ub.uni-heidelberg.de:1063" verb="GetRecord" metadataPrefix="ese">
7     http://diglit.ub.uni-heidelberg.de/cgi-bin/digioai.cgi </request>
8   <GetRecord>
9     <record>
10      <header>
11        <identifier>oai:digi.ub.uni-heidelberg.de:1063</identifier>
12        <timestamp>2016-06-17T14:38:19Z</timestamp>
13      </header>
14      <metadata>
15        <oai_dc:dc xmlns:dcterms="http://purl.org/dc/dcterms/"
16          xmlns:europaana="http://www.europeana.eu/schemas/ese/"
17          xmlns:oai_dc="http://www.openarchives.org/OAI/2.0/oai_dc/"
18          xmlns:dc="http://purl.org/dc/elements/1.1/">
19          <dc:creator> Wölfflin, Christoph; Kieser, Johann Theodor [Hrsg.]; Schertlin,
20            Peter [Hrsg.]; Schabhard, David [Hrsg.]; Vischer, Philipp Christoph [Hrsg.];
21            Schöll, Johann Andreas [Hrsg.]; Gross, Christoph [Hrsg.]; Roschütz, Matthäus
22            [Hrsg.]; Odor, Janos [Hrsg.]; Häberlin, Georg Heinrich [Hrsg.] </dc:creator>
23          <dc:title> Heptas Exercitationum Sacrarum De Obligatione Credendi In Christum:
24            Ex Quo Post Immensos Cruciatum Emensos, Et Triduanam Requiem Declinatam, Leo
25            De Tribu Juda ... Jesus Christus, Mortem & Martem Stygium in Triumpho
26            ducens ... [P. P. ipsis Vigiliis Paschalibus, A. O. R. M DC LXXX.] </dc:title>
27          <dc:date>1664 [VD17 16:727354P] </dc:date>
28          <dc:dcterms:issued>1664 [VD17 16:727354P] </dc:dcterms:issued>
29          <dc:identifier>http://digi.ub.uni-heidelberg.de/diglit/kieser1664</dc:identifier>
30          <dc:identifier>urn:nbn:de:bsz:16-diglit-194773</dc:identifier>
31          <dc:language>la</dc:language>
32          <dc:type>Monograph</dc:type>
33          <dc:ispartof>Theologische Literatur </dc:ispartof>
34          <dc:ispartof>Druckschriften</dc:ispartof>
35          <dc:ispartof> Digitalisierung wertvoller Bestände baden-württembergischer
36            Bibliotheken </dc:ispartof>
37          <dc:ispartof> Verzeichnis der im deutschen Sprachbereich erschienenen Drucke des
38            17. Jahrhunderts </dc:ispartof>
39          <dc:ispartof> Heidelberger historische Bestände – digital: Theologische
40            Literatur </dc:ispartof>
41          <europaana:object>
42            http://digi.ub.uni-heidelberg.de/diglitData/introimage/kieser1664.jpg </europaana:object>
43          <europaana:provider>UniversitätsbibliothekHeidelberg </europaana:provider>
44          <europaana:rights>
45            http://www.ub.uni-heidelberg.de/helios/digi/nutzung/Welcme.html </europaana:rights>
46          <europaana:type>TEXT</europaana:type>
47          <europaana:isShownAt>http://digi.ub.uni-heidelberg.de/diglit/kieser1664</europaana:isShownAt>
48        </oai_dc:dc>
49      </metadata>
50    </record>
51  </GetRecord>
52 </OAI-PMH>
```

#### Agent Issues

- several instances concatenated in the same field
- acronyms for the role of the contributors

Figure 16 : commented export of the ESE file related to this record (see [Appendix](#) for a link to this file)



## Transformed files (EDM)

### From ESE (former Europeana record)

```
1 <?xml version="1.0" encoding="utf-8"?>
2 <rdf:RDF xmlns:edm="http://www.europeana.eu/schemas/edm/"
3   xmlns:rdf="http://www.w3.org/1999/02/22-rdf-syntax-ns#"
4   xmlns:dcterms="http://purl.org/dc/terms/" xmlns:svcs="http://rdfs.org/sioc/services#"
5   xmlns:ore="http://www.openarchives.org/ore/terms/" xmlns:doap="http://usefulinc.com/ns/doap#"
6   xmlns:dc="http://purl.org/dc/elements/1.1/">
7   <edm:ProvidedCHO rdf:about="/07927/diglit_kieser1664"/>
8     <ore:Aggregation rdf:about="http://digi.ub.uni-heidelberg.de/diglit/kieser1664">
9       <edm:aggregatedCHO rdf:resource="/07927/diglit_kieser1664"/>
10      <edm:dataProvider>UniversitätsbibliothekHeidelberg </edm:dataProvider>
11      <edm:isShownAt rdf:resource="http://digi.ub.uni-heidelberg.de/diglit/kieser1664"/>
12      <edm:object
13        rdf:resource="http://digi.ub.uni-heidelberg.de/diglitData/introimage/kieser1664.jpg"/>
14      <edm:provider>UniversitätsbibliothekHeidelberg </edm:provider>
15      <dc:rights>http://www.ub.uni-heidelberg.de/helios/digi/nutzung/Welcome.html</dc:rights>
16      <edm:rights rdf:resource="http://creativecommons.org/licenses/by-sa/3.0/de/" />
17    </ore:Aggregation>
18    <ore:Proxy rdf:about="/07927/diglit_kieser1664">
19      <dc:creator>Wölfflin, Christoph; Kieser, Johann Theodor [Hrsg.]; Schertlin, Peter [Hrsg.];
20        Schabhard, David [Hrsg.]; Vischer, Philipp Christoph [Hrsg.]; Scholl, Johann Andreas
21        [Hrsg.]; Gross, Christoph [Hrsg.]; Roschütz, Matthäus [Hrsg.]; Odor, Janos [Hrsg.];
22        Häberlin, Georg Heinrich [Hrsg.] </dc:creator>
23      <dc:date>1664 [VD17 16:727354P] </dc:date>
24      <dc:identifier>urn:nbn:de:bsz:16-diglit-194773</dc:identifier>
25      <dc:language>la</dc:language>
26      <dc:rights>http://www.ub.uni-heidelberg.de/helios/digi/nutzung/Welcome.html</dc:rights>
27      <dc:title>Heptas Exercitationum Sacrarum De Obligatione Credendi In Christum: Ex Quo Post
28        Immensos Cruciatu Emensos, Et Triduanam Requiem Declinatam, Leo De Tribu Juda ... Jesus
29        Christus, Mortem & Martem Stygium in Triumpho ducens ... [P. P. ipsis Vigilii
30        Paschalibus, A. O. R. M DC LXXX.] </dc:title>
31      <dc:type>Monograph</dc:type>
32      <dcterms:isPartOf>Theologische Literatur </dcterms:isPartOf>
33      <dcterms:isPartOf>Druckschriften</dcterms:isPartOf>
34      <dcterms:isPartOf>Digitalisierung wertvoller Bestände baden-württembergischer
35        Bibliotheken </dcterms:isPartOf>
36      <dcterms:isPartOf>Verzeichnis der im deutschen Sprachbereich erschienenen Drucke des 17.
37        Jahrhunderts </dcterms:isPartOf>
38      <dcterms:isPartOf>Heidelberger historische Bestände – digital: Theologische
39        Literatur </dcterms:isPartOf>
40      <dcterms:issued>1664 [VD17 16:727354P] </dcterms:issued>
41      <edm:type>TEXT</edm:type>
42    </ore:Proxy>
43    <edm:EuropeanaAggregation rdf:about="http://digi.ub.uni-heidelberg.de/diglit/kieser1664">
44      <edm:aggregatedCHO rdf:resource="http://digi.ub.uni-heidelberg.de/diglit/kieser1664"/>
45      <edm:country>Germany</edm:country>
46      <edm:language>de</edm:language>
47      <edm:rights rdf:resource="http://creativecommons.org/licenses/by-sa/3.0/de/" />
48    </edm:EuropeanaAggregation>
49 </rdf:RDF>
50
```

Remaining  
Issues with  
Creators  
/Contributors

Figure 17 : commented export of the transformed file (ESE to EDM) related to this record (see [Appendix](#) for a link to this file)



## From METS (current Europeana record)

```
1 <?xml version="1.0" encoding="utf-8"?>
2 <rdf:RDF xmlns:edm="http://www.europeana.eu/schemas/edm/"
3   xmlns:rdf="http://www.w3.org/1999/02/22-rdf-syntax-ns#"
4   xmlns:dcterms="http://purl.org/dc/terms/" xmlns:svcs="http://rdfs.org/sioc/services#"
5   xmlns:ore="http://www.openarchives.org/ore/terms/" xmlns:doap="http://usefulinc.com/ns/doap#"
6   xmlns:rdaGr2="http://rdvocab.info/ElementsGr2/" xmlns:dc="http://purl.org/dc/elements/1.1/">
7   <edm:ProvidedCHO rdf:about="/07931/diglit_kieser1664"/>
8     <edm:WebResource
9       rdf:about="http://diglit.uni-heidelberg.de/image/kieser1664/000a.jpg/full/full/0/default.jpg">
10       <dc:format>image/jpg</dc:format>
11     </edm:WebResource>
12     <dcterms:isReferencedBy>http://digi.uni-heidelberg.de/diglit/iif/kieser1664/manifest.json</dcterms:isReferencedBy>
13     <svcs:has_service
14       rdf:resource="http://diglit.uni-heidelberg.de/image/kieser1664/000a.jpg"/>
15     </edm:WebResource>
16     <edm:Agent rdf:about="http://d-nb.info/gnd/117453455">
17       <rdaGr2:professionOrOccupation>Author</rdaGr2:professionOrOccupation>
18     </edm:Agent>
19     <edm:Agent rdf:about="http://d-nb.info/gnd/1036692027">
20       <rdaGr2:professionOrOccupation>Editor</rdaGr2:professionOrOccupation>
21     </edm:Agent>
22     <edm:Agent rdf:about="http://d-nb.info/gnd/1036692124">
23       <rdaGr2:professionOrOccupation>Editor</rdaGr2:professionOrOccupation>
24     </edm:Agent>
25     <edm:Agent rdf:about="http://d-nb.info/gnd/1036692191">
26       <rdaGr2:professionOrOccupation>Editor</rdaGr2:professionOrOccupation>
27     </edm:Agent>
28     <edm:Agent rdf:about="http://d-nb.info/gnd/103030247">
29       <rdaGr2:professionOrOccupation>Editor</rdaGr2:professionOrOccupation>
30     </edm:Agent>
31     <edm:Agent rdf:about="http://d-nb.info/gnd/121387208">
32       <rdaGr2:professionOrOccupation>Editor</rdaGr2:professionOrOccupation>
33     </edm:Agent>
34     <edm:Agent rdf:about="http://d-nb.info/gnd/1036692264">
35       <rdaGr2:professionOrOccupation>Editor</rdaGr2:professionOrOccupation>
36     </edm:Agent>
37     <edm:Agent rdf:about="http://d-nb.info/gnd/1036692353">
38       <rdaGr2:professionOrOccupation>Editor</rdaGr2:professionOrOccupation>
39     </edm:Agent>
40     <edm:Agent rdf:about="http://d-nb.info/gnd/1036692493">
41       <rdaGr2:professionOrOccupation>Editor</rdaGr2:professionOrOccupation>
42     </edm:Agent>
43     <edm:Agent rdf:about="http://d-nb.info/gnd/104224045">
44       <rdaGr2:professionOrOccupation>Editor</rdaGr2:professionOrOccupation>
45     </edm:Agent>
46     <ore:Aggregation rdf:about="kieser1664_Aggregation">
47       <edm:aggregatedCHO rdf:resource="/07931/diglit_kieser1664"/>
48       <edm:dataProvider>UniversitätsbibliothekHeidelberg </edm:dataProvider>
49       <edm:isShownAt rdf:resource="http://digi.uni-heidelberg.de/diglit/kieser1664"/>
50       <edm:isShownBy
51         rdf:resource="http://diglit.uni-heidelberg.de/image/kieser1664/000a.jpg/full/full/0/default.jpg"/>
52     </edm:Aggregation>
53     <edm:object
54       rdf:resource="http://digi.uni-heidelberg.de/diglitData/introimage/kieser1664.jpg"/>
55     <edm:provider>UniversitätsbibliothekHeidelberg </edm:provider>
56     <dc:rights>http://www.uni-heidelberg.de/helios/digi/nutzung/Welcome.html</dc:rights>
57     <edm:rights rdf:resource="http://creativecommons.org/licenses/by-sa/3.0/de"/>
58   </ore:Aggregation>
59   <ore:Proxy rdf:about="/07931/diglit_kieser1664">
60     <dc:creator rdf:resource="http://d-nb.info/gnd/117453455"/>
61     <dc:contributor rdf:resource="http://d-nb.info/gnd/1036692027"/>
62     <dc:contributor rdf:resource="http://d-nb.info/gnd/1036692124"/>
63     <dc:contributor rdf:resource="http://d-nb.info/gnd/1036692191"/>
64     <dc:contributor rdf:resource="http://d-nb.info/gnd/103030247"/>
65     <dc:contributor rdf:resource="http://d-nb.info/gnd/121387208"/>
66     <dc:contributor rdf:resource="http://d-nb.info/gnd/1036692264"/>
67     <dc:contributor rdf:resource="http://d-nb.info/gnd/1036692353"/>
68     <dc:contributor rdf:resource="http://d-nb.info/gnd/1036692493"/>
69     <dc:contributor rdf:resource="http://d-nb.info/gnd/104224045"/>
70     <dc:description>Physical location: Universitätsbibliothek Heidelberg, 1,7127
71       RES </dc:description>
72     <dc:description xml:lang="de">Tübingen, Univ., Diss., 1664 </dc:description>
73     <dc:identifier>urn:nbn:de:bsz:16-diglit-194773</dc:identifier>
74     <dc:identifier>VD17 16:727354P </dc:identifier>
75     <dc:identifier>oai:digi.uni-heidelberg.de:19477</dc:identifier>
76     <dc:language>la</dc:language>
77     <dc:rights>http://www.uni-heidelberg.de/helios/digi/nutzung/Welcome.html</dc:rights>
78     <dc:source>UniversitätsbibliothekHeidelberg </dc:source>
79     <dc:title xml:lang="la">Heptas Exercitationum Sacrarum De Obligatione Credendi In Christum:
80       Ex Quo Post Immensus Cruciatum Emensos, Et Triduanam Requiem Declinatam, Leo De Tribu
81       Juda ... Jesus Christus, Martem & Martem Stygium in Triumpho ducens ... [P. P. ipsis
82       Vigiliis Paschalibus, A. O. R. M DC LXXX.] </dc:title>
83     <dc:type xml:lang="en">Monograph</dc:type>
84     <dc:type xml:lang="en">Physical sequence </dc:type>
85     <dcterms:isPartOf xml:lang="de">Druckschriften</dcterms:isPartOf>
86     <dcterms:isPartOf xml:lang="de">Digitalisierung wertvoller Bestände baden-württembergischer
87       Bibliotheken </dcterms:isPartOf>
```

**Connected Edm:Agent**  
- good enrichment potential,  
thanks to the **DNB resources**  
- profession field populated  
with values aligned from the  
**MARC21 Code List for  
Relators**

**Improved Creators/Contributors**  
Fetched **DNB resources**, with the connected **edm:Agent(s)**



```
86 <dcterms:isPartOf xml:lang="de">Verzeichnis der im deutschen Sprachbereich erschienenen
87 Drucke des 17. Jahrhunderts </dcterms:isPartOf>
88 <dcterms:isPartOf xml:lang="de">Heidelberger historische Bestände – digital: Theologische
89 Literatur </dcterms:isPartOf>
90 <dcterms:isPartOf xml:lang="de">Sammlung33 - Theologische Literatur </dcterms:isPartOf>
91 <dcterms:issued>1664</dcterms:issued>
92 <dcterms:created>1664</dcterms:created>
93 <dcterms:spatial>Tubingae</dcterms:spatial>
94 <edm:type>TEXT</edm:type>
95 </ore:Proxy>
96 <edm:EuropeanaAggregation rdf:about="kieser1664_EuropeanaAggregation">
97 <edm:aggregatedCHO rdf:resource="diglit_kieser1664"/>
98 <edm:country>Germany</edm:country>
99 <edm:language>de</edm:language>
100 <edm:rights rdf:resource="http://creativecommons.org/licenses/by-sa/3.0/de"/>
101 </edm:EuropeanaAggregation>
102 <svcs:Service rdf:about="http://diglit.ub.uni-heidelberg.de/image/kieser1664/000a.jpg">
103 <dcterms:conformsTo rdf:resource="http://iiif.io/api/image"/>
104 <doap:implements rdf:resource="http://iiif.io/api/image/2/level2.json"/>
105 </svcs:Service>
106 </rdf:RDF>
```

Figure 18 : commented export of the transformed file (METS to EDM) related to this record  
(see [Appendix](#) for a link to this file)



# Published records

## From ESE (former Europeana record)

ollections - Explore - Exhibitions - Blog - OUR SITES LANGUAGE -

**Title** Heptas Exercitationum Sacrarum De Obligatione Credendi In Christum: Ex Quo Post Immensos Cruciatu Emensos, Et Triduanam Requiem Declinatam, Leo De Tribu Juda ... Jesus Christus, Mortem & Martem Stygium in Triumpho ducens ... [P. P. ipsis Vigilii Paschalibus, A. O. R. M DC LXXX.] | Wölfflin, Christoph; Kieser, Johann Theodor [Hrsg.]; Schertlin, Peter [Hrsg.]; Schabhard, David [Hrsg.]; Vischer, Philipp Christoph [Hrsg.]; Scholl, Johann Andreas [Hrsg.]; Gross, Christoph [Hrsg.]; Roschüz, Matthäus [Hrsg.]; Odor, Janos [Hrsg.]; Häberlin, Georg Heinrich [Hrsg.]

**People** Creator: Wölfflin, Christoph; Kieser, Johann Theodor [Hrsg.]; Schertlin, Peter [Hrsg.]; Schabhard, David [Hrsg.]; Vischer, Philipp Christoph [Hrsg.]; Scholl, Johann Andreas [Hrsg.]; Gross, Christoph [Hrsg.]; Roschüz, Matthäus [Hrsg.]; Odor, Janos [Hrsg.]; Häberlin, Georg Heinrich [Hrsg.]

**Classifications** Type: Monograph

**Properties** Language: La

**Time** Date: 1664 [VD17 16:727354P]  
Creation Date: 1664 [VD17 16:727354P]  
First Issued: 1664 [VD17 16:727354P]

**Provenance** Identifier: urn:nbn:de:bsz:16-diglit-194773  
Institution: Universitätsbibliothek Heidelberg  
Provider: Universitätsbibliothek Heidelberg  
Providing Country: Germany  
First Published In Europeana: 2014-02-26  
Last Updated In Europeana: 2016-12-12

**Additional Rights Information** Rights: <http://www.ub.uni-heidelberg.de/helios/digi/nutzung/Welcome.html>

**References And Relations** Is Part Of: Theologische Literatur , Druckschriften , Digitalisierung wertvoller Bestände baden-württembergischer Bibliotheken , Verzeichnis der im deutschen Sprachbereich erschienenen Drucke des 17. Jahrhunderts , Heidelberger historische Bestände — digital: Theologische Literatur  
Dataset: 07927\_1\_DE\_UniLibHeidelberg\_druckschriften

**Similar Items**

**FIND OUT MORE** View at [Universitätsbibliothek Heidelberg](#)

**CAN I USE IT?** Free Re-use  
CC BY-SA

**SHARE**

**Concepts issue**  
- multiple values mapped in only one instance  
- both English and German literals

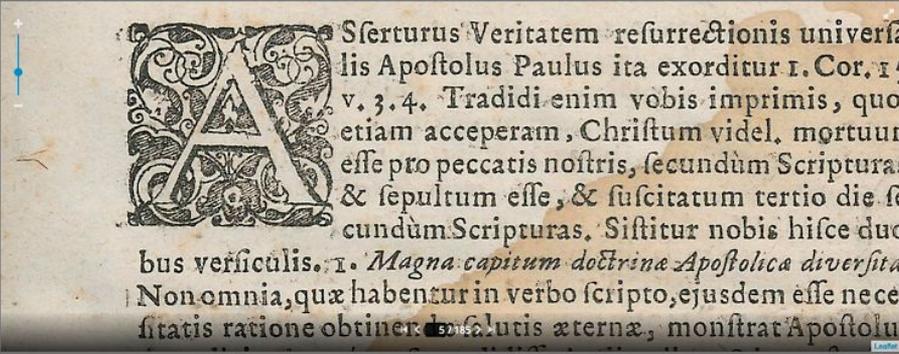
Figure 19 : commented screenshot of the related page in Europeana (now unavailable, as the page was updated with the data improvement)



## From METS (current Europeana record)

Europeana Collections · Explore · Exhibitions · Blog · OUR SITES

Item



Media Metadata

|                                      |   |  |
|--------------------------------------|---|--|
| <b>Title</b>                         | <b>Heptas Exercitationum Sacrarum De Obligatione Credendi In Christum: Ex Quo Post Immensus Cruciatu Emensos, Et Triduanam Requiem Declinatam, Leo De Tribu Juda ... Jesus Christus, Mortem &amp; Martem Stygium in Triumpho ducens ... [P. P. ipsis Vigiliis Paschalibus, A. O. R. M DC LXXX.]   Wöflflin, Christoph</b>   | <b>FIND OUT MORE</b><br>View at Universitätsbibliothek Heidelberg  |
| <b>Description</b>                   | Physical location: Universitätsbibliothek Heidelberg, 1,7127 RES  | <b>CAN I USE IT?</b><br>Free Re-use<br>CC BY-SA  |
| <b>People</b>                        | <b>Creator:</b> Wöflflin, Christoph ( — 1688)<br><b>Contributor:</b> Kieser, Johann Theodor , Schertlin, Peter , Schabhard, David , Vischer, Philipp Christoph , Scholl, Johann Andreas ( — 1692) , Gross, Christoph , Roschütz, Matthäus , Odor, Janos , Häberlin, Georg Heinrich ( — 1699)  | <b>EXPLORE BY COLOUR</b><br>[Color swatches]<br><b>SHARE</b><br>[Social media icons]   |
| <b>Classifications</b>               | Type: Monograph   | <b>Aligned agents</b><br>- created from a <b>standardised vocabulary</b> (GND)<br>- separated between creator and contributor based on <b>role relevance</b> |
| <b>Properties</b>                    | Language: La  |  |
| <b>Time</b>                          | Date: <a href="http://semium.org/time/16xx">http://semium.org/time/16xx</a><br>Creation Date: 1664<br>Period: 3 quarter of the 17th century<br>First Issued: 1664   |  |
| <b>Provenance</b>                    | <b>Provenance:</b> Universitätsbibliothek Heidelberg<br><b>Identifier:</b> urn:nbn:de:bsz:16-diglit-194773 , VD17 16:727354P , Oai:di.ub.uni-heidelberg.de:19477<br><b>Institution:</b> Universitätsbibliothek Heidelberg<br><b>Provider:</b> Universitätsbibliothek Heidelberg<br><b>Providing Country:</b> Germany<br><b>First Published In Europeana:</b> 2016-08-10<br><b>Last Updated In Europeana:</b> 2016-12-02 |  |
| <b>Additional Rights Information</b> | <b>Rights:</b> <a href="http://www.ub.uni-heidelberg.de/helios/digi/nutzung/Welcome.html">http://www.ub.uni-heidelberg.de/helios/digi/nutzung/Welcome.html</a>  |  |
| <b>References And Relations</b>      | <b>Is Part Of:</b> Druckschriften , Digitalisierung wertvoller Bestände baden-württembergischer Bibliotheken , Verzeichnis der im deutschen Sprachbereich erschienenen Drucke des 17. Jahrhunderts , Heidelberger historische Bestände — digital: Theologische Literatur , Sammlung33 - Theologische Literatur<br><b>Dataset:</b> 07931_L_DE_UniLibHeidelberg_druckschriften_IIIIF                                      |  |
| <b>Location</b>                      | Location: Tübingen  |  |
| <b>Similar Items</b>                 |      |  |

Figure 20 : commented screenshot of the related page in Europeana (see [Appendix](#) for a link to this resource)



# Hierarchies implementation

## Retrieval of hierarchical structure, disambiguation of children objects

Study case : [/07931/diglit\\_zaak](#) (parent record)

[/07931/diglit\\_zaak1913](#) (child record)

### Highlights

Through sampling combined with the explanations provided by Barth Jochen from the Universitätsbibliothek Heidelberg, we performed a complete rework of the hierarchical data previously sent, for all the records defined as part of volumes of journals.

#### Classic normalization

Original hierarchical references were represented with literals (simple strings). By definition, these values are not compatible with Europeana's **Hierarchical Object plugin**, which only benefits from proper RDF resources i.e. links to other records in the Europeana triplestore. Therefore, these fields will be left somehow untouched by the plugin and will be displayed only as searchable literals on the record page. We refined the mapping of the originally included hierarchical fields (dcterms:hasPart, dcterms:isPartOf) in order to include more specific references and related lang attributes.

#### Retrieving the relevant hierarchical data

The hierarchical connections between records are present within the METS records, and can be fetched depending of the presence and order of specific fields within the data. It is indeed possible to infer if the considered record is included as a sub-element within a bigger ensemble (e.g. a "journal" record can be part of a "volume of journals"), or if it is itself composed of several children record. Once these conditions are proven, the relevant resources were then mapped as rdf:resource attributes within **dcterms:isPartOf** (bottom-up relations) or **dcterms:hasPart fields** (top-down relations).

Relying on this new data, the Hierarchical Object plugin can implement these hierarchical relationships in the Europeana's database. These relationships can then be displayed in a **dedicated widget on each record page**, empowering users with another mean of browsing Europeana's collections.

#### Disambiguating records thanks to refined titles

For this subcategory of volumes of journals, record titles would be basically identical between parent and children record. In order to avoid such duplications, we simply concatenated (only for the affected children record) a separating string ` , ' and the corresponding year.

From a user perspective, this simple trick automatically disambiguates the record within Europeana search results, by giving each one of them a unique title.

Finally, we refined this title field a little further, without any record distinction, by implementing a lang attribute populated with a specific language value from the same record.



## Raw files

### ESE (old data, Parent record)

```
1 <?xml version="1.0" encoding="UTF-8"?>
2 <OAI-PMH xmlns="http://www.openarchives.org/OAI/2.0/"
3   xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
4   xsi:schemaLocation="http://www.openarchives.org/OAI/2.0/http://www.openarchives.org/OAI/2.0/OAI-PMH.xsd" >
5   <responseDate>2017-01-30T16:36:38Z</responseDate>
6   <request identifier="digi.ub.uni-heidelberg.de:3533" verb="GetRecord" metadataPrefix="ese">
7     http://diglit.ub.uni-heidelberg.de/cgi-bin/digioai.cgi </request>
8   <GetRecord>
9     <record>
10      <header>
11        <identifier>oai:digi.ub.uni-heidelberg.de:3533</identifier>
12        <timestamp>2016-12-16T14:57:20Z</timestamp>
13      </header>
14      <metadata>
15        <oai_dc:dc xmlns:dcterms="http://purl.org/dc/dcterms/"
16          xmlns:europaena="http://www.europeana.eu/schemas/ese/"
17          xmlns:dc="http://purl.org/dc/elements/1.1/"
18          xmlns:oai_dc="http://www.openarchives.org/OAI/2.0/oai_dc/">
19          <dc:title> Zeitschrift für Ästhetik und allgemeine Kunstwissenschaft </dc:title>
20          <dc:date>[ISSN 2195-6847] </dc:date>
21          <dcterms:issued>[ISSN 2195-6847] </dcterms:issued>
22          <dc:identifier>http://digi.ub.uni-heidelberg.de/diglit/zaak</dc:identifier>
23          <dc:identifier>urn:nbn:de:bsz:16-diglit-35337</dc:identifier>
24          <dc:language>de</dc:language>
25          <dc:type>Periodical</dc:type>
26          <dc:ispartof>Informationen zur Zeitschrift </dc:ispartof>
27          <dc:ispartof>art journals – Kunst- und Satirezeitschriften </dc:ispartof>
28          <dc:ispartof>DigiZeitschriften_Kunst</dc:ispartof>
29          <dc:ispartof>KunstwissenschaftlicheLiteratur </dc:ispartof>
30          <dc:ispartof>Druckschriften</dc:ispartof>
31          <dc:ispartof>Heidelberger historische Bestände – digital: Illustrierte Kunst-
32            und Satirezeitschriften des 19. und frühen 20. Jahrhunderts </dc:ispartof>
33          <europaena:object>
34            http://digi.ub.uni-heidelberg.de/diglitData/introimage/zaak1906.jpg </europaena:object>
35          <europaena:provider>UniversitätsbibliothekHeidelberg </europaena:provider>
36          <europaena:rights>
37            http://www.ub.uni-heidelberg.de/helios/digi/nutzung/Welcome.html </europaena:rights>
38          <europaena:type>TEXT</europaena:type>
39          <europaena:isShownAt>http://digi.ub.uni-heidelberg.de/diglit/zaak</europaena:isShownAt>
40        </oai_dc:dc>
41      </metadata>
42    </record>
43  </GetRecord>
44 </OAI-PMH>
45
```

#### Title Issue

- no lang attribute  
- exact **same title** than  
its **children objects**

#### Hierarchical Structure Issues

No resource but literals

Figure 21 : commented export of the ESE file related to this record  
(see [Appendix](#) for a link to this file)



## ESE (old data, Child record)

```
1 <?xml version="1.0" encoding="UTF-8"?>
2 <OAI-PMH xmlns="http://www.openarchives.org/OAI/2.0/"
3   xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
4   xsi:schemaLocation="http://www.openarchives.org/OAI/2.0/http://www.openarchives.org/OAI/2.0/OAI-PMH.xsd" >
5   <responseDate>2017-01-30T16:36:41Z</responseDate>
6   <request identifier="digi_ub.uni-heidelberg.de:3587" verb="GetRecord" metadataPrefix="ese">
7     http://diglitub.uni-heidelberg.de/cgi-bin/digioai.cgi </request>
8   <GetRecord>
9     <record>
10      <header>
11        <identifier>oai:digi_ub.uni-heidelberg.de:3587</identifier>
12        <timestamp>2016-02-27T12:40:13Z</timestamp>
13      </header>
14      <metadata>
15        <oai_dc:dc xmlns:europa="http://www.europeana.eu/schemas/ese/"
16          xmlns:dc="http://purl.org/dc/elements/1.1/"
17          xmlns:oai_dc="http://www.openarchives.org/OAI/2.0/oai_dc/"
18          xmlns:dcterms="http://purl.org/dc/dcterms/">
19          <dc:title>Zeitschrift für Ästhetik und allgemeine Kunstwissenschaft </dc:title>
20          <dc:date>1913</dc:date>
21          <dc:issued>1913</dc:issued>
22          <dc:identifier>http://digi_ub.uni-heidelberg.de/diglit/zaak1913</dc:identifier>
23          <dc:identifier>urn:nbn:de:bsz:16-diglit-35871</dc:identifier>
24          <dc:language>de</dc:language>
25          <dc:type>Volume</dc:type>
26          <dc:ispartof>Informationen zur Zeitschrift </dc:ispartof>
27          <dc:ispartof>art journals – Kunst- und Satirezeitschriften </dc:ispartof>
28          <dc:ispartof>Cendari</dc:ispartof>
29          <dc:ispartof>DigiZeitschriften_Kunst</dc:ispartof>
30          <dc:ispartof>KunstwissenschaftlicheLiteratur </dc:ispartof>
31          <dc:ispartof>Druckschriften</dc:ispartof>
32          <dc:ispartof>Heidelberger historische Bestände – digital: Illustrierte Kunst-
33            und Satirezeitschriften des 19. und frühen 20. Jahrhunderts </dc:ispartof>
34          <europa:object>
35            http://digi_ub.uni-heidelberg.de/diglitData/introimage/zaak1913.jpg </europa:object>
36          <europa:provider>UniversitätsbibliothekHeidelberg </europa:provider>
37          <europa:rights>
38            http://www.ub.uni-heidelberg.de/helios/digi/nutzung/Welcome.html </europa:rights>
39          <europa:type>TEXT</europa:type>
40          <europa:isShownAt>http://digi_ub.uni-heidelberg.de/diglit/zaak1913</europa:isShownAt>
41        </oai_dc:dc>
42      </metadata>
43    </record>
44  </GetRecord>
45 </OAI-PMH>
46
```

### Title Issue

- no lang attribute  
- exact **same title** than  
its **parent object**

### Hierarchical Structure Issues

No resource but literals

Figure 22 : commented export of the ESE file related to this record  
(see [Appendix](#) for a link to this file)



## Transformed files (EDM, child & parent record)

### From ESE (former Europeana parent record)

```
1 <?xml version="1.0" encoding="UTF-8"?>
2 <rdf:RDF xmlns:edm="http://www.europeana.eu/schemas/edm/"
3   xmlns:rdf="http://www.w3.org/1999/02/22-rdf-syntax-ns#"
4   xmlns:ore="http://www.openarchives.org/ore/terms/" xmlns:dc="http://purl.org/dc/elements/1.1/"
5   xmlns:dcterms="http://purl.org/dc/terms/">
6   <edm:ProvidedCHO rdf:about="diglit_zaak">
7     <ore:Aggregation rdf:about="http://digi.ub.uni-heidelberg.de/diglit/zaak">
8       <edm:aggregatedCHO rdf:resource="diglit_zaak">
9         <edm:dataProvider>UniversitätsbibliothekHeidelberg </edm:dataProvider>
10        <edm:isShownAt rdf:resource="http://digi.ub.uni-heidelberg.de/diglit/zaak"/>
11        <edm:object
12          rdf:resource="http://digi.ub.uni-heidelberg.de/diglitData/introimage/zaak1906.jpg"/>
13        <edm:provider>UniversitätsbibliothekHeidelberg </edm:provider>
14        <dc:rights>http://www.ub.uni-heidelberg.de/helios/digi/nutzung/Welcome.html</dc:rights>
15        <edm:rights rdf:resource="http://creativecommons.org/licenses/by-sa/3.0/de/">
16      </ore:Aggregation>
17      <ore:Proxy rdf:about="diglit_zaak">
18        <dc:date> [ISSN 2195-6847] </dc:date>
19        <dc:identifier>urn:nbn:de:bsz:16-diglit-35337</dc:identifier>
20        <dc:language>de</dc:language>
21        <dc:rights>http://www.ub.uni-heidelberg.de/helios/digi/nutzung/Welcome.html</dc:rights>
22        <dc:title>Zeitschrift für Asthetik und allgemeine Kunstwissenschaft </dc:title>
23        <dc:type>Periodical</dc:type>
24        <dcterms:isPartOf>Informationen zur Zeitschrift </dcterms:isPartOf>
25        <dcterms:isPartOf>art journals – Kunst- und Satirezeitschriften </dcterms:isPartOf>
26        <dcterms:isPartOf>DigiZeitschriften_Kunst</dcterms:isPartOf>
27        <dcterms:isPartOf>KunstwissenschaftlicheLiteratur </dcterms:isPartOf>
28        <dcterms:isPartOf>Druckschriften</dcterms:isPartOf>
29        <dcterms:isPartOf>Heidelberger historische Bestände – digital: Illustrierte Kunst- und
30          Satirezeitschriften des 19. und frühen 20. Jahrhunderts </dcterms:isPartOf>
31        <dcterms:issued> [ISSN 2195-6847] </dcterms:issued>
32        <edm:type>TEXT</edm:type>
33      </ore:Proxy>
34      <edm:EuropeanaAggregation rdf:about="http://digi.ub.uni-heidelberg.de/diglit/zaak">
35        <edm:aggregatedCHO rdf:resource="diglit_zaak">
36          <edm:country>Germany</edm:country>
37          <edm:language>de</edm:language>
38          <edm:rights rdf:resource="http://creativecommons.org/licenses/by-sa/3.0/de/">
39        </edm:EuropeanaAggregation>
40    </rdf:RDF>
```

Remaining Title Issue  
(duplicated values)

Remaining Hierarchical  
Structure Issues

Figure 23 : commented export of the transformed file (ESE to EDM) related to this record  
(see [Appendix](#) for a link to this file)



## From ESE (former Europeana child record)

```
1 <?xml version="1.0" encoding="UTF-8"?>
2 <rdf:RDF xmlns:edm="http://www.europeana.eu/schemas/edm/"
3   xmlns:rdf="http://www.w3.org/1999/02/22-rdf-syntax-ns#"
4   xmlns:ore="http://www.openarchives.org/ore/terms/" xmlns:dc="http://purl.org/dc/elements/1.1/"
5   xmlns:dcterms="http://purl.org/dc/terms/"
6   <edm:ProvidedCHO rdf:about="diglit_zaak1913">
7     <ore:Aggregation rdf:about="http://digi.ub.uni-heidelberg.de/diglit/zaak1913">
8       <edm:aggregatedCHO rdf:resource="diglit_zaak1913">
9         <edm:dataProvider>UniversitätsbibliothekHeidelberg </edm:dataProvider>
10        <edm:isShownAt rdf:resource="http://digi.ub.uni-heidelberg.de/diglit/zaak1913"/>
11        <edm:object
12          rdf:resource="http://digi.ub.uni-heidelberg.de/diglitData/introimage/zaak1913.jpg"/>
13        <edm:provider>UniversitätsbibliothekHeidelberg </edm:provider>
14        <dc:rights>http://www.ub.uni-heidelberg.de/helios/digi/nutzung/Welcome.html</dc:rights>
15        <edm:rights rdf:resource="http://creativecommons.org/licenses/by-sa/3.0/de/">
16      </ore:Aggregation>
17      <ore:Proxy rdf:about="diglit_zaak1913">
18        <dc:date>1913</dc:date>
19        <dc:identifier>urn:nbn:de:bsz:16-diglit-35871</dc:identifier>
20        <dc:language>de</dc:language>
21        <dc:rights>http://www.ub.uni-heidelberg.de/helios/digi/nutzung/Welcome.html</dc:rights>
22        <dc:title>Zeitschrift für Aesthetik und allgemeine Kunstwissenschaft </dc:title>
23        <dc:type>Volume</dc:type>
24        <dcterms:isPartOf>Informationen zur Zeitschrift </dcterms:isPartOf>
25        <dcterms:isPartOf>art journals – Kunst- und Satirezeitschriften </dcterms:isPartOf>
26        <dcterms:isPartOf>Cendari</dcterms:isPartOf>
27        <dcterms:isPartOf>DigiZeitschriften_Kunst</dcterms:isPartOf>
28        <dcterms:isPartOf>KunstwissenschaftlicheLiteratur </dcterms:isPartOf>
29        <dcterms:isPartOf>Druckschriften</dcterms:isPartOf>
30        <dcterms:isPartOf>Heidelberger historische Bestände – digital: Illustrierte Kunst- und
31          Satirezeitschriften des 19. und frühen 20. Jahrhunderts </dcterms:isPartOf>
32        <dcterms:issued>1913</dcterms:issued>
33        <edm:type>TEXT</edm:type>
34      </ore:Proxy>
35      <edm:EuropeanaAggregation rdf:about="http://digi.ub.uni-heidelberg.de/diglit/zaak1913">
36        <edm:aggregatedCHO rdf:resource="diglit_zaak1913">
37          <edm:country>Germany</edm:country>
38          <edm:language>de</edm:language>
39          <edm:rights rdf:resource="http://creativecommons.org/licenses/by-sa/3.0/de/">
40        </edm:EuropeanaAggregation>
41      </rdf:RDF>
42
```

**Remaining Title Issue**  
(duplicated values)

**Remaining Hierarchical  
Structure Issues**

Figure 24 : commented export of the transformed file (ESE to EDM) related to this record  
(see [Appendix](#) for a link to this file)



## From METS (current Europeana parent record)

```
1 <?xml version="1.0" encoding="utf-8"?>
2 <rdf:RDF xmlns:edm="http://www.europeana.eu/schemas/edm/"
3   xmlns:rdf="http://www.w3.org/1999/02/22-rdf-syntax-ns#"
4   xmlns:dc="http://purl.org/dc/elements/1.1/" xmlns:dcterms="http://purl.org/dc/terms/"
5   xmlns:ore="http://www.openarchives.org/ore/terms/"
6   <edm:ProvidedCHO rdf:about="diglit_zaak"/>
7   <ore:Aggregation rdf:about="zaak_Aggregation">
8     <edm:aggregatedCHO rdf:resource="diglit_zaak"/>
9     <edm:dataProvider>Universitätsbibliothek Heidelberg</edm:dataProvider>
10    <edm:isShownAt rdf:resource="http://digi.ub.uni-heidelberg.de/diglit/zaak"/>
11    <edm:object rdf:resource="http://digi.ub.uni-heidelberg.de/diglitData/introimage/zaak1906.jpg"/>
12    <edm:provider>Universitätsbibliothek Heidelberg</edm:provider>
13    <dc:rights>http://www.ub.uni-heidelberg.de/helios/digi/nutzung/Welcome.html</dc:rights>
14    <edm:rights rdf:resource="http://creativecommons.org/licenses/by-sa/3.0/de"/>
15  </ore:Aggregation>
16  <ore:Proxy rdf:about="diglit_zaak">
17    <dc:description>Shelfmark: Universitätsbibliothek Heidelberg, G 124-8 </dc:description>
18    <dc:identifier>urn:nbn:de:bsz:16-diglit-35337</dc:identifier>
19    <dc:identifier>ISSN 2195-6847 </dc:identifier>
20    <dc:identifier>oa:iglit.ub.uni-heidelberg.de:3533</dc:identifier>
21    <dc:language>de</dc:language>
22    <dc:rights>http://www.ub.uni-heidelberg.de/helios/digi/nutzung/Welcome.html</dc:rights>
23    <dc:source>Universitätsbibliothek Heidelberg</dc:source>
24    <dc:subject xml:lang="de">Informationen zur Zeitschrift </dc:subject>
25    <dc:subject xml:lang="en">Further information on the journal </dc:subject>
26    <dc:title xml:lang="de">Zeitschrift für Ästhetik und allgemeine Kunstwissenschaft </dc:title>
27    <dc:type xml:lang="en">Periodical</dc:type>
28    <dc:type>Text</dc:type>
29    <dcterms:hasPart rdf:resource="diglit_zaak1906"/>
30    <dcterms:hasPart rdf:resource="diglit_zaak1907"/>
31    <dcterms:hasPart rdf:resource="diglit_zaak1908"/>
32    <dcterms:hasPart rdf:resource="diglit_zaak1909"/>
33    <dcterms:hasPart rdf:resource="diglit_zaak1910"/>
34    <dcterms:hasPart rdf:resource="diglit_zaak1911"/>
35    <dcterms:hasPart rdf:resource="diglit_zaak1912"/>
36    <dcterms:hasPart rdf:resource="diglit_zaak1913"/>
37    <dcterms:hasPart rdf:resource="diglit_zaak1914"/>
38    <dcterms:hasPart rdf:resource="diglit_zaak1915"/>
39    <dcterms:hasPart rdf:resource="diglit_zaak1916"/>
40    <dcterms:hasPart rdf:resource="diglit_zaak1917"/>
41    <dcterms:hasPart rdf:resource="diglit_zaak1919"/>
42    <dcterms:hasPart rdf:resource="diglit_zaak1920"/>
43    <dcterms:hasPart rdf:resource="diglit_zaak1921"/>
44    <dcterms:hasPart rdf:resource="diglit_zaak1922"/>
45    <dcterms:hasPart rdf:resource="diglit_zaak17_1924"/>
46    <dcterms:hasPart rdf:resource="diglit_zaak18_1925"/>
47    <dcterms:hasPart rdf:resource="diglit_zaak19_1925"/>
48    <dcterms:hasPart rdf:resource="diglit_zaak1926"/>
49    <dcterms:hasPart rdf:resource="diglit_zaak1927"/>
50    <dcterms:hasPart rdf:resource="diglit_zaak1928"/>
51    <dcterms:hasPart rdf:resource="diglit_zaak1929"/>
52    <dcterms:hasPart rdf:resource="diglit_zaak1930"/>
53    <dcterms:hasPart rdf:resource="diglit_zaak1931"/>
54    <dcterms:hasPart rdf:resource="diglit_zaak1932"/>
55    <dcterms:hasPart rdf:resource="diglit_zaak1933"/>
56    <dcterms:hasPart rdf:resource="diglit_zaak1934"/>
57    <dcterms:hasPart rdf:resource="diglit_zaak1935"/>
58    <dcterms:hasPart rdf:resource="diglit_zaak1936"/>
59    <dcterms:hasPart rdf:resource="diglit_zaak1937"/>
60    <dcterms:hasPart rdf:resource="diglit_zaak1938"/>
61    <dcterms:hasPart rdf:resource="diglit_zaak1939"/>
62    <dcterms:hasPart rdf:resource="diglit_zaak1940"/>
63    <dcterms:hasPart rdf:resource="diglit_zaak1941"/>
64    <dcterms:hasPart rdf:resource="diglit_zaak1942"/>
65    <dcterms:hasPart rdf:resource="diglit_zaak1943"/>
66    <dcterms:isPartOf xml:lang="de">DigiZeitschriften_Kunst</dcterms:isPartOf>
67    <dcterms:isPartOf xml:lang="de">Kunstwissenschaftliche Literatur</dcterms:isPartOf>
68    <dcterms:isPartOf xml:lang="de">Druckschriften</dcterms:isPartOf>
69    <dcterms:isPartOf xml:lang="de">Heidelberger historische Bestände – digital: Illustrierte Kunst-
70    und Satirezeitschriften des 19. und frühen 20. Jahrhunderts </dcterms:isPartOf>
71    <dcterms:isPartOf xml:lang="de">Sammlung5 – Kunstzeitschriften </dcterms:isPartOf>
72    <dcterms:spatial xml:lang="de">Stuttgart</dcterms:spatial>
73    <edm:type>TEXT</edm:type>
74  </ore:Proxy>
75  <edm:EuropeanaAggregation rdf:about="zaak_EuropeanaAggregation">
76    <edm:aggregatedCHO rdf:resource="diglit_zaak"/>
77    <edm:country>Germany</edm:country>
78    <edm:language>de</edm:language>
79    <edm:rights rdf:resource="http://creativecommons.org/licenses/by-sa/3.0/de"/>
80  </edm:EuropeanaAggregation>
81 </rdf:RDF>
```

**Optimized Title**  
Relevant lang attribute  
based on the language  
of the record

**Retrieved Hierarchical Structure**  
Top-bottom relations are implemented through new dcterms:hasPart  
elements populated with @rdf:resources

**Optimized Hierarchical Fields**  
- additional type values  
- lang attributes (English & German)

Figure 25 : commented export of the transformed file (METS to EDM) related to this record  
(see [Appendix](#) for a link to this file)



## From METS (current Europeana child record)

```
1 <?xml version="1.0" encoding="utf-8"?>
2 <rdf:RDF xmlns:edm="http://www.europeana.eu/schemas/edm/"
3   xmlns:rdf="http://www.w3.org/1999/02/22-rdf-syntax-ns#"
4   xmlns:dc="http://purl.org/dc/elements/1.1/" xmlns:dcterms="http://purl.org/dc/terms/"
5   xmlns:svcs="http://rdfs.org/sioc/services#" xmlns:ore="http://www.openarchives.org/ore/terms/"
6   xmlns:doap="http://usefulinc.com/ns/doap#"
7   <edm:ProvidedCHO rdf:about="diglit_zaak1913"/>
8   <edm:WebResource
9     rdf:about="http://diglit.ub.uni-heidelberg.de/image/zaak1913/000_1_Titelblatt_ROEM_1.jpg/full/full/0/default.jpg">
10    <dc:format>image/jpeg</dc:format>
11    <dcterms:isReferencedBy>http://diglit.ub.uni-heidelberg.de/diglit/iiif/zaak1913/manifest.json</dcterms:isReferencedBy>
12    <svcs:has_service
13      rdf:resource="http://diglit.ub.uni-heidelberg.de/image/zaak1913/000_1_Titelblatt_ROEM_1.jpg"/>
14    </edm:WebResource>
15    <ore:Aggregation rdf:about="zaak1913_Aggregation">
16      <edm:aggregatedCHO rdf:resource="diglit_zaak1913"/>
17      <edm:dataProvider>Universitätsbibliothek Heidelberg</edm:dataProvider>
18      <edm:isShownAt rdf:resource="http://diglit.ub.uni-heidelberg.de/diglit/zaak1913"/>
19      <edm:isShownBy
20        rdf:resource="http://diglit.ub.uni-heidelberg.de/image/zaak1913/000_1_Titelblatt_ROEM_1.jpg/full/full/0/default.jpg">
21      <edm:object rdf:resource="http://diglit.ub.uni-heidelberg.de/diglitData/introimage/zaak1913.jpg"/>
22      <edm:provider>Universitätsbibliothek Heidelberg</edm:provider>
23      <dc:rights>http://www.ub.uni-heidelberg.de/helios/digi/nutzung/Welcome.html</dc:rights>
24      <edm:rights rdf:resource="http://creativecommons.org/licenses/by-sa/3.0/de"/>
25    </ore:Aggregation>
26    <ore:Proxy rdf:about="diglit_zaak1913"/>
27    <dc:description>Shelfmark: Universitätsbibliothek Heidelberg, G 124-8 </dc:description>
28    <dc:identifier>urn:nbn:de:bsz:16-diglit-35871</dc:identifier>
29    <dc:identifier>zoal:digi.ub.uni-heidelberg.de:3587</dc:identifier>
30    <dc:language>de</dc:language>
31    <dc:rights>http://www.ub.uni-heidelberg.de/helios/digi/nutzung/Welcome.html</dc:rights>
32    <dc:source>Universitätsbibliothek Heidelberg</dc:source>
33    <dc:subject xml:lang="de">Informationen zur Zeitschrift </dc:subject>
34    <dc:subject xml:lang="en">Further information on the journal </dc:subject>
35    <dc:title xml:lang="de">Zeitschrift für Ästhetik und allgemeine Kunstwissenschaft -
36      1913</dc:title>
37    <dc:type xml:lang="en">Periodical</dc:type>
38    <dc:type>Text</dc:type>
39    <dcterms:isPartOf rdf:resource="diglit_zaak"/>
40    <dcterms:isPartOf xml:lang="de">Cendari</dcterms:isPartOf>
41    <dcterms:isPartOf xml:lang="de">DigiZeitschriften_Kunst</dcterms:isPartOf>
42    <dcterms:isPartOf xml:lang="de">Kunstwissenschaftliche Literatur</dcterms:isPartOf>
43    <dcterms:isPartOf xml:lang="de">Druckschriften</dcterms:isPartOf>
44    <dcterms:isPartOf xml:lang="de">Heidelberger historische Bestände — digital: Illustrierte Kunst-
45      und Satirezeitschriften des 19. und frühen 20. Jahrhunderts </dcterms:isPartOf>
46    <dcterms:isPartOf xml:lang="de">Sammlung5 - Kunstzeitschriften </dcterms:isPartOf>
47    <dcterms:created>1913</dcterms:created>
48    <edm:type>TEXT</edm:type>
49  </ore:Proxy>
50  <edm:EuropeanaAggregation rdf:about="zaak1913_EuropeanaAggregation">
51    <edm:aggregatedCHO rdf:resource="diglit_zaak1913"/>
52    <edm:country>Germany</edm:country>
53    <edm:language>de</edm:language>
54    <edm:rights rdf:resource="http://creativecommons.org/licenses/by-sa/3.0/de"/>
55  </edm:EuropeanaAggregation>
56  <svcs:Service
57    rdf:about="http://diglit.ub.uni-heidelberg.de/image/zaak1913/000_1_Titelblatt_ROEM_1.jpg">
58    <dcterms:conformsTo rdf:resource="http://iiif.io/api/image"/>
59    <doap:implements rdf:resource="http://iiif.io/api/image/2/level2.json"/>
60  </svcs:Service>
61 </rdf:RDF>
```

**Optimized Title**  
Relevant lang attribute  
based on the language  
of the record

**Retrieved Hierarchical  
Structure**  
Bottom-up relations are  
implemented through a new  
dcterms:isPartOf element  
populated with @rdf:resource

**Optimized  
Hierarchical Fields**  
- additional type values  
- lang attributes (English  
& German)

Figure 26 : commented export of the transformed file (METS to EDM) related to this record  
(see [Appendix](#) for a link to this file)



# Published records

## From METS (current Europeanana parent record)

The screenshot shows the Europeanana record page for the journal 'Zeitschrift für Ästhetik und allgemeine Kunstwissenschaft'. The page features a header with the Europeanana logo and navigation links. The main content area displays the journal's cover image and a detailed metadata table. The metadata table includes sections for Title, Description, Classifications, Properties, Provenance, Additional Rights Information, References and Relations, and Location. A map of Stuttgart is included under the Location section. The 'Related Items' section is highlighted with a blue box and contains a list of 8 related items, with the first item selected. To the right of the 'Related Items' section, there is a text box that reads 'Retrieved Hierarchical structure And dedicated browsing widget'. The page also includes social media sharing icons and a 'Media Metadata' link.

**Media Metadata**

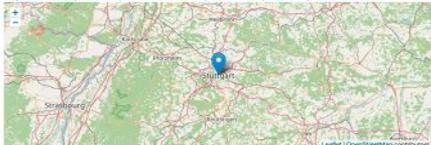
|                                      |   |  |
|--------------------------------------|---|--|
| <b>Title</b>                         | <b>Zeitschrift für Ästhetik und allgemeine Kunstwissenschaft</b>  | <b>FIND OUT MORE</b><br>View at Universitätsbibliothek Heidelberg        |
| <b>Description</b>                   | Shelfmark: Universitätsbibliothek Heidelberg, G 124-8   | <b>CAN I USE IT?</b><br>Free Re-use<br>CC BY-SA                          |
| <b>Classifications</b>               | Type: Periodical<br>Subject: Further information on the Journal   | <b>SHARE</b><br>Facebook, Twitter, Pinterest, LinkedIn                   |
| <b>Properties</b>                    | Language: de  |  |
| <b>Provenance</b>                    | Provenance: Universitätsbibliothek Heidelberg<br>Identifier: urn:nbn:de:bsz:16-diglib-35337, ISSN 2195-6847, oaidigiub.uni-heidelberg.de:3533<br>Institution: Universitätsbibliothek Heidelberg<br>Provider: Universitätsbibliothek Heidelberg<br>Providing Country: Germany<br>First Published In Europeanana: 2016-08-10<br>Last Updated In Europeanana: 2016-12-12   |  |
| <b>Additional Rights Information</b> | Rights: <a href="http://www.uib.uni-heidelberg.de/helios/dig/nutzung/Welcome.html">http://www.uib.uni-heidelberg.de/helios/dig/nutzung/Welcome.html</a>   |  |
| <b>References and Relations</b>      | Is Part Of:<br>DigZeitschriften_Kunst_ Kunstwissenschaftliche Literatur , Druckschriften , Heidelberger historische Bestände — digital: Illustrierte Kunst- und Satirezeitschriften des 19. und frühen 20. Jahrhunderts , Sammlung5 - Kunstzeitschriften<br>Dataset: 07931_L_DE_UniLibHeidelberg_druckschriften_IIIF  |  |
| <b>Location</b>                      | Location:<br>Stuttgart, <a href="http://data.europeana.eu/place/base/14325">http://data.europeana.eu/place/base/14325</a> ,<br><a href="http://data.europeana.eu/place/base/80">http://data.europeana.eu/place/base/80</a> , <a href="http://data.europeana.eu/place/base/505">http://data.europeana.eu/place/base/505</a><br><br>STUTTGART 48.77667° North, 9.1775° East, 51.5° North, 10.5° East, 48.78232° North, 9.17702° East  |  |
| <b>Related Items</b>                 | <b>Zeitschrift für Ästhetik und allgemeine Kunstwissenschaft (35)</b><br>1. Zeitschrift für Ästhetik und allgemeine Kunstwissenschaft, 1943<br>2. Zeitschrift für Ästhetik und allgemeine Kunstwissenschaft, 1942<br>3. Zeitschrift für Ästhetik und allgemeine Kunstwissenschaft, 1941<br>4. Zeitschrift für Ästhetik und allgemeine Kunstwissenschaft, 1940<br>5. Zeitschrift für Ästhetik und allgemeine Kunstwissenschaft, 1939<br>6. Zeitschrift für Ästhetik und allgemeine Kunstwissenschaft, 1938<br>7. Zeitschrift für Ästhetik und allgemeine Kunstwissenschaft, 1937<br>8. Zeitschrift für Ästhetik und allgemeine Kunstwissenschaft, 1936<br>View items below | <b>Retrieved Hierarchical structure</b><br>And dedicated browsing widget |
| <b>Entities</b>                      | <b>PLACE NAMES (PLACES)</b>   |  |

Figure 27 : commented screenshot of the related page in Europeanana (see [Appendix](#) for a link to this resource)



## From METS (current Europaena **child** record)

The screenshot displays the Europaena interface for a digital item. At the top, there is a navigation bar with 'Europaena actions', 'Collections', 'Explore', 'Exhibitions', and 'Blog'. On the right, there are links for 'OUR SITES' and 'LANGUAGE'. Below the navigation bar is a document viewer showing a page of German text. The main content area is a metadata panel with the following sections:

- Title:** Zeitschrift für Ästhetik und allgemeine Kunstwissenschaft - 1913
- Description:** Shelfmark: Universitätsbibliothek Heidelberg, G 124-8
- Classifications:** Type: Periodical; Subject: Further information on the journal
- Properties:** Language: de
- Time:** Date: [http://semium.org/time/19xx\\_1\\_third](http://semium.org/time/19xx_1_third); Creation Date: 1913; Period: Chronological period; Temporal: <http://semium.org/time/19xx>
- Provenance:** Provenance: Universitätsbibliothek Heidelberg; Identifier: urn:nbn:de:bsz:16-diglit-35871\_oai:digi.lib.uni-heidelberg.de:3587; Institution: Universitätsbibliothek Heidelberg; Provider: Universitätsbibliothek Heidelberg; Providing Country: Germany; First Published In Europaena: 2016-08-10; Last Updated In Europaena: 2016-12-12
- Additional Rights Information:** Rights: <http://www.lib.uni-heidelberg.de/helios/digi/nutzung/Welcome.html>
- References And Relations:** Is Part Of: diglit\_zaak; Dataset: 07931\_1\_DE\_UniLibHeidelberg\_druckschriften\_IIIF
- Related Items:** Zeitschrift für Ästhetik und allgemeine Kunstwissenschaft (35). A list of 35 items is shown, with the current item (1913) highlighted. The list includes items from 1914 down to 1907.

Annotations on the right side of the screenshot highlight specific features:

- Optimized title** - disambiguated from its parent record by concatenating the creation date value - relevant lang attribute
- Retrieved Hierarchical structure** And dedicated browsing widget

At the bottom of the metadata panel, there are sections for 'Entities' and 'TIME SPANS AND DATES (TIMESPAN)'.

Figure 28 : commented screenshot of the related page in Europaena (see [Appendix](#) for a link to this resource)



## Conclusion

Improving data quality is an ongoing process and one of the focus points at Europeana. Further work is being done on the Heidelberg case to refine the metadata and representation of information, and adding additional fields from the source data. One of the issues that is already resolved, for instance, is a problematic enrichment for "Salem, Germany"<sup>4</sup> which has a big impact since a considerable part of the Heidelberg datasets consist of material that has been produced in this location.

Further work is being done on various metadata fields, with positive preliminary results. After a new analysis of the metadata from a book historical perspective, some recommendations have been made with regards to picking extra metadata fields with meaningful information and refining existing fields. Examples of the work being carried out is the extraction of the table of contents and the scientific description of the cultural object, refining representation of the dates, and refining dc:type and dc:subject with more unique values for further improved findability.

---

<sup>4</sup> Every instance of Salem in the Europeana portal, regardless of further location details, was enriched with (among others) locations in Germany, Sweden, Spain, and the province of Valencia. Salem, Massachusetts was never included in this list. In the case of Heidelberg, only the enrichment for Salem, a town in Germany, is desired.



## Table of figures

|  |    |
|--|----|
| Figure 1 : highlight of the most critical data for implementing IIIF, from the METS record   | 5  |
| Figure 2 : commented export of the ESE file related to this record   | 6  |
| Figure 3 : commented export of the transformed file (ESE to EDM) related to this record  | 7  |
| Figure 4 : commented export of the transformed file (METS to EDM) related to this record   | 8  |
| Figure 5 & 6: commented screenshots of the related pages in Europeana (see Appendix for a link to the latter resource, the former being now unavailable/updated with the data improvement) | 9  |
| Figure 7 : screenshot of an export of the ESE file related to this record (see Appendix for a link to this file)   | 10 |
| Figure 8 : commented export of the ESE file related to this record   | 12 |
| Figure 9 : commented export of the transformed file (ESE to EDM) related to this record  | 13 |
| Figure 10 : commented export of the transformed file (METS to EDM) related to this record  | 14 |
| Figure 11 : commented screenshot of the related page in Europeana  | 15 |
| Figure 12 : commented screenshot of the related page in Europeana (see Appendix for a link to this resource)   | 16 |
| Figure 13 : screenshot of an export of the ESE file related to this record (see Appendix for a link to this file)  | 17 |
| Figure 14 : commented screenshot of an export of the METS file related to this record  | 17 |
| Figure 15 : commented screenshot of an export of the fixed value mapping implemented in the XSLT used to transform the METS files to EDM   | 18 |
| Figure 16 : commented export of the ESE file related to this record  | 19 |
| Figure 17 : commented export of the transformed file (ESE to EDM) related to this record   | 20 |
| Figure 18 : commented export of the transformed file (METS to EDM) related to this record  | 22 |
| Figure 19 : commented screenshot of the related page in Europeana  | 23 |
| Figure 20 : commented screenshot of the related page in Europeana (see Appendix for a link to this resource)   | 24 |
| Figure 21 : commented export of the ESE file related to this record  | 26 |
| Figure 22 : commented export of the ESE file related to this record  | 27 |
| Figure 23 : commented export of the transformed file (ESE to EDM) related to this record   | 28 |
| Figure 24 : commented export of the transformed file (ESE to EDM) related to this record   | 29 |
| Figure 25 : commented export of the transformed file (METS to EDM) related to this record  | 30 |
| Figure 26 : commented export of the transformed file (METS to EDM) related to this record  | 31 |
| Figure 27 : commented screenshot of the related page in Europeana (see Appendix for a link to this resource)   | 32 |
| Figure 28 : commented screenshot of the related page in Europeana (see Appendix for a link to this resource)   | 33 |



## Appendix

**NB** : Besides the original ESE and METS (XML) records, you'll find here the final JSON-LD records. These files are extended version of the transformed EDM (XML) records presented earlier in this document, and are embedded with a lot more data being added after the records get processed through the Europeana Semantic enrichment workflow and the Hierarchical Object plugin.

| Record                                      | ESE   | METS  | Europeana JSON-LD   | Final display   |
|---|---|---|---|---|
| IIIF implementation                         | <a href="http://diglit.ub.uni-heidelberg.de/cgi-bin/digioai.cgi?verb=GetRecord&amp;identifier=digi.ub.uni-heidelberg.de:1063&amp;metadataPrefix=ese">http://diglit.ub.uni-heidelberg.de/cgi-bin/digioai.cgi?verb=GetRecord&amp;identifier=digi.ub.uni-heidelberg.de:1063&amp;metadataPrefix=ese</a>   | <a href="http://digi.ub.uni-heidelberg.de/diglit/zantani1548/mets">http://digi.ub.uni-heidelberg.de/diglit/zantani1548/mets</a> | <a href="http://www.europeana.eu/portal/en/record/07931/diglit_zantani1548.json">http://www.europeana.eu/portal/en/record/07931/diglit_zantani1548.json</a> | <a href="http://www.europeana.eu/portal/en/record/07931/diglit_zantani1548.htm">http://www.europeana.eu/portal/en/record/07931/diglit_zantani1548.htm</a>   |
| General normalization & additional fields   | <a href="http://diglit.ub.uni-heidelberg.de/cgi-bin/digioai.cgi?verb=GetRecord&amp;identifier=digi.ub.uni-heidelberg.de:1063&amp;metadataPrefix=ese">http://diglit.ub.uni-heidelberg.de/cgi-bin/digioai.cgi?verb=GetRecord&amp;identifier=digi.ub.uni-heidelberg.de:1063&amp;metadataPrefix=ese</a>   | <a href="http://digi.ub.uni-heidelberg.de/diglit/zantani1548/mets">http://digi.ub.uni-heidelberg.de/diglit/zantani1548/mets</a> | <a href="http://www.europeana.eu/portal/en/record/07931/diglit_zantani1548.json">http://www.europeana.eu/portal/en/record/07931/diglit_zantani1548.json</a> | <a href="http://www.europeana.eu/portal/en/record/07931/diglit_zantani1548.html">http://www.europeana.eu/portal/en/record/07931/diglit_zantani1548.html</a> |
| Creators / Contributors normalization       | <a href="http://diglit.ub.uni-heidelberg.de/cgi-bin/digioai.cgi?verb=GetRecord&amp;identifier=digi.ub.uni-heidelberg.de:19477&amp;metadataPrefix=ese">http://diglit.ub.uni-heidelberg.de/cgi-bin/digioai.cgi?verb=GetRecord&amp;identifier=digi.ub.uni-heidelberg.de:19477&amp;metadataPrefix=ese</a> | <a href="http://digi.ub.uni-heidelberg.de/diglit/kieser1664/mets">http://digi.ub.uni-heidelberg.de/diglit/kieser1664/mets</a>   | <a href="http://www.europeana.eu/portal/en/record/07931/diglit_kieser1664.json">http://www.europeana.eu/portal/en/record/07931/diglit_kieser1664.json</a>   | <a href="http://www.europeana.eu/portal/en/record/07931/diglit_kieser1664.html">http://www.europeana.eu/portal/en/record/07931/diglit_kieser1664.html</a>   |
| Hierarchies implementation<br>Parent record | <a href="http://diglit.ub.uni-heidelberg.de/cgi-bin/digioai.cgi?verb=GetRecord&amp;identifier=digi.ub.uni-heidelberg.de:3533&amp;metadataPrefix=ese">http://diglit.ub.uni-heidelberg.de/cgi-bin/digioai.cgi?verb=GetRecord&amp;identifier=digi.ub.uni-heidelberg.de:3533&amp;metadataPrefix=ese</a>   | <a href="http://digi.ub.uni-heidelberg.de/diglit/zaak/mets">http://digi.ub.uni-heidelberg.de/diglit/zaak/mets</a>               | <a href="http://www.europeana.eu/portal/en/record/07931/diglit_zaak.json">http://www.europeana.eu/portal/en/record/07931/diglit_zaak.json</a>               | <a href="http://www.europeana.eu/portal/en/record/07931/diglit_zaak.html">http://www.europeana.eu/portal/en/record/07931/diglit_zaak.html</a>               |
| Hierarchies implementation<br>Child record  | <a href="http://diglit.ub.uni-heidelberg.de/cgi-bin/digioai.cgi?verb=GetRecord&amp;identifier=digi.ub.uni-heidelberg.de:3587&amp;metadataPrefix=ese">http://diglit.ub.uni-heidelberg.de/cgi-bin/digioai.cgi?verb=GetRecord&amp;identifier=digi.ub.uni-heidelberg.de:3587&amp;metadataPrefix=ese</a>   | <a href="http://digi.ub.uni-heidelberg.de/diglit/zaak1913/mets">http://digi.ub.uni-heidelberg.de/diglit/zaak1913/mets</a>       | <a href="http://www.europeana.eu/portal/en/record/07931/diglit_zaak1913.json">http://www.europeana.eu/portal/en/record/07931/diglit_zaak1913.json</a>       | <a href="http://www.europeana.eu/portal/en/record/07931/diglit_zaak1913.html">http://www.europeana.eu/portal/en/record/07931/diglit_zaak1913.html</a>       |



## Document history

| Version | Editor                  | Date       | Comments   |
|---------|-------------------------|------------|--|
| v0.1    | Pierre-Edouard Barrault | 21/12/2016 | First draft  |
| v0.2    | Pierre-Edouard Barrault | 4/1/2017   | Revision based on comments from Marjolein de Vos and Kirsten de Hoog   |
| v0.3    | Marjolein de Vos        | 4/1/2017   | Addition of a section on Recommendations for further improvements  |
| v0.4    | Pierre-Edouard Barrault | 23/1/2017  | Revision based on comments from Valentine Charles, Cecile Devarenne, and Antoine Isaac<br>- New IIF section, new "Highlights" subsections<br>- New graphical content |
| v0.5    | Pierre-Edouard Barrault | 26/1/2017  | Major revision based on suggestions/comments from Valentine Charles and Kirsten de Hoog, plus Marjolein de Vos' conclusion   |
| v0.6    | Pierre-Edouard Barrault | 27/1/2017  | Shortened version<br>- METS records screenshots removed<br>- New Appendix section, with links to various files including METS  |
| v0.7    | Pierre-Edouard Barrault | 27/1/2017  | New section Conclusion added by Marjolein de Vos   |
| v0.8    | Pierre-Edouard Barrault | 31/1/2017  | Revision based on comments from Antoine Isaac  |
| v0.9    | Pierre-Edouard Barrault | 10/3/2017  | Revision in the Hierarchies section (update on both graphical content and text)  |



**Co-financed by the European Union**

Connecting Europe Facility

Europeana DSI is co-financed by the European Union's Connecting Europe Facility

The sole responsibility of this publication lies with the author. The European Union is not responsible for any use that may be made of the information contained therein.

