

Data quality in Europeana

Designing extensive EDM records :
The Universitätsbibliothek Heidelberg study case



			Martius		Der Son			
			Mertz hat xxxj tag		Aufgang	Udergang		
					Grund	Minut		
					Grund	Minut		
f	1	d	Albin	martir	6	16	5	44
g	2	e	6	nös	6	14	5	46
h	3	f	5	nös	6	13	5	47
i	4	g	4	nös	6	11	5	49
k	5	a	3	nös	6	9	5	51
k	6	b	2	nös	6	8	5	52
l	7	c	Nomis	Perpetua vnd felicitas	6	6	5	54
m	8	d	8	idus	6	4	5	56
n	9	e	7	idus	6	2	5	58
o	10	f	6	idus	6	0	6	0
p	11	g	5	idus	5	58	6	2
q	12	a	4	idus	5	56	6	4
r	13	b	3	idus	5	54	6	6
s	14	c	2	idus	5	53	6	7
s	15	d	Idibus	Matrona unckfraw	5	51	6	9
t	16	e	17	kal'	5	49	6	11
u	17	f	16	kal'	5	48	6	12
u	18	g	15	kal'	5	46	6	14
x	19	a	14	kal'	5	44	6	16
y	20	b	13	kal'	5	42	6	18
z	21	c	12	kal'	5	40	6	20
z	22	d	11	kal'	5	38	6	22
z	23	e	10	kal'	5	37	6	23
a	24	f	9	kal'	5	35	6	25
b	25	g	8	kal'	5	33	6	27
r	26	a	7	kal'	5	31	6	29
d	27	b	6	kal'	5	29	6	31
r	28	c	5	kal'	5	27	6	33
f	29	d	4	kal'	5	26	6	34
g	30	e	3	kal'	5	24	6	36
h	31	f	2	kal'	5	22	6	38

Ich bin gehassen meetz
Den pflug ich hie auff metz
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)

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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 scenarios¹, 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.

¹ 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

Raw file	Refers to the data directly received or harvested from an institution. This is the data in its most original and untouched shape.
Transformed file (EDM)	Refers to the data after its conversion to EDM based on an XSLT transformation. At this stage, no enrichment has been applied.
Published record	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

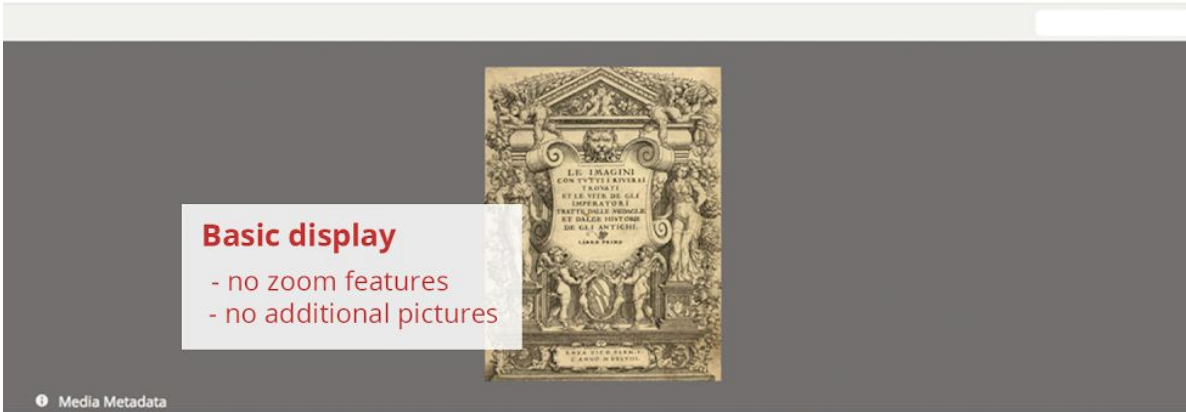
Figure 4 : commented export of the transformed file (METS to EDM) related to this record (see [Appendix](#) for a link to this file)



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](#)² 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) ;

² 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 improvements³ increase the degree of multilinguality of these records and their findability in Europeana Collections by removing a level of ambiguity.

³ 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://diglitub.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 Tvvti 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           </europa:isShownAt>
54         </oai_dc:dc>
55       </metadata>
56     </record>
57   </GetRecord>
58 </OAI-PMH>
59
```

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: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        Medaglia 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)



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/digit_zantani1548"/>
9   <edm:WebResource
10     rdf:about="http://digit.ub.uni-heidelberg.de/image/zantani1548/000_ROEM_1.jpg/full/Full/0/default.jpg">
11     <dc:Format>image/jpg</dc:Format>
12     <dcterms:isReferencedBy>http://digi.ub.uni-heidelberg.de/digit/iif/zantani1548/manifest.json</dcterms:isReferencedBy>
13     <svcs:has_service
14       rdf:resource="http://digit.ub.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/digit_zantani1548"/>
33     <edm:dataProvider>UniversitätsbibliothekHeidelberg </edm:dataProvider>
34     <edm:isShownAt rdf:resource="http://digi.ub.uni-heidelberg.de/digit/zantani1548"/>
35     <edm:isShownBy
36       rdf:resource="http://digit.ub.uni-heidelberg.de/image/zantani1548/000_ROEM_1.jpg/full/Full/0/default.jpg"/>
37     <edm:object
38       rdf:resource="http://digi.ub.uni-heidelberg.de/digitData/introimage/zantani1548.jpg"/>
39     <edm:provider>UniversitätsbibliothekHeidelberg </edm:provider>
40     <dc:rights>http://www.ub.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/digit_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's (1509-1567) Ausgabe römischen Kaiserbildnisse
48 enthält für jeden der 12 Kaiser eine kurze Biographie sowie daran anschließend mehrere
49 Seiten mit Darstellungen der Münzreverse. Zantani unterteilte die Medaillen nach ihrem
50 Material: Gold, Silber und Bronze. Die auf einigen Seiten vorhandenen leeren
51 Medaillenrahmen sollte der Dokumentation neu aufgefunder Medaillen dienen. Die
52 Zeichnungen stammen von Enea Vico (1523-1567). </dc:description>
53     <dc:identifier>urn:nbn:de:bsz:16-digit-10639</dc:identifier>
54     <dc:identifier>ccognara Nr. 3055 </dc:identifier>
55     <dc:identifier>oai:digi.ub.uni-heidelberg.de:1063</dc:identifier>
56     <dc:language>it</dc:language>
57     <dc:rights>http://www.ub.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 Medaalie Et Dalle Historie De Gli Antichi </dc:title>
70     <dc:type xml:lang="de">Druckschriften</dc:type>
71     <dc:type xml:lang="de">Cognara</dc:type>
72     <dc:isPartOf xml:lang="de">Cognara</dc:isPartOf>
73     <dc:isPartOf xml:lang="de">Druckschriften</dc:isPartOf>
74     <dc:isPartOf xml:lang="de">Heidelberger historische Bestände - digital: Archäologische
75 Literatur </dc:isPartOf>
76     <dc:isPartOf xml:lang="de">Sammlung16 - Archäologie </dc:isPartOf>
77     <dc:terms:created:1548</dc:terms:created>
78     <dc:terms:spatial:[Venedig]</dc:terms:spatial>
79     <edm:type>TEXT</edm:type>
80   </ore:Proxy>
81   <edm:EuropeanaAggregation rdf:about="http://digi.ub.uni-heidelberg.de/digit/zantani1548">
82     <edm:aggregatedCHO rdf:resource="http://digi.ub.uni-heidelberg.de/digit/zantani1548"/>
83     <edm:country>Germany</edm:country>
84     <edm:language>de</edm:language>
85     <edm:rights rdf:resource="http://creativecommons.org/licenses/by-sa/3.0/de"/>
86   </edm:EuropeanaAggregation>
87   <svcs:Service rdf:about="http://digit.ub.uni-heidelberg.de/image/zantani1548/000_ROEM_1.jpg">
88     <dcterms:conformsTo rdf:resource="http://iif.io/api/image"/>
89     <doap:implements rdf:resource="http://iif.io/api/image/2/level2.json"/>
90   </svcs:Service>
91 </rdf:RDF>
```

Connected Skos Concepts

New Description fields
- systematic "Shelfmark" field, fetching the related institution (dataProvider) and the location of the document (shelfLocator)
- record related description, with the relevant lang attribute

Improved Subjects
- aligned literals, with lang attributes (English & German)
- fetched DNB resources, with the connected Skos:Concept (s)

Improved Types
- more specific values (e.g. 'urkunde' means 'charter' in German)
- lang attributes (English & German)

**Aligned Dates (See #1 recommendation)
New Spatial field**

Figure 10 : 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)

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

tem

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:** 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:** 1548 [cicognara Nr. 3055] **Creation Date:** 1548 [cicognara Nr. 3055] **First Issued:** 1548 [cicognara Nr. 3055] **Date issue**
Fields populated with un-normalized data

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 **Is Part Of:** Archäologische Literatur, Cicognara, Druckschriften, Heidelberger historische Bestände — digital: Archäologische Literatur **Dataset:** 07927_L_DE_UniLibHeidelberg_druckschriften

Physical sequence

Similar Items

- Le Imagini Con Tvtti I Riversi Trovati Et Le V...
- Capita Deorvm Et Illvstrivm Hominvm 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



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**

Description Physical location: Universitätsbibliothek Heidelberg, 85 A 5675 RES

People Creator: Zantani, Antonio (— 1567)
Contributor: Vico, Enea (— 1567)

Classifications Type: Druckschriften
Subject: Archaeology, Portrait, Named portraits, Archaeology, Portrait

Properties Language: It

Time Date: <http://semium.org/time/15xx>
Creation Date: 1548
Period: Chronological period
First Issued: 1548

Provenance Provenance: Universitätsbibliothek Heidelberg
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Normalized concept fields
Aligned values with relevant lang attributes
NB : the duplicated values come from a display bug currently being addressed

Normalized temporal fields
- aligned values
- more specific field dcterms:created




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/Welcome.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>
53
```

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 Emensus, 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 Vigiliis 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
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Concepts issue
 - multiple values mapped in only one instance
 - both English and German literals

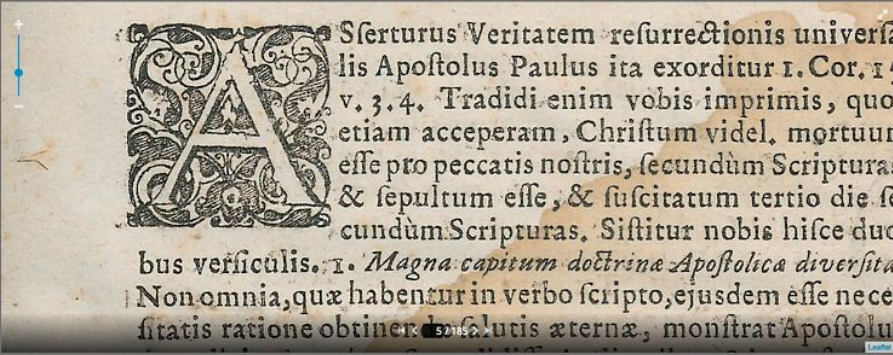
Figure 19 : commented screenshot of the related page in Europeana (now unavailable, as the page was updated with the data improvement)



From METS (current Europeana record)

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Item



Media Metadata





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 Vigilis Paschalibus, A. O. R. M DC LXXX.] Wöflflin, Christoph	FIND OUT MORE View at Universitätsbibliothek Heidelberg
Description	Physical location: Universitätsbibliothek Heidelberg, 1,7127 RES	CAN I USE IT? Free Re-use CC BY-SA
People	Creator: Wöflflin, Christoph (— 1688) Contributor: Kieser, Johann Theodor , Schertlin, Peter , Schabhard, David , Vischer, Philipp Christoph , Scholl, Johann Andreas (— 1692) , Gross, Christoph , Roschütz, Matthäus , Odor, Janos , Häberlin, Georg Heinrich (— 1699)	EXPLORE BY COLOUR [Color swatches] SHARE [Social media icons]
Classifications	Type: Monograph	Aligned agents - created from a standardised vocabulary (GND) - separated between creator and contributor based on role relevance
Properties	Language: La	
Time	Date: http://semium.org/time/16xx Creation Date: 1664 Period: 3 quarter of the 17th century First Issued: 1664	
Provenance	Provenance: Universitätsbibliothek Heidelberg Identifier: urn:nbn:de:bsz:16-diglit-194773 , VD17 16:727354P , Oai:di.ub.uni-heidelberg.de:19477 Institution: Universitätsbibliothek Heidelberg Provider: Universitätsbibliothek Heidelberg Providing Country: Germany First Published In Europeana: 2016-08-10 Last Updated In Europeana: 2016-12-02	
Additional Rights Information	Rights: http://www.ub.uni-heidelberg.de/helios/digi/nutzung/Welcome.html	
References And Relations	Is Part Of: 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 Dataset: 07931_L_DE_UniLibHeidelberg_druckschriften_IIIIF	
Location	Location: Tübingen	
Similar Items	   	

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://diglit.ub.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:europaana="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:terms:issued>1913</dc:terms: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          <europaana:object>
35            http://digi_ub.uni-heidelberg.de/diglitData/introimage/zaak1913.jpg </europaana:object>
36          <europaana:provider>UniversitätsbibliothekHeidelberg </europaana:provider>
37          <europaana:rights>
38            http://www.ub.uni-heidelberg.de/helios/digi/nutzung/Welcome.html </europaana:rights>
39          <europaana:type>TEXT</europaana:type>
40          <europaana:isShownAt>http://digi_ub.uni-heidelberg.de/diglit/zaak1913</europaana: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:diglit.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://digi.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://digi.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://digi.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 Europeana parent record)

The screenshot shows the Europeana record page for the journal 'Zeitschrift für Ästhetik und allgemeine Kunstwissenschaft'. The page features a header with the Europeana logo and navigation links. The main content area displays the journal's title and a thumbnail image of its cover. Below the thumbnail, there are several sections of metadata:

- Title:** Zeitschrift für Ästhetik und allgemeine Kunstwissenschaft
- Description:** Shelfmark: Universitätsbibliothek Heidelberg, G 124-8
- Classifications:** Type: Periodical; Subject: Further information on the Journal
- Properties:** Language: de
- Provenance:** Provenance: Universitätsbibliothek Heidelberg; Identifier: urn:nbn:de:bsz:16-diglib-35337, ISSN 2195-6847, oaid:igiub.uni-heidelberg.de:3533; Institution: Universitätsbibliothek Heidelberg; Provider: Universitätsbibliothek Heidelberg; Providing Country: Germany; First Published In Europeana: 2016-08-10; Last Updated In Europeana: 2016-12-12
- Additional Rights Information:** Rights: <http://www.uib.uni-heidelberg.de/helios/dig/nutzung/Welcome.html>
- References And Relations:** Is Part Of: DigZeitschriften_Kunst, Kunstwissenschaftliche Literatur, Druckschriften, Heidelberger historische Bestände — digital: Illustrierte Kunst- und Satirezeitschriften des 19. und frühen 20. Jahrhunderts, Sammlung5 - Kunstzeitschriften; Dataset: 07931_L_DE_UniLibHeidelberg_druckschriften_IIIF
- Location:** Location: Stuttgart, <http://data.europeana.eu/place/base/14325>, <http://data.europeana.eu/place/base/80>, <http://data.europeana.eu/place/base/505>; Coordinates: STUTTGART 48.77667° North, 9.1775° East, 51.5° North, 10.5° East, 48.78232° North, 9.17702° East

On the right side of the page, there are links for 'FIND OUT MORE' (View at Universitätsbibliothek Heidelberg), 'CAN I USE IT?' (Free Re-use, CC BY-SA), and 'SHARE' (Facebook, Twitter, Pinterest, LinkedIn).

The 'Related Items' section is highlighted with a blue box and contains a list of 35 related items, with the first item being 'Zeitschrift für Ästhetik und allgemeine Kunstwissenschaft (35)'. The list includes years from 1943 to 1937. A 'Retrieved Hierarchical structure And dedicated browsing widget' is also present on the right side of the page.

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



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

The screenshot shows the Europaena interface for a specific 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'. The main content area is divided into two parts: a top section with a large image of a document page and a bottom section with a metadata table.

The metadata table includes the following fields:

- 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; 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/hellos/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); view items above; 26. Zeitschrift für Ästhetik und allgemeine Kunstwissenschaft, 1914; 1. Zeitschrift für Ästhetik und allgemeine Kunstwissenschaft, 1913; 28. Zeitschrift für Ästhetik und allgemeine Kunstwissenschaft, 1912; 29. Zeitschrift für Ästhetik und allgemeine Kunstwissenschaft, 1911; 30. Zeitschrift für Ästhetik und allgemeine Kunstwissenschaft, 1910; 31. Zeitschrift für Ästhetik und allgemeine Kunstwissenschaft, 1909; 32. Zeitschrift für Ästhetik und allgemeine Kunstwissenschaft, 1908; 33. Zeitschrift für Ästhetik und allgemeine Kunstwissenschaft, 1907; view items below

On the right side of the metadata table, there are several utility sections:

- FIND OUT MORE:** View at Universitätsbibliothek Heidelberg
- CAN I USE IT?:** Free Re-use; CC BY-SA
- EXPLORE BY COLOUR:** A color palette with various shades of gray and black.
- SHARE:** Social media icons for Facebook, Twitter, Pinterest, YouTube, and Tumblr.

Annotations on the screenshot include:

- A green box highlights the title and creation date, with a text box stating: "Optimized title - disambiguated from its parent record by concatenating the creation date value - relevant lang attribute".
- A blue box highlights the 'Related Items' list, with a text box stating: "Retrieved Hierarchical structure And dedicated browsing widget".

At the bottom of the page, there is a section 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"⁴ 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.

⁴ 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.



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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	http://diglit.ub.uni-heidelberg.de/cgi-bin/digioai.cgi?verb=GetRecord&identifier=digi.ub.uni-heidelberg.de:1063&metadataPrefix=ese	http://digi.ub.uni-heidelberg.de/diglit/zantani1548/mets	http://www.europeana.eu/portal/en/record/07931/diglit_zantani1548.json	http://www.europeana.eu/portal/en/record/07931/diglit_zantani1548.htm
General normalization & additional fields	http://diglit.ub.uni-heidelberg.de/cgi-bin/digioai.cgi?verb=GetRecord&identifier=digi.ub.uni-heidelberg.de:1063&metadataPrefix=ese	http://digi.ub.uni-heidelberg.de/diglit/zantani1548/mets	http://www.europeana.eu/portal/en/record/07931/diglit_zantani1548.json	http://www.europeana.eu/portal/en/record/07931/diglit_zantani1548.html
Creators / Contributors normalization	http://diglit.ub.uni-heidelberg.de/cgi-bin/digioai.cgi?verb=GetRecord&identifier=digi.ub.uni-heidelberg.de:19477&metadataPrefix=ese	http://digi.ub.uni-heidelberg.de/diglit/kieser1664/mets	http://www.europeana.eu/portal/en/record/07931/diglit_kieser1664.json	http://www.europeana.eu/portal/en/record/07931/diglit_kieser1664.html
Hierarchies implementation Parent record	http://diglit.ub.uni-heidelberg.de/cgi-bin/digioai.cgi?verb=GetRecord&identifier=digi.ub.uni-heidelberg.de:3533&metadataPrefix=ese	http://digi.ub.uni-heidelberg.de/diglit/zaak/mets	http://www.europeana.eu/portal/en/record/07931/diglit_zaak.json	http://www.europeana.eu/portal/en/record/07931/diglit_zaak.html
Hierarchies implementation Child record	http://diglit.ub.uni-heidelberg.de/cgi-bin/digioai.cgi?verb=GetRecord&identifier=digi.ub.uni-heidelberg.de:3587&metadataPrefix=ese	http://digi.ub.uni-heidelberg.de/diglit/zaak1913/mets	http://www.europeana.eu/portal/en/record/07931/diglit_zaak1913.json	http://www.europeana.eu/portal/en/record/07931/diglit_zaak1913.html



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 - New IIF section, new "Highlights" subsections - 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 - METS records screenshots removed - 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)



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