# Europeana DSI 2– Access to Digital Resources of European Heritage

## MILESTONE

**MS6.7: EDM development report**

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| **Revision** | Draft for internal project review |
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| **Dissemination Level** | Public |

# REVISION HISTORY AND STATEMENT OF ORIGINALITY

## Revision History

| Revision No. | Date | Author | Organisation | Description |
|---|---|---|---|---|
| 1 | 10/08/2017 | Valentine Charles | Europeana Foundation | First draft |
| 2 | 11/08/2017 | Valentine Charles | Europeana Foundation | Revised after first round of comments from Hugo Manguinhas, Nuno Freire and Gregory Markus. |
| 3 | 15/08/2017 | Valentine Charles | Europeana Foundation | Revised after first round of comments from Antoine Isaac. |

## Statement of originality:

This milestone contains original unpublished work except where clearly indicated otherwise. Acknowledgement of previously published material and of the work of others has been made through appropriate citation, quotation or both.

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# Introduction

This report provides an update on the activities around the Europeana Data Model done as part of Europeana DSI-2. This milestone develops the same aspects highlighted in the Europeana White Paper *Enhancing the Europeana Data Model* [Charles&Isaac, 2015a] and the EDM development plan written during DSI-1 [Charles&Isaac, 2015b]. While providing an overview of the EDM development activities in Annex 1, the report describes more into details the new EDM extensions developed during DSI-2. It also provides an update on the community activities run as part of EuropeanaTech. This includes some aspects of the work from the Europeana Data Quality Committee as well as the input of Europeana in other community and standard based activities such as the International Image Interoperability Framework (IIIF).

# 1. Developing new EDM extensions and refinements

As Europeana and its Network raise new requirements for describing metadata and content in the Europeana services, new EDM extensions and refinements are developed. These activities are the result of a collaborative effort involving members of the Europeana Network or the Europeana contribution to other community based activities such as the W3C consortium or IIIF.

The EDM roadmap in Annex 1 provides an updated overview of the different EDM extensions that are required by Europeana and its community. While specifications have been developed to answer some requirements, other R&D items are kept in this roadmap for future work. As already flagged in the past, not every EDM extension produced by the Europeana R&D team or resulting from the work of a EuropeanaTech Task Force will be implemented in Europeana's current services. The Network is however encouraged to continue raising requirements and creating new extensions for their own environments. These community activities are crucial for EDM to remain a flexible and open data framework for the cultural heritage domain.

## 1.1.    Support of IIIF

Most Europeana R&D efforts have been targeted at improving the interoperability with IIIF[1]. The IIIF community activities around the development of the standard provided us with a good opportunity for collaboration.
We identified a pattern that Europeana data providers can use to submit IIIF resources from their own services in a simple way. This extension is based on the

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[1] http://iiif.io/

existing edm:WebResource class with few new EDM elements. It has been aligned to the solutions discussed and adopted by the wider IIIF community.[2]

The IIIF EDM profile [Isaac&Charles, 2016] provides guidance on how to reference IIIF resources in the EDM data, data providers send to Europeana. The EDM schema was updated in March 2017 to include the IIIF-EDM extension.

Europeana continues to be involved in IIIF activities that may trigger new requirements for Europeana and therefore new EDM extensions. We co-chair the IIIF Discovery Technical Specification Group as its work is crucial for innovating the way Europeana gathers data from its providers (see the work in subtask 6.9.3 as reported in public presentations[3] and the coming deliverable D6.7). We are also involved in the Newspapers Community Group, notably via discussions that follow the work of the Europeana Cloud project[4].

## 1.2. Representation of annotations

Europeana continues to work on the representation of crowdsourcing metadata in the form of user annotations. EDM extensions have been created for this purpose, based on the W3C's Web Annotation Data Model[5], to which we have actively contributed by providing use cases and implementation examples[6].

The initial list of scenarios has been mostly developed under the Europeana Sounds project [Brinkerink et al., 2017]. As a result of the project, four types of annotations scenarios were developed and are now displayed in the Europeana portal and channels:

- **semantic tagging**. Semantic Tagging is used to enrich the objects with semantic resources from Linked Open Data repositories. This type of annotation was deployed in the crowdsourcing application *Pundit*[7], *WITH*[8] and *Europeana Radio*[9].

- **geotagging**. Users can add geo-coordinates to Europeana metadata records building on the existing spatial metadata of the record, or suggest a more precise location for the locations that are already present in the Europeana metadata records. This type of annotation was deployed in the crowdsourcing application *Historypin*[10].

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[2] https://github.com/IIIF/iiif.io/issues/558#issuecomment-170408142
[3] https://www.slideshare.net/NunoFreire2/new-approaches-for-data-acquisition-at-europeana-iiif-sitemaps-and-schemaorg-dans-seminar-2017
[4] http://pro.europeana.eu/files/Europeana_Professional/Projects/Project_list/Europeana_Cloud/Deliverables/D4.4%20Recommendations%20For%20Enhancing%20EDM%20to%20Support%20Research%20Oriented%20Content.pdf
[5] http://www.w3.org/TR/annotation-model/
[6] https://w3c.github.io/test-results/annotation-model/all.html
[7] http://thepund.it/
[8] http://with.image.ntua.gr/
[9] http://www.europeana.eu/portal/en/radio.html
[10] http://www.historypin.org

- ***object linking***. The first type of object linking is used to relate two or more Europeana metadata records together, without specifying the nature of the relationship. The second type of object linking makes it possible to express the specific type and direction of the relationship. The model makes no restriction on the type of relation for the link, however, it is encouraged that these correspond to the EDM properties that can be used to relate objects together in the metadata (i.e. all extensions of dc:relation). This type of annotation was deployed in the crowdsourcing application *Traditional Music Pilot*[11].

- ***moderation***. Moderation of user-created annotation is represented as annotation. This type of annotation was deployed in the crowdsourcing application *Pundit* and *WITH*.

New scenarios are also developed for linking Europeana CHO objects with Europeana user services. For instance, the link between Europeana objects with the Europeana Galleries[12] will be represented as an annotation. In the same way we are working on solutions to represent the transcriptions made in the context of the *Transcribathon* initiative[13]. In this case, transcriptions will be considered as annotations over the digital objects they transcribe. The type of annotation will be distinguishable from the annotations types mentioned above.

These different scenarios are supported by one consolidated "EDM annotation profile" modelling effort[14] that will continue to evolve as we are developing new scenarios.

## 1.3.    Refinement of EDM for Dataset and Organization

The DSI2 milestone MS1.1: Ingestion workflows business requirements update published in January [Devarenne, 2017] provided a series of requirements for updating the EDM profiles for dataset and organization. Metis, the shared aggregation infrastructure developed by Europeana articulates requirements for three entities: users, datasets, and organizations defined as follow:
- Metis user: user registered in the Metis application. Each user has specific permissions in the application, formalized as "roles". The user requirements are applicable for:
  - Europeana users: Europeana data officer, Europeana admin.
  - Provider user: an expert hub or aggregator data officer.

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[11] http://tunepal.org/tunepal/index.php
[12] http://www.europeana.eu/portal/en/explore/galleries
[13] https://transcribathon.com/en/
[14] https://docs.google.com/document/d/1V-XjlQXPOQLZo7-c6UBzqYEc0mNPtCBfXFCWdquuUvc

- - ○ Data provider user: a registered user from an institution providing data to Europeana.
  - Metis dataset or Europeana dataset: an administrative entity consisting of a group of records representing cultural heritage objects (Provided Cultural Heritage Objects (CHOs)). A dataset in Metis represents the entity to which data processing services are applied.
  - Metis organization: any organization that has a role in the contribution of data to Europeana: data provider (institution that owns the data), provider (aggregator or expert hub), or Europeana itself.

The definitions of these entities in EDM is mostly based on the Dataset and Organization profiles developed in 2013 but few additional properties (such as *foaf:logo* to represent the logo of an institution) have been added to the EDM schema in July 2017.

## 1.4. Finer-grained representation of rights

In DSI-2, Europeana continued working on the description and representation of structured rights statements as part of collaboration with the Digital Public Library of America (DPLA).[15] A set of standard rights statements modelled as a vocabulary according to W3C's Simple Knowledge Organization System (SKOS) standard[16] and accessible as Linked Data is now available at http://rightsstatements.org/[17]. The rights statements from http://rightsstatements.org/ have been included alongside the current options allowed by EDM for data providers to express rights[18]. In the context of the modelling effort for RightsStatements.org we have also engaged with the W3C Working Group Permissions and Obligations Expressions (POE) that is aimed at producing a standard-level version of the Open Digital Rights Language (ODRL). We have contributed one use case to the group[19] and gave extensive feedback[20] on the ODRL Information Model[21] and Vocabulary[22] working drafts.

## 1.5. Representation of Events

In our EDM Workshop "EDM turns five, so now what?" organised at the end 2015, participants have pointed out the need for the implementation of the Event entity in Europeana and were deploring its absence. The discussions on Events have been resumed as part of the Europeana Data Quality Committee (DQC) activities. At the

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[15] http://dp.la/

[16] http://www.w3.org/2004/02/skos/

[17] https://github.com/rightsstatements/data-model

[18] http://pro.europeana.eu/share-your-data/rights-statement-guidelines/available-rights-statements

[19] Current draft at https://www.w3.org/TR/poe-ucr/#POE.UC.27

[20] https://github.com/w3c/poe/issues?utf8=%E2%9C%93&q=is%3Aissue%20aisaac%20

[21] https://www.w3.org/TR/odrl-model/

[22] https://www.w3.org/TR/odrl-vocab/

time of writing the DQC is setting-up a prototyping effort where we will gather and analyse evidence and interest for event data. We hope this activity, involving the EuropeanaTech community will provide feedback on the current EDM model and new requirements for better supporting Events.

# 2. Developing EDM for better data quality

The Europeana Data Quality Committee (DQC) has the mandate to work on solutions to improve data quality. Part of this work has been dedicated to the definitions and use of the mandatory elements in EDM [Charles, Hill & Isaac, 2016]. The DQC has agreed on the distinction between mandatory and enabling elements in order to convey in a clearer manner the idea of mandatoriness. In addition to formalising this definition, the discussions on the mandatory elements have also resulted in recommendations for some EDM elements. The EDM documentation for data providers is at the time of writing being updated to include these new recommendations.

The further definition of enabling elements was carried out as part of the work on the user scenarios. The DQC has identified for each scenario a list of elements from EDM which would support particular desirable but optional functionalities from a specific (set of) usage scenario(s). Our goal is to demonstrate what these elements 'do' in specific situations to motivate providers to provide them. These *enabling* elements could be added in the completeness measures in order to provide a completeness score in the context of a specific user scenario.

The work on EDM validation initiated as part of the DCMI task group on RDF application profiles[23] now continues as part of the W3C group working on Dataset Exchange, though it is now moving slower because of resource reallocation within Europeana[24]. A use case presenting the requirements of Europeana has been submitted to the group and will be pushed forward[25].

# 3. Standardizing EDM as a framework for CH data

## 3.1. Towards a revisited development of EDM

We make sure that the development of the above mentioned extensions is done within the standardization framework Europeana has developed for EDM. We work on these extensions as part of a collaborative effort and we try to involve the

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[23] http://wiki.dublincore.org/index.php/RDF_Application_Profiles
[24] https://www.w3.org/2017/dxwg/wiki/Main_Page
[25]https://www.w3.org/2017/dxwg/wiki/Use_Case_Working_Space#Europeana_profile_ecosystem:_representing.2C_publishing_and_consuming_application_profiles_of_the_Europeana_Data_Model_.28EDM.29_.5BID37.5D

EuropeanaTech community in the discussions. The workshop[26] organised at the end of 2015 to celebrate the five years of EDM allowed us to collect interesting feedback on the way we have developed EDM so far.
Some challenges brought on the table have made us think about the directions the EDM development should take:

*"-How does Europeana decide what is implemented in EDM? For instance, why is the Event entity still not implemented?*
*-Why does Europeana not take user needs into account in the development of the model?*
*-What are the boundaries of EDM, and should it be a standard for the whole cultural heritage sector or should it be only for Europeana?"*

These questions have particularly raised the need for clarification around the governance of EDM. Submitted and approved during DSI-2, the EDM governance Task Force will start in Autumn 2017 its work on clarifying the questions raised over the past year regarding the EDM development process. The Task Force objectives are to:
● identify the current issues of the EDM development process;
● propose roles and responsibilities for the different actors involved in the development and maintenance of EDM (mainly Europeana and its data partners);
● define best practices for the definitions and maintenance of the core of EDM;
● define best practices for the definitions and maintenance of EDM mappings, profiles and extensions;
● define a set of processes on top of which a future governance model for EDM could be built.

While we want EDM to continue to play a role in making sure "the cultural heritage sector remains interoperable and efficient"[27], and continue to operate in the open and collaborative framework we have created, we also want to make the EDM development process more transparent to the whole community. It is important for the community to understand the role of EDM in an interoperable yet diverse ecosystem of cultural heritage data, and which role the community can play in this vision.

For most of the extensions mentioned in this report, Europeana re-uses existing standards instead of creating new solutions. For instance the work on the annotations has been based on the recommendations of the W3C in the Web Annotation Data Model; or the IIIF-EDM profile follows the patterns discussed in the IIIF community. The involvement in the IIIF community also allows Europeana

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[26] http://pro.europeana.eu/page/edm-turns-five-so-now-what-workshop
[27] Europeana Business Plan 2016 (to be update with 2017)- Objective 6 - Champion interoperability
http://pro.europeana.eu/files/Europeana_Professional/Publications/europeana-bp-2016.pdf

to grow its expertise in content interoperability (the IIIF Discovery Group[28] and IIIF Newspapers group[29] more specifically).

## 3.2.    Developing and adopting best practices

The standardization of EDM is supported by the involvement of Europeana in various collaborations. We make sure the requirements of cultural heritage institutions are voiced within these groups and that the developed solutions are suitable for CH data. Our active participation within the IIIF consortium has been key in the definition of the IIIF-EDM profile. We have also participated to the task group working on best practices for vocabulary creation and management created as part of the NISO bibliographic roadmap project[30]. And finally, we have been active as part of diverse W3C working groups such as the group on Permissions and Obligations Expression[31] and the group on Dataset Exchange[32].

Another way to ensure that EDM remains interoperable with other community data is to create mappings and data alignments. In an aggregation context, those mappings mean that Europeana can also use the target data as a source for its own data services.

At the end of DSI1 we have worked with consultant Richard Wallis from Data Liberate Consultancy, on a mapping of EDM to Schema.org[33] in order to make Europeana data more visible on the Web and for consumption by search engines. We wrapped up this work early in DSI2, revisiting the report and formulated a set of recommendations for publishing Europeana metadata using the Schema.org vocabulary that can be relevant for the whole community. It has been accepted for publication in the Code4Lib journal [Wallis et al., 2017] and will be presented in the 2017 SWIB conference[34].

We also continue our efforts on mapping EDM to Wikidata so that we can progressively embed Wikidata sources in our own data enrichment services.

## 3.3.    Encouraging re-use of EDM

We continue to encourage the CH community to re-use EDM for its own needs, whether the EDM extensions are implemented or not in Europeana services.

For instance, we invite data providers to make use of the solutions we have developed such as the new rights definitions developed in http://rightsstatements.org/ or the IIIF-EDM profile. The implementation of the IIIF

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[28] http://iiif.io/community/groups/discovery/

[29] http://iiif.io/community/groups/newspapers/

[30] http://www.niso.org/topics/tl/BibliographicRoadmap/

[31] https://www.w3.org/2016/poe/wiki/Main_Page

[32] https://www.w3.org/2017/dxwg/wiki/Main_Page

[33] http://schema.org/

[34] http://swib.org/swib17/

EDM solution by Nomisma[35] is a good example of re-use of EDM to cover domain specific requirements. Nomisma.org is a collaborative project that provides stable digital representations of numismatic concepts according to the principles of Linked Open Data. The project has updated their RDF data model with the features of the EDM profile for IIIF in order to serve the IIIF resources of their new data contributor (the Rutgers University's Badian Collection[36]) into the Coinage of the Roman Republic Online portal[37].

While Europeana still needs to conduct R&D work in some areas such as the better representation of Events or 3D data, partners in our Network are already working on solutions to address their requirements. The Performing Arts project[38] for instance has re-used EDM extensions defined in past projects to represent performing arts metadata such as performance events but also printed books, manuscripts, photographs and videos documenting them or being an adaptation of them[39]. Another example is the EDM extension defined by the University of Florida for 3D objects[40].

These specifications are useful for Europeana as they provide motivations for future developments as well as use cases. They also demonstrate that EDM can be used for domain specific applications while preserving data interoperability.


## 3.4. Dissemination and publication of the results

Documenting EDM and disseminating the results of EDM related activities are necessary for facilitating the re-use of the model.

The amendments made to the EDM schema in March 2017 and July 2017 have been published on Github[41] and will be integrated into the EDM guidelines at the end of DSI-2.

The EDM documentation space on the Europeana Professional website[42] is regularly updated with for instance the publication of the EDM profiles. These profiles are not always fully implemented in the Europeana aggregation workflow but they are nevertheless great assets for EDM implementers or communities working around the same topics. The outcomes of various collaborations or activities of the EuropeanaTech community are also published as case studies or blog posts (for instance the work on EDM for Performing Arts metadata[43]).

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[35] http://pro.europeana.eu/share-your-data/data-guidelines/edm-case-studies/edm-in-nomisma-org

[36] http://coins.libraries.rutgers.edu/romancoins/

[37] http://numismatics.org/crro

[38] http://performing-arts.eu/

[39] http://pro.europeana.eu/page/edm-for-performing-arts-metadata

[40] http://connect.ala.org/node/262645

[41] https://github.com/europeana/corelib/tree/master/corelib-edm-definitions/src/main/resources/eu

[42] http://pro.europeana.eu/share-your-data/data-guidelines

[43] http://pro.europeana.eu/share-your-data/data-guidelines/edm-case-studies/edm-for-performing-arts-metadata

# Conclusion

The EDM development plan proposes an update on the EDM activities run during DSI-2 and an updated roadmap of the EDM extensions that will be progressed on in the course of the next DSI year.

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[Charles&Isaac, 2015a]
Valentine Charles, Antoine Isaac. 2015. Enhancing the Europeana Data Model (EDM). Project Europeana V3.0
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[Charles&Isaac, 2015b]
Valentine Charles, Antoine Isaac. 2015. MS29 EDM development plan. Project Europeana DSI.
<http://pro.europeana.eu/files/Europeana_Professional/Projects/Project_list/Europeana_DSI/Milestones/europeana-dsi-ms29-edm-development-plan.pdf>

[Isaac&Charles, 2016]
A. Isaac, V. Charles (eds.). 2016. Guidelines for submitting IIIF resources for objects in EDM.
<http://pro.europeana.eu/files/Europeana_Professional/Share_your_data/Technical_requirements/EDM_profiles/IIIFtoEDM_profile_042016.pdf>

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Maarten Brinkerink, Giulio Andreini, Breandán Knowlton, Hugo Manguinhas,, Vassilis Tzouvaras, Sergiu Gordea, David Haskiya. 2017. D2.9 Evaluation report on implementation of semantic enrichment. Project Europeana Sounds.
<http://pro.europeana.eu/files/Europeana_Professional/Projects/Project_list/Europeana_Sounds/Deliverables/europeanasounds-d2.9-evaluation-report-on-implementation-of-semantic-enrichment-v1.0.pdf>

[Devarenne, 2017]
Cécile Devarenne. 2017. MS1.1: Ingestion workflows business requirements update. Project Europeana DSI 2– Access to Digital Resources of European Heritage
<http://pro.europeana.eu/files/Europeana_Professional/Projects/Project_list/Europeana_DSI-2/Milestones/ms1.1-ingestion-workflows-business-requirements-update.pdf>

[Charles, Hill & Isaac, 2016]
Valentine Charles, Timothy Hill, Antoine Isaac. 2016. Data quality committee - 2016 report
<http://pro.europeana.eu/files/Europeana_Professional/EuropeanaTech/EuropeanaTech_WG/DataQualityCommittee/DataQualityCommittee-2016Report.pdf>

[Wallis et al., 2017]
R. Wallis, A. Isaac, V. Charles, and H. Manguinhas. 2017. Recommendations for the application of Schema.org to aggregated Cultural Heritage metadata to increase relevance and visibility to search engines: the case of Europeana. Code4Lib Journal, Issue 36. ISSN 1940-5758. <http://journal.code4lib.org/articles/12330>

# Annex 1: Running EDM roadmap

Note that this roadmap is excluding the items that have been completed and already reported on in [Charles&Isaac, 2015b].

| Task Name | Details |
|---|---|
| **Representation of content** | |
| *Done in 2016* | **Interoperability with the Image International Interoperability Framework (IIIF)**<br>Requirements defined as part of the Europeana Cloud report at<br>http://pro.europeana.eu/files/Europeana_Professional/Projects/Project_list/Europeana_Cloud/Deliverables/D4.4%20Recommendations%20For%20Enhancing%20EDM%20to%20Support%20Research%20Oriented%20Content.pdf<br>Specifications to enable the interoperability with IIIF published at http://pro.europeana.eu/share-your-data/data-guidelines/edm-profiles#IIIF |
| *Ongoing* | **Representation of full-text in EDM**<br>Requirements for representing structural and logical relationships between metadata and full-text:<br>http://pro.europeana.eu/files/Europeana_Professional/Projects/Project_list/Europeana_Cloud/Deliverables/D4.4%20Recommendations%20For%20Enhancing%20EDM%20to%20Support%20Research%20Oriented%20Content.pdf<br>**Open issues:** https://docs.google.com/document/d/1kuoGh3RkkzThRwib4WfGOnkU5WJRkiZzMOoBnn8b27g/edit |
| *Not started* | Interoperability with other content based services like IxIF |
| | **Related projects:** Europeana Cloud, collaboration IIIF |
| **Representation of annotations**<br>*Ongoing* | Annotations model is based on the W3C's Web Annotation Data Model standard. The EDM annotations profile is divided into two documents:<br>● Main EDM Annotation profile explains the basics of the model (as a concrete implementation of the Web Annotation Data Model), the classes and properties: https://docs.google.com/document/d/1V-XjlQXPOQLZo7-c6UBzqYEc0mNPtCBfXFCWdquuUvc<br>● Modelling of the Application Scenarios lists the application scenarios that have been implemented: |

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| | https://docs.google.com/document/d/1Yw1uJdf76v3StXST8x16TReB8FmOLw5LuWOzZz4lSiM/edit<br><br>The First Public Alpha was released in March 2016, several iterations have been made after it. A First Public Beta version was released early 2017 concurring with the need of the Europeana Sounds project: http://labs.europeana.eu/api/annotations<br><br>Other scenarios are being developed such as linking Europeana objects with the Europeana Galleries[44], or linking transcriptions creating in Transcribathon with the digital objects they transcribe. |
| | **Related projects:** Europeana 1914-1915, Europeana 1989, Europeana Awareness, Europeana Creative, DM2E, Europeana V2.0, PATHS, Europeana Sounds, Food and Drinks |
| **Representation of rights**<br>*Ongoing* | **End date for out-of-copyright-non-commercial:**Specifications available at https://europeanadev.assembla.com/spaces/europeana/tickets/1580-expiration-date-on-ooc-nc-objects#<br>**Addition conditional Rights Statements:** Specifications at https://www.assembla.com/spaces/europeana-creative/tickets/31<br>**Syntax for conditional rights statements:** Specifications at https://www.assembla.com/spaces/europeana-creative/tickets/32<br>Example at https://www.w3.org/community/odrl/wiki/index.php?title=Europeana/DPLA_In_Copyright_-_Educational_Use_Only&oldid=331<br>**Further specifications as part of the DPLA collaboration:**<br>https://docs.google.com/document/d/1B3yse1VQYh_vQH5bVT4p3qgsn454IFerJ5PZrVXBugA/edit#heading=h.t7r481x3w9i5 and pages at http://rightsstatements.org/en/<br>**Addition of an expiration date parameter for No Copyright** - non commercial re-use only licence<br>(NoC-NC)<br>First proposal at https://docs.google.com/document/d/1Gtq-oOjM7qg0bAC6GrJ1REpx60cWcfKT5LphME_8Nx8/ . |
| | **Related projects:** Europeana Awareness, Europeana Cloud, Europeana Creative, Rightsstatements.org (collaboration with DPLA) |
| **Representation of datasets**<br>*Done in 2017* | Initial requirements at https://www.assembla.com/spaces/europeana/tickets/485 and specific ticket at https://www.assembla.com/spaces/europeana/tickets/1007<br>**1st specifications** at<br>http://pro.europeana.eu/files/Europeana_Professional/Share_your_data/Technical_requirements/EDM_profiles/Dataset profile.pdf<br>A subset of the dataset profile was implemented in the Europeana API<br>**2nd specifications** motivated by Metis requirements at<br>http://pro.europeana.eu/files/Europeana_Professional/Projects/Project_list/Europeana_DSI-2/Milestones/ms1.1-ingestion-workflows-business-requirements-update.pdf |

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[44] http://www.europeana.eu/portal/en/explore/galleries

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| | Changes implemented in the schema in July 2017. |
| | **Related projects:** Europeana Inside |
| **Representation of data provider/provider information** *Done in 2017* | Initial requirements at https://www.assembla.com/spaces/europeana/tickets/485 <br> **1st specifications** at <br> http://pro.europeana.eu/files/Europeana_Professional/Share_your_data/Technical_requirements/EDM_profiles/Organisation profile.pdf <br> A subset of the organisation profile for implemented in the Europeana API. <br> **2nd specifications** motivated by Metis requirements at <br> http://pro.europeana.eu/files/Europeana_Professional/Projects/Project_list/Europeana_DSI-2/Milestones/ms1.1-ingestion-workflows-business-requirements-update.pdf <br> Changes implemented in the schema in July 2017. |
| | **Related projects:** Europeana Inside |
| **Representation of intermediate data provider** *Done in 2016* | Initial proposal is based on the DPLA model (http://dp.la/info/developers/map/ ) It was decided with DPLA that the property dpla:intermediateProvider will be transferred in the EDM namespace. The new edm:intermediateProvider property is now available in the EDM schema:  http://pro.europeana.eu/files/Europeana_Professional/Share_your_data/Technical_requirements/EDM_profiles/Organisation profile.pdf |
| **Representation of user sets** *Paused* | Initial requirements for user sets at https://docs.google.com/document/d/15nqqs7M9V25iku9NsiEfXI-vJpWh31LmyaYVA__cvho <br> First draft of the specification at <br> http://pro.europeana.eu/files/Europeana_Professional/Share_your_data/Technical_requirements/EDM_profiles/Collection_userSets_Profile_042015.doc <br> First API proposal and revised set of requirements for user sets: <br> https://docs.google.com/document/d/1jKYvGVgItinCMr-uvuM2ssPK32eTW1SCArWn-nt4Axs |
| | **Related projects:** Europeana Creative |
| **Representation of collections** *Paused* | Specifications of the EDM collection profile in the paper at http://hdl.handle.net/2142/4586 and in <br> http://pro.europeana.eu/files/Europeana_Professional/Share_your_data/Technical_requirements/EDM_profiles/EDM Collection Profile.pdf |

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| | **Related projects:** Europeana Creative, LOCloud, Europeana DSI WP3, Mesch |
| **Representation of Events** *Started in 2017* | Discussions have started as part of the Europeana Data Quality Committee. |
| **Support for contextual resources** *Ongoing* | **Mappings to external datasets:** This is mostly about mapping from other data models to EDM; so that Europeana can ingest the contextual resources expressed by these models.<br><br>The roadmap for implementation of mappings and investigations is available at: https://docs.google.com/spreadsheets/d/1HatX13gn4VeRGciv2IvrkzIJ3LKO5AhCyfZmIywUtUs/edit#gid=873925314.<br><br>Ticket for implementation at https://europeanadev.assembla.com/spaces/europeana-ingestion/tickets/1563-create-mapping-for-dbpedia-concepts-to-skos-concept |
| | **EDM plans for Entity Collection:** Entity Collection brief at https://docs.google.com/document/d/16Lcuddgw7fNV0EQ7gnIJW5-C76z4HUIvRA8aunY13U4/edit and Entity collection API and MVPs at https://docs.google.com/document/d/1M2Trw_g7zVwMrjBpLqTLbaAxe6YRj-qQSzLFtvHblcg/edit<br>Entity Collection content strategy and curation plan: https://docs.google.com/document/d/1A5Rb3Oe9edin5gdRpqFILlR0YPUodVOel3SdcBP00dA/edit# |
| | **Schema.org mapping:** Recommendations and mapping in the Code4Lib paper at http://journal.code4lib.org/articles/12330 |
| | **Related projects:** Europeana Creative, Food and Drink, Europeana Sounds, LoCloud gazetteers |
| **Validation of EDM data in RDF** *Ongoing* | Participation to the DCMI task force http://wiki.dublincore.org/index.php/RDF-Application-Profiles.<br><br>Specifications have be specified at https://docs.google.com/document/d/1UpVusHCyMdgtUIYsDRLIO7OibuIwm5fas8zTQ-2n_Pk/edit and documented in a use case http://wiki.dublincore.org/index.php/EDM<br><br>First SHACL testbed at https://github.com/hugomanguinhas/europeana_shapes |

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| | Also some work is being done under the DQC on detecting and reporting of problem patterns. A listing is available on: https://docs.google.com/spreadsheets/d/1zoU-1uPk2O5t5zRC1-MD3LakBQGJ2hsWlSnp3XS2iAk<br><br>Discussions continue as part of the Europeana Data Quality Committee.<br><br>Contribution of a use case to the W3C group on Dataset exchange: https://www.w3.org/2017/dxwg/wiki/Use_Case_Working_Space#Europeana_profile_ecosystem:_representing.2C_publishing_and_consuming_application_profiles_of_the_Europeana_Data_Model_.28EDM.29_.5BID37.5D |
| **Data Workflows/Provenance representation** *Paused* | As part of the work on specifying requirements for noval aggregation workflows, and an ongoing review of the Synergy aggregation model |
| **Support of EDM extensions/profiles** *Paused* | Investigations have started around the ingestion, storage and exploitation of domain-specific EDM profiles |
| | **Related projects:** Europeana Fashion, DM2E, German Digital Library, Europeana Sounds |
| **Versioning of EDM schema** *Not started* | |