



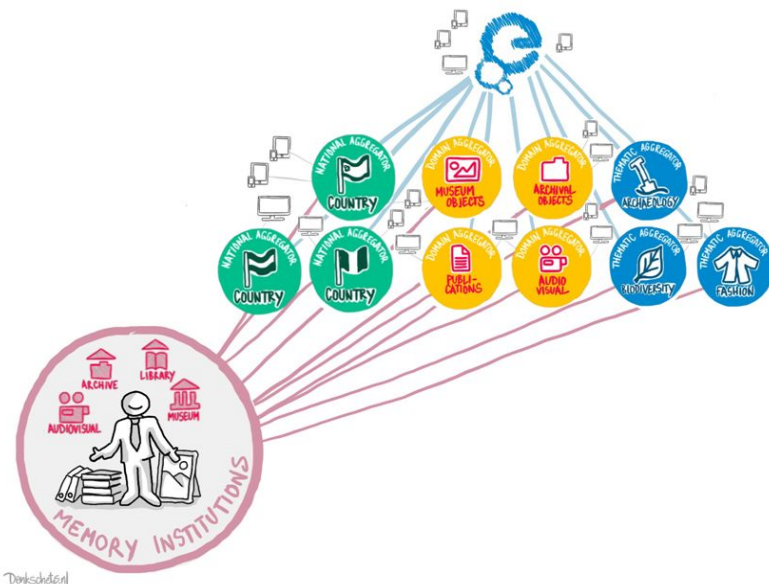
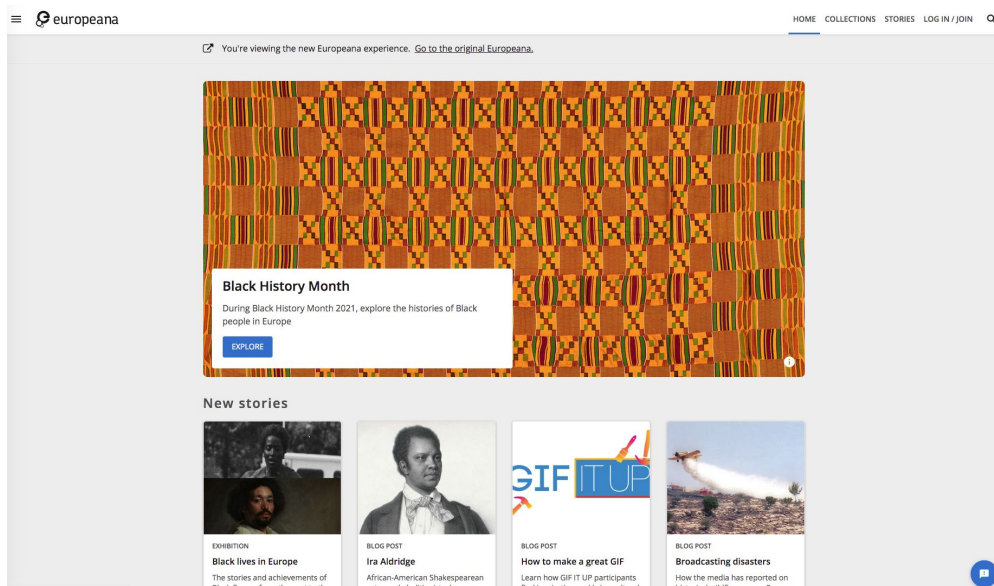
# Entity Management at Europeana

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Europeana Foundation  
with slides from Hugo Manguinhas  
and Dasha Moskalenko

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# Europeana.eu

- An initiative from the European Union
- Publishes 52M digitized objects
- Using metadata from 4,000 libraries, archives and museums in 44 countries



# Enriching metadata

The Europeana Data Model (EDM) gives a base for (linking to) multilingual metadata

We encourage data providers to contribute their own links/data to local or external vocabularies

# Linked Open Data vocabularies

Currently recognized by Europeana in providers' metadata:

The Getty - Art & Architecture Thesaurus (AAT)	<a href="http://vocab.getty.edu/aat/">http://vocab.getty.edu/aat/</a>
The Getty - Union List of Artist Names (ULAN)	<a href="http://vocab.getty.edu/ulan/">http://vocab.getty.edu/ulan/</a>
Getty Thesaurus of Geographic Names (TGN)	<a href="http://vocab.getty.edu/tgn/">http://vocab.getty.edu/tgn/</a>
Virtual International Authority File (VIAF)	<a href="http://viaf.org/viaf/">http://viaf.org/viaf/</a>
Geonames	<a href="https://sws.geonames.org/">https://sws.geonames.org/</a>
Iconclass	<a href="http://iconclass.org/">http://iconclass.org/</a>
Gemeinsame Normdatei (GND)	<a href="http://d-nb.info/gnd">http://d-nb.info/gnd</a>
Israel Museum Jerusalem Concepts	<a href="http://www.imj.org.il/imagine/thesaurus/objects/">http://www.imj.org.il/imagine/thesaurus/objects/</a>
Library of Congress Subject Headings (LCSH)	<a href="http://id.loc.gov/authorities/subjects/">http://id.loc.gov/authorities/subjects/</a>
Europeana Sounds Genres	<a href="http://data.europeana.eu/concept/soundgenres/">http://data.europeana.eu/concept/soundgenres/</a>
UDC	<a href="http://udcdata.info/rdf/">http://udcdata.info/rdf/</a>
UNESCO Thesaurus	<a href="http://vocabularies.unesco.org/thesaurus/">http://vocabularies.unesco.org/thesaurus/</a>
YSO - General Finnish ontology	<a href="https://finto.fi/ysa/en/">https://finto.fi/ysa/en/</a>
Wikidata	<a href="http://www.wikidata.org/entity/">http://www.wikidata.org/entity/</a>
Fashion Thesaurus	<a href="http://thesaurus.europeanafashion.eu/thesaurus/">http://thesaurus.europeanafashion.eu/thesaurus/</a>
MIMO Concepts	<a href="http://www.mimo-db.eu/">http://www.mimo-db.eu/</a>

# Enriching metadata

EDM gives a base for (linking to) multilingual metadata

We encourage data providers to contribute their own links/data to local or external vocabularies

In parallel, we apply automatic enrichment to link object metadata to reference datasets for places, persons, concepts

# Contextual entities

We are building an "Entity Collection":

- Centralized point of reference and access to data about contextual entities: places, agents, concepts...
- Caching and curating data from the wider Linked Open Data
- A sort of Europeana knowledge graph

Available via our Entity API: <https://pro.europeana.eu/page/entity>

# Data currently in the Entity Collection

216,302 Places

- a subset of **Geonames**, corresponding to places which are part of European countries and of some specific feature classes

165,005 Agents

- a subset of **DBpedia** corresponding to most of the instances of dbp:Artist with some exceptions, and integrated from 49 DBpedia language editions

1,573 Concepts

- a subset of **DBpedia** corresponding to a selection concepts matching the needs from Europeana Collections (e.g., WWI battles).
- Europeana Sounds music genres (obtained from **Wikidata**)
- **Photo Consortium's photography vocabulary**

3,304 Organizations

- Extracted from Europeana's CRM and aligned to **Wikidata** when possible

21 Timespans

- Centuries, assembled manually

# Entity data example

```
{
  "@context": http://data.europeana.eu/entity/context.json,
  id: http://data.europeana.eu/agent/base/146951,
  type: "Agent",
  ▸ prefLabel: {
    ar: "فولفغانغ أماديوس موتسارت",
    az: "Volfqanq Amadej Mosart",
    be: "Вольфганг Амадэй Моцарт",
    bg: "Волфганг Амадеус Моцарт",
    bs: "Wolfgang Amadeus Mozart",
    ca: "Wolfgang Amadeus Mozart",
    cs: "Wolfgang Amadeus Mozart",
    cy: "Wolfgang Amadeus Mozart",
    da: "Wolfgang Amadeus Mozart",
    de: "Wolfgang Amadeus Mozart",
    el: "Βόλφγκανγκ Αμαντίους Μότσαρτ",
    en: "Wolfgang Amadeus Mozart",
    es: "Wolfgang Amadeus Mozart",
    et: "Wolfgang Amadeus Mozart",
    eu: "Wolfgang Amadeus Mozart",
    fi: "Wolfgang Amadeus Mozart",
    fr: "Wolfgang Amadeus Mozart",
    ga: "Wolfgang Amadeus Mozart",
    gd: "Wolfgang Amadeus Mozart",
    gl: "Wolfgang Amadeus Mozart",
    he: "וולפגאנג מוצרט",
    hi: "वोल्फगांग अमडेयुस मोसार्ट",
    hr: "Wolfgang Amadeus Mozart",
    hu: "Wolfgang Amadeus Mozart",
    hy: "Վոլֆգանգ Ամադեուս Մոցարտ",
    is: "Wolfgang Amadeus Mozart",
    it: "Wolfgang Amadeus Mozart",
    ja: "ヴォルフガング・アマデウス・モーツァルト",
    ka: "ვოლִფგანგ ამადეუს მოცარტი",
    ko: "볼프강 아마데우스 모차르트",
    lt: "Volfqangas Amadejus Mocartas",
    lv: "Volfqangs Amadejs Mocarts",
    mk: "Волфганг Амадеус Моцарт",
    nl: "Wolfgang Amadeus Mozart",
    no: "Wolfgang Amadeus Mozart",
    pl: "Wolfgang Amadeusz Mozart",
    pt: "Wolfgang Amadeus Mozart",
    ro: "Wolfgang Amadeus Mozart",
    ru: "Моцарт, Вольфганг Амадеевич",
    sk: "Wolfgang Amadeus Mozart",

```

Preferred labels for many languages

```
    sl: "Wolfgang Amadeus Mozart",
    sq: "Wolfgang Amadeus Mozart",
    sr: "Волфганг Амадеус Моцарт",
    sv: "Wolfgang Amadeus Mozart",
    tr: "Wolfgang Amadeus Mozart",
    uk: "Вольфганг Амадей Моцарт",
    yi: "וואלפגאנג אמאדעוס מאצארט",
    zh: "沃尔夫冈·阿马德乌斯·莫扎特"
  },
  ▸ altLabel: {
    en: "Mozart, Johann Chrysostom Wolfgang Amadeus",
    "en.en": "Mozart, Wolfgang Amadeus"
  },
  ▸ biographicalInformation: [...],
  ▸ dateOfBirth: [
    "1756-01-27"
  ],
  ▸ dateOfDeath: [
    "1791-12-05"
  ],
  ▸ end: [
    "1791-12-05"
  ],
  ▸ identifier: [
    "32197206"
  ],
  ▸ placeOfBirth: [
    {
      "id": http://dbpedia.org/resource/Salzburg
    },
    {
      "id": http://dbpedia.org/resource/Austria
    }
  ],
  ▸ placeOfDeath: [
    {
      "id": http://dbpedia.org/resource/Vienna
    },
    {
      "id": http://dbpedia.org/resource/Wolfgang\_Amadeus\_Mozart
    }
  ],
  ▸ sameAs: [
    http://sw.dbpedia.org/resource/Wolfgang\_Amadeus\_Mozart,
    http://ro.dbpedia.org/resource/Wolfgang\_Amadeus\_Mozart,
    http://bg.dbpedia.org/resource/Волфганг\_Амадеус\_Моцарт,
    http://nds.dbpedia.org/resource/Wolfgang\_Amadeus\_Mozart,
    http://pa.dbpedia.org/resource/ਵੋਲਫਗਾਂਗ\_ਅਮਾਦੇਅਸ\_ਮੋਜ਼ਾਰਟ,
    http://pc.dbpedia.org/resource/Wolfgang\_Amadeus\_Mozart,

```

Inter-linking information

Coreference links to other datasets (e.g. DBpedia, Wikidata)



# Use cases for the Entity Collection

## Improve user experience on Europeana services

- *Findability*: search with and for people, places and subjects. In many more languages, and with less ambiguity
- *Contextualization*: users see context about objects. Entity Pages group objects and link to other entities

← verme

Semantic  
auto-completion

Search for verme

Johannes **Vermeer**

Jan Cornelisz **Vermeyen**

Frederik **Verme**hren

Jan **Vermeer** van Utrecht

PERSON

Johannes Vermeer

COLLECTIONS YOU MIGHT LIKE



Watercolor painting



Drawing



Engraving



Calligraphy

Entity Pages

Type of media ▾

Can I use this? ▾

Providing country ▾

More filters

Results: 43



Zittende jongeman bij ton met het hoofd naar links

Anonim (17e eeuw); Vermeer, Johannes (1632 - 1675); tekenaar;



Het melkmeisje

Rijksmuseum



De Brief

Veth, Jan (1864-1925); Vermeer, Johannes (1632 - 1675); graveur; ...

Teylers Museum



Gezicht op huizen in Delft

Rijksmuseum

# Multilinguality

PERSON

## Johannes Vermeer

COLLECTIONS YOU MIGHT LIKE



Watercolor painting



Drawing



Engraving



Calligraphy

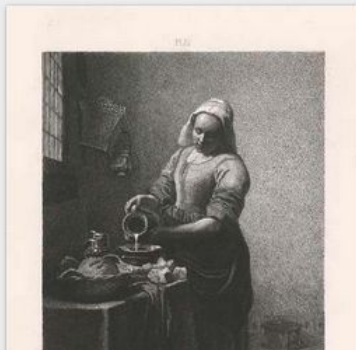
Type of media ▾

Can I use this? ▾

Providing country ▾

More filters

Results: 43



# Multilinguality

PERSON

## Johannes Vermeer

KOLLEKTIONEN, DIE IHNEN GEFALLEN KÖNNTEN



Aquarell



Zeichnung (Kunst)



Gravur



Kalligrafie

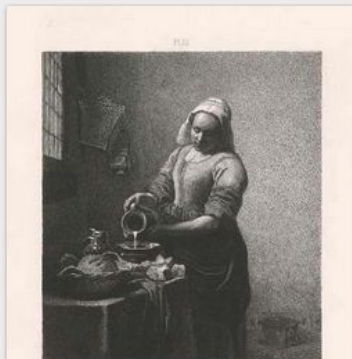
Art des Mediums ▾

Kann ich es wiederverwenden? ▾

Bereitstellendes Land ▾

























Weitere Filter

Ergebnisse: 43



# Browsing entities

## Topics

2-step garage 	Aerial photography 	Agricultural machine... 	Agriculture 
Albumen prints 	Alchemy 	Alternative medicine 	Amateur photography 
Ambrotypes 	American 	Anatomy 	Ancient Rome 
Animal husbandry 	Anthropology 	Applied arts 	Archaeological site 
Archaeology 	Architecture 	Arioso 	Art 
Art Deco 	Art Nouveau 	Art history 	Artifact (archaeology) 

# Organizing and promoting organizations (coming Oct 21)

ORGANISATION

## CARARE

Website: [www.carare.eu](http://www.carare.eu)

Type of media ▾

Can I use this? ▾

Providing country ▾

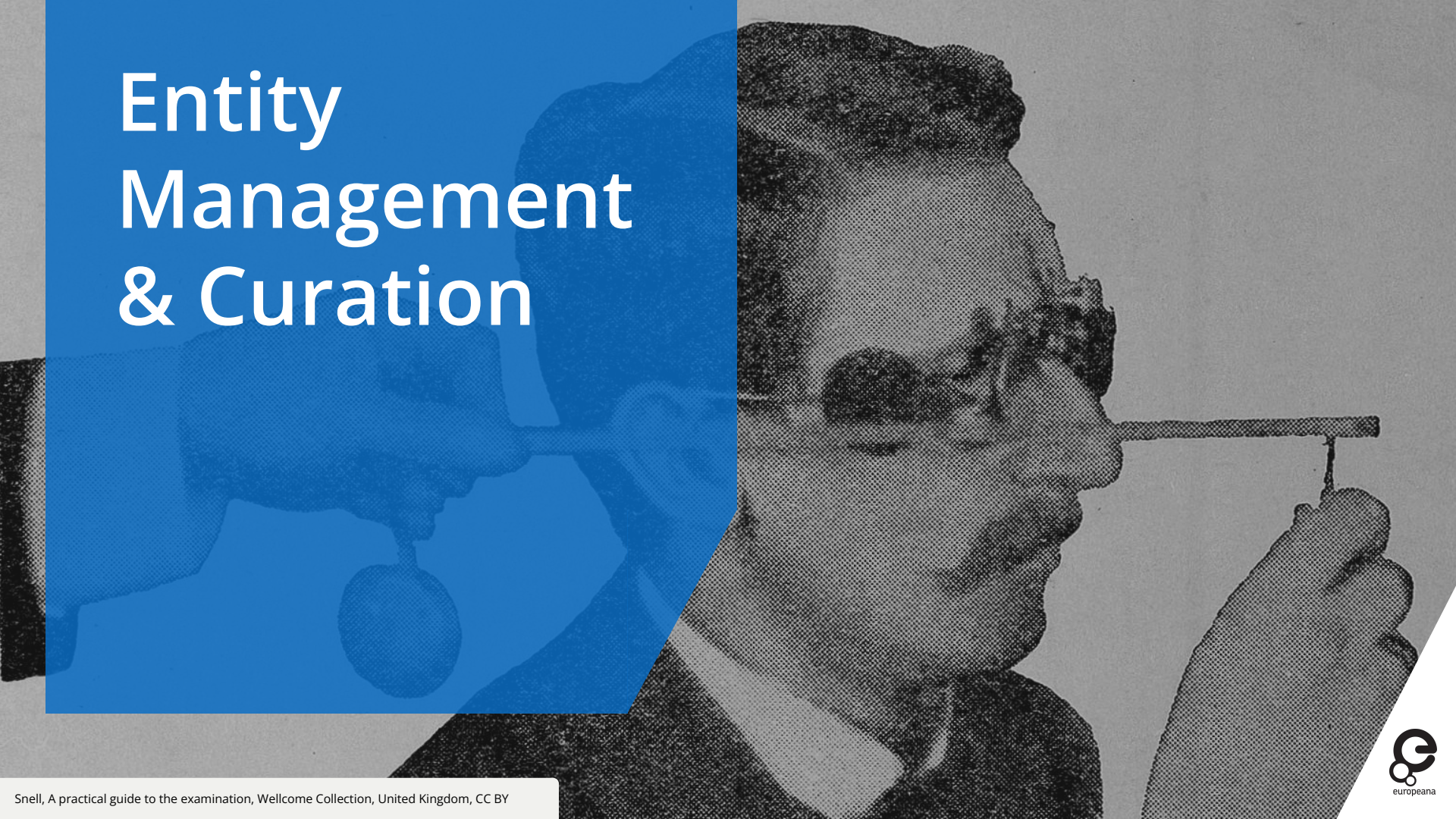
More filters

Results: 2,278,487

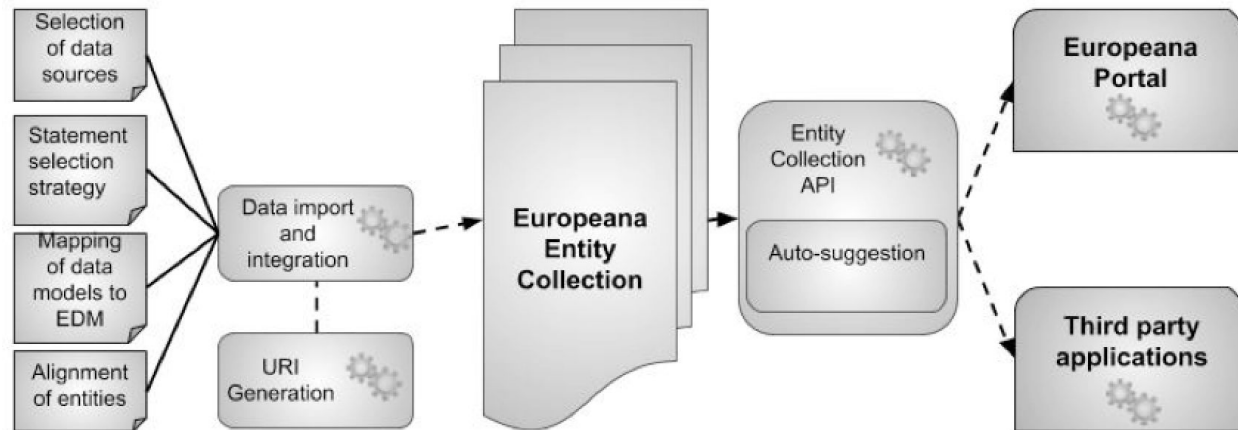




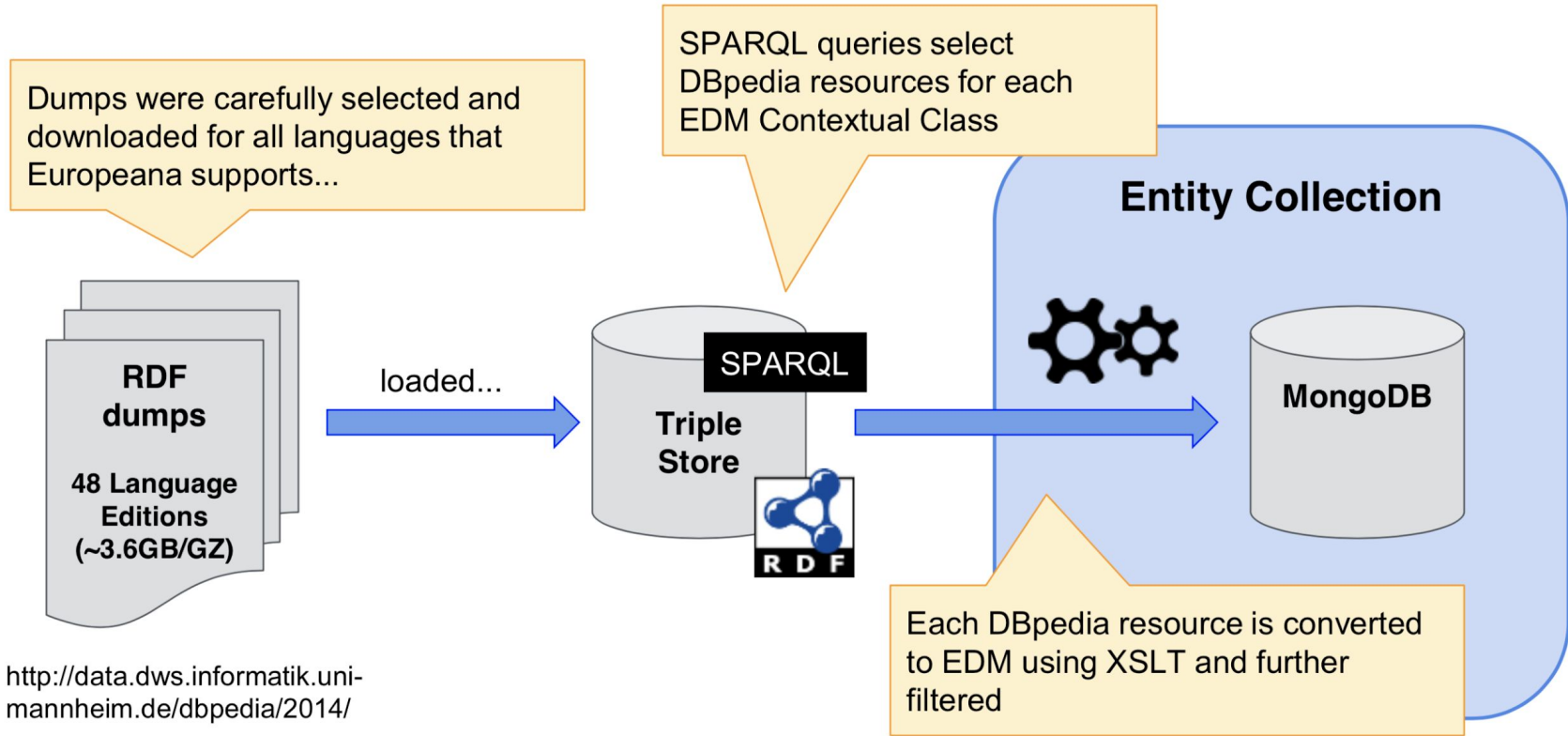
# Entity Management & Curation



# Basic Entity Collection process



# Example: integrating DBpedia resources





# Example: organizations

To make it possible, we have:

- Extracted organization data from our CRM
- Translated all organization names into English
- Augmented our metadata with Wikidata
- Linked Europeana items to organizations

# Curating entities

A new service for

- managing entities and data sources
- editing entity metadata

*So far adding new entities was very time consuming*

With the new service, new entities can now be added using external linked data sources (e.g. Wikidata, VIAF, AAT)

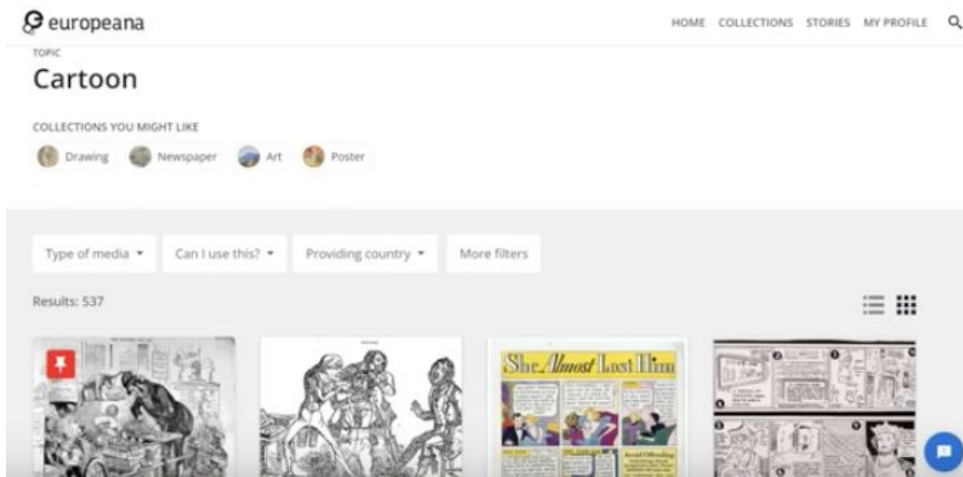
*Some entities have descriptions that are not a great fit for Europeana*

Selected users will be able to edit the description for entities

# Promote items

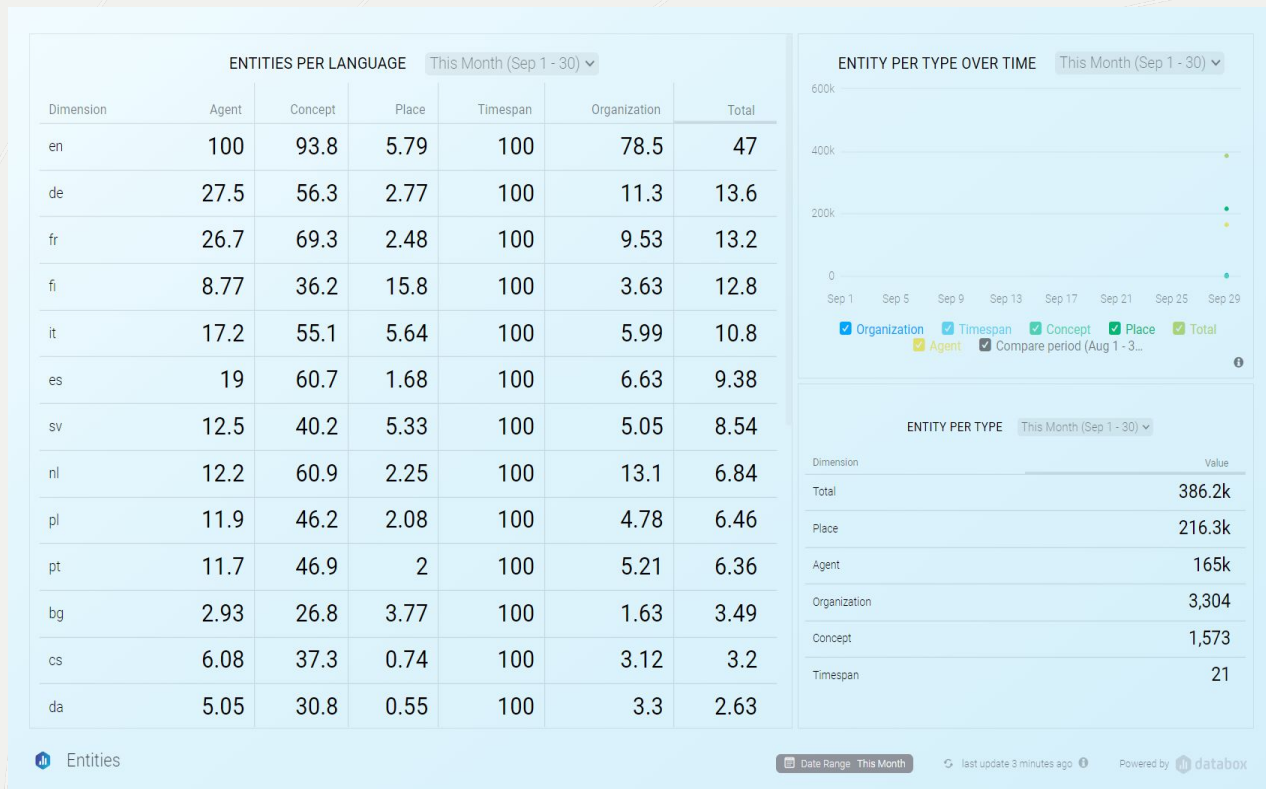
## Showcasing the best items on an Entity Page

- Partners will be able to curate the top items appearing on an Entity Page
- Developed as a “collaborative” user gallery associated with an Entity
- Suggesting new items using a recommendation engine



# Entity statistics

- Overview per language and per type of entity
- Allows us to track the multilingual coverage and general curation efforts



# Challenges



# Challenges

## Technical

- Modeling
- Data integration
- API design and infrastructure
  - serve but also update data, search (and rank) entities
- Related platforms design & implementation
  - Europeana portal, curation environment, monitoring

# Challenges

## Organizational

- Getting everyone buy the idea
- Getting people involved in curation:
  - selection of entities
  - edition of metadata
  - links between entities and items
- Planning all this!

May requires shifting priorities

*Compare this with [DCMI 2018 presentation](#)*





# Thank you!



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