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Access to cultural heritage networks across Europe

eContentplus

europeana
think culture

ATHENA Final International Conference:
Cultural institutions online: Only those who show themselves will be seen

Guidelines for geographic information

Franc J. Zakrajšek

Roma, Italy 28th April, 2011

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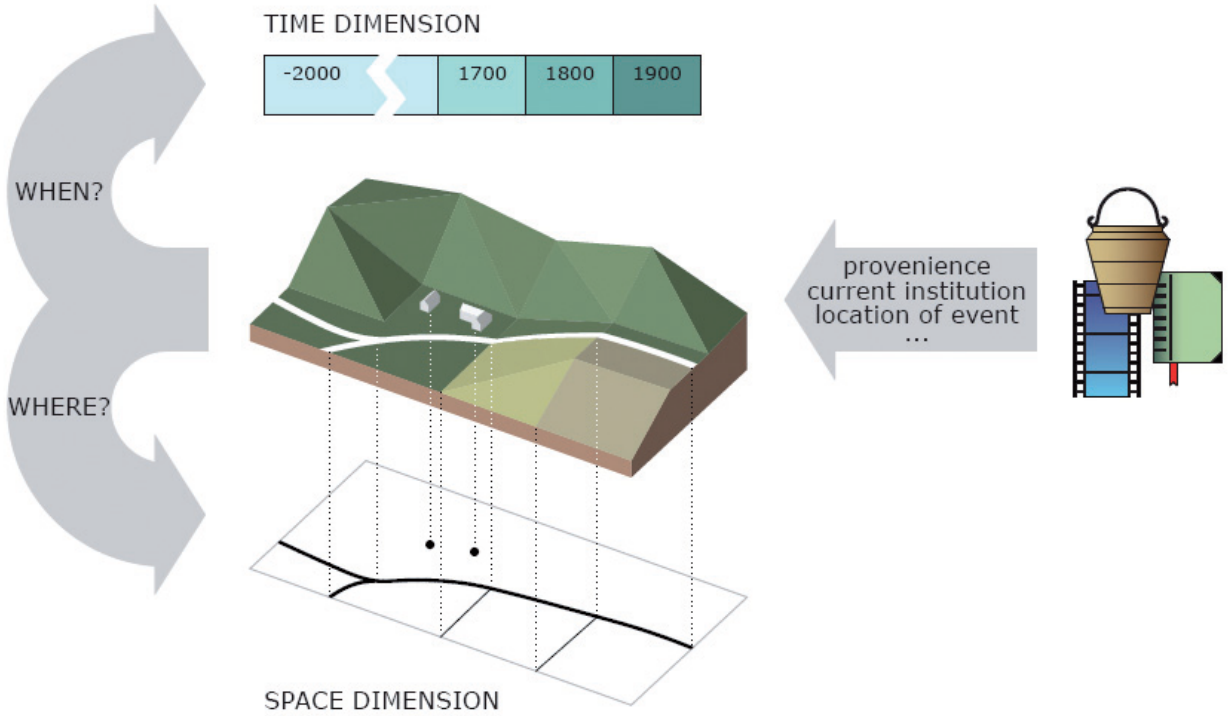
Athena content and GIS



Geographic location is one of the most important aspect of information for every cultural heritage item.A formalized location attribute (e.g. geocode or **geographical coordinates**) will significantly enhance the power of searching and the visualization of the content in Europeana and other cultural portals as well.

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Athena content and GIS

The **added value** of the inclusion of geographic location in digital cultural content is in the:

- browsing of Europeana and other cultural portals efficiently through space and time
- searching for content in a more user friendly way, without need to type geographical names
- making it possible to discover overlapping cultural content at the same location but originating from different sources and at different times
- mapping and visualization of the content
- performing of GIS calculations and simulations.

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Athena content and GIS

Do you use a standard set of terms for geographic names?

yes	no
27,2%	72,8%

Are the geographic co-ordinates used to describe this collection?

yes	no
4,9%	95,1%

Source: ATHENA-WP3 Standards Survey

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Athena content and GIS

Athena test API:
http://www.e-heritage.si/openlayers/OPENlayers.html

On collection level:
- testing included all Athena collections
- geographic coordinates of collection providers were manualy captured at 2-3 meters of spatial accuracy

On object level:
- testing included more than 20.000 Athena objects
- geographic coordinates of object were determinated by geoparsing using Europeana Geoparser service v1.0 beta
- geoparsing input format was Lido

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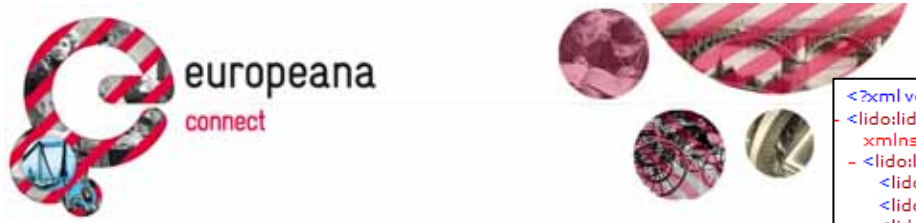
Athena content and GIS



Europeana Geoparsing Service

Unstructured text and semi-structured text metadata records may contain mentions to places and historical periods that are not directly usable by software applications. Geoparsing consists in automatically extracting structured information about places and historical periods from these textual resources. The Geoparser is a web service where users can provide textual sentences or metadata records, and it will reply with an XML document containing the geoparsing results.

```
- <lido:eventPlace>
  - <lido:place>
    - <lido:namePlaceSet>
        <lido:appellationValue>Chamonix</lido:appellationValue>
      </lido:namePlaceSet>
    </lido:place>
  </lido:eventPlace>
```

```
<?xml version="1.0" encoding="UTF-8"?>
- <lido:lidoWrap xmlns:lido="http://www.lido-schema.org" xmlns:xalan="http://xml.apache.org/xalan"
  xmlns:pr2="http://www.opengis.net/gml" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
  - <lido:lido>
      <lido:lidoRecID lido:type="athena">athena:000000000</lido:lidoRecID>
      <lido:category />
    - <lido:descriptiveMetadata xml:lang="ger">
      - <lido:objectClassificationWrap>
        - <lido:objectWorkTypeWrap>
          - <lido:objectWorkType>
              <lido:term lido:addedSearchTerm="no">Plakat</lido:term>
            </lido:objectWorkType>
          </lido:objectWorkTypeWrap>
        - <lido:classificationWrap>
            <lido:classification lido:type="michael_collection"/>
          - <lido:classification lido:type="europeana:type">
              <lido:term lido:addedSearchTerm="no">IMAGE</lido:term>
            </lido:classification>
          </lido:classificationWrap>
        </lido:objectClassificationWrap>
      - <lido:objectIdentificationWrap>
        - <lido:titleWrap>
          - <lido:titleSet lido:type="preferred">
              <lido:appellationValue>I. Olympische Winterspiele - 1924, Chamonix</lido:appellationValue>
            </lido:titleSet>
          </lido:titleWrap>
            </lido:legalBodyName>
          </lido:recordSource>
        - <lido:recordInfoSet>
            <lido:recordInfoLink>http://archiv.sportmuseum.info/boxen/boxhandschuhe-muhammad-ali/</lid
          </lido:recordInfoSet>
        </lido:recordWrap>
      - <lido:resourceWrap>
        - <lido:resourceSet>
            <lido:linkResource lido:type="image_thumb">http://archiv.sportmuseum.info/wp-content/uploads
              202.jpg</lido:linkResource>
          </lido:resourceSet>
        - <lido:resourceSet>
            <lido:linkResource lido:type="image_master"/>
          </lido:resourceSet>
        </lido:resourceWrap>
      </lido:administrativeMetadata>
    </lido:lido>
</lido:lidoWrap>
```

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Athena content and GIS

Comments:

- <lido:eventPlace> is rarely present
- when parsing the entire Lido object almost always at least one geo name is found
- if there are small town or villages they were seldom found, inclusion of national register of geographic names is strongly suggested
- more geo-ontology reasoning is recommended
- assign the geographic coordinates in documentation process
- use geo-tagging instead of geo-parsing, if possible

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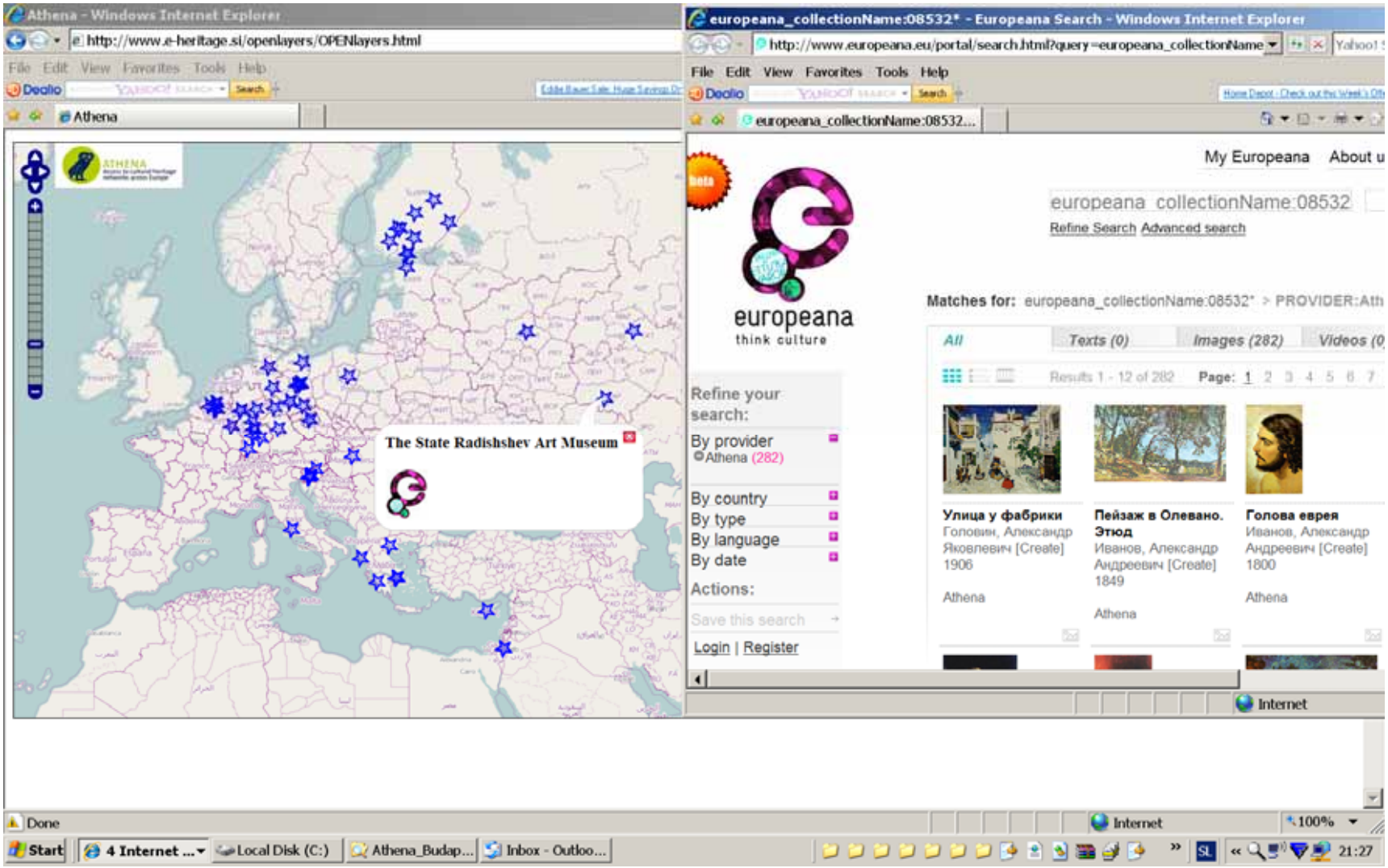
Athena content and GIS



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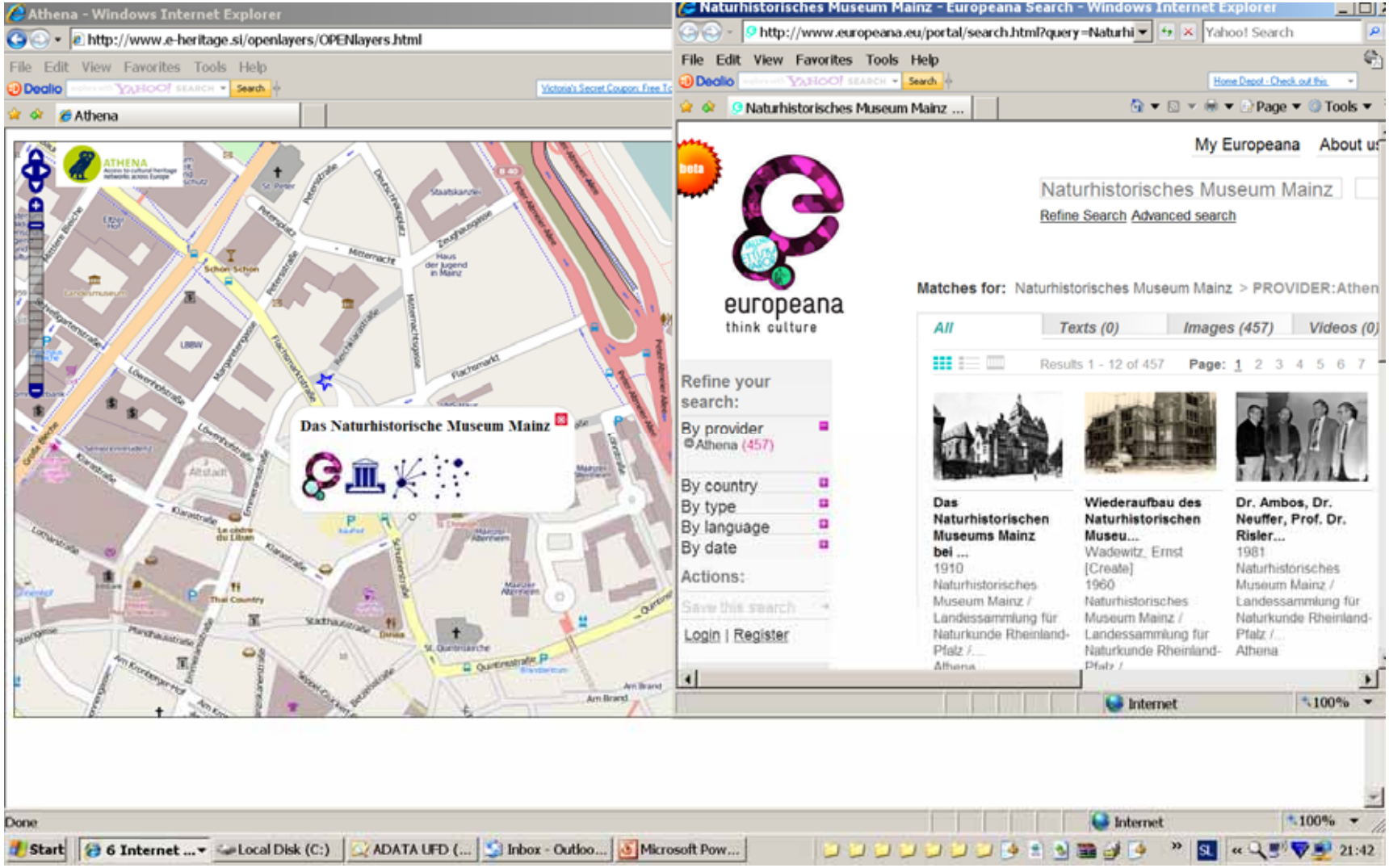
Athena content and GIS



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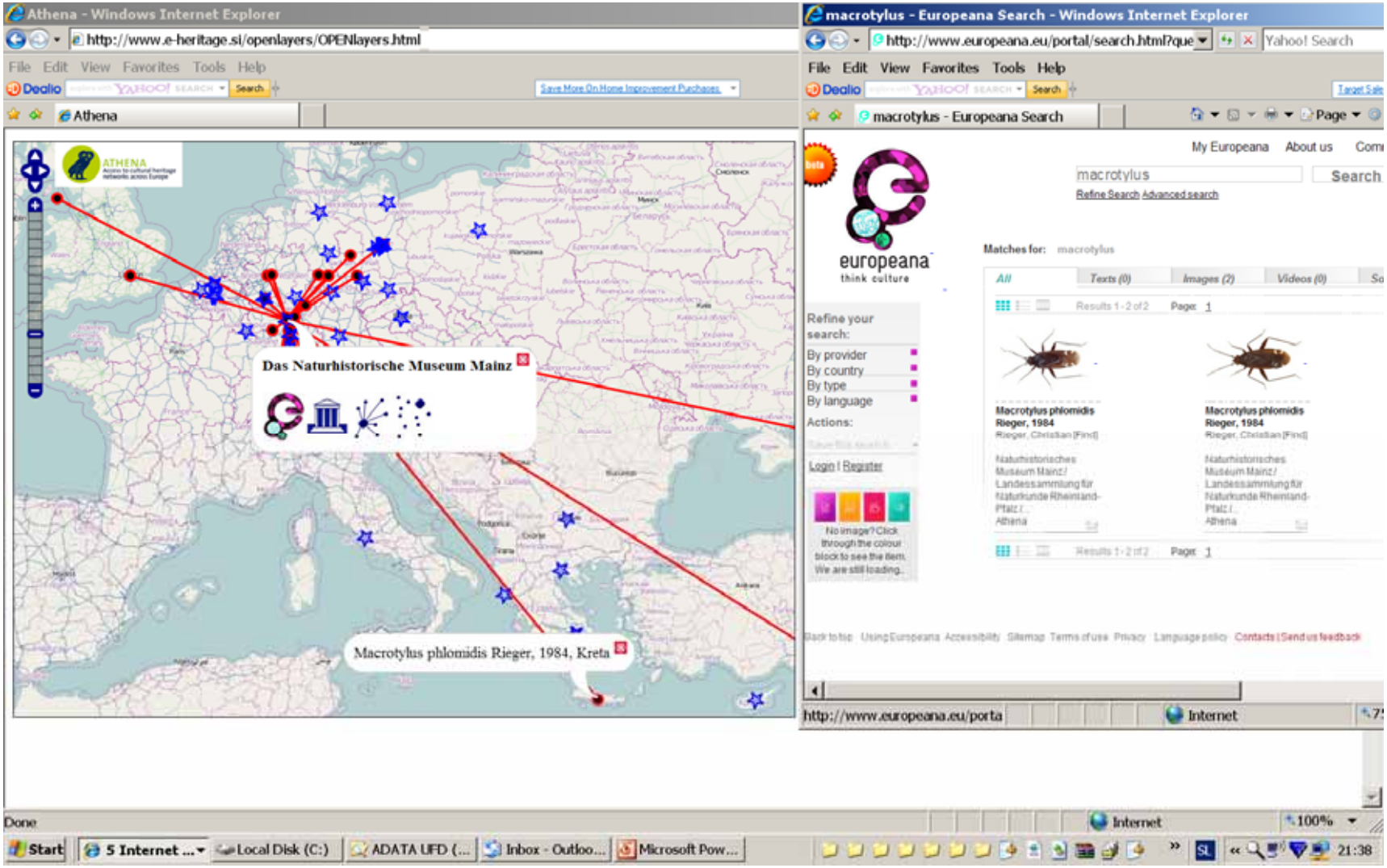
Athena content and GIS



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Guidelines for geographic information

Content: basic terms, what is geographic information system, standards, possible cases of use, and eleven “quick thoughts” for cultural institutions

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Guidelines for geographic information

Guidelines aim to:

- raise awareness of the potential of GIS technologies in the cultural sector
- explain basic GIS terms and concepts
- demonstrate the benefits of including geographic information in the process of creating digital cultural content
- offer basic recommendations and tools to tackle possible bottlenecks in introducing GIS
- make strong suggestions to all Europeana content providers on how to enrich their current content with appropriate geographic information.

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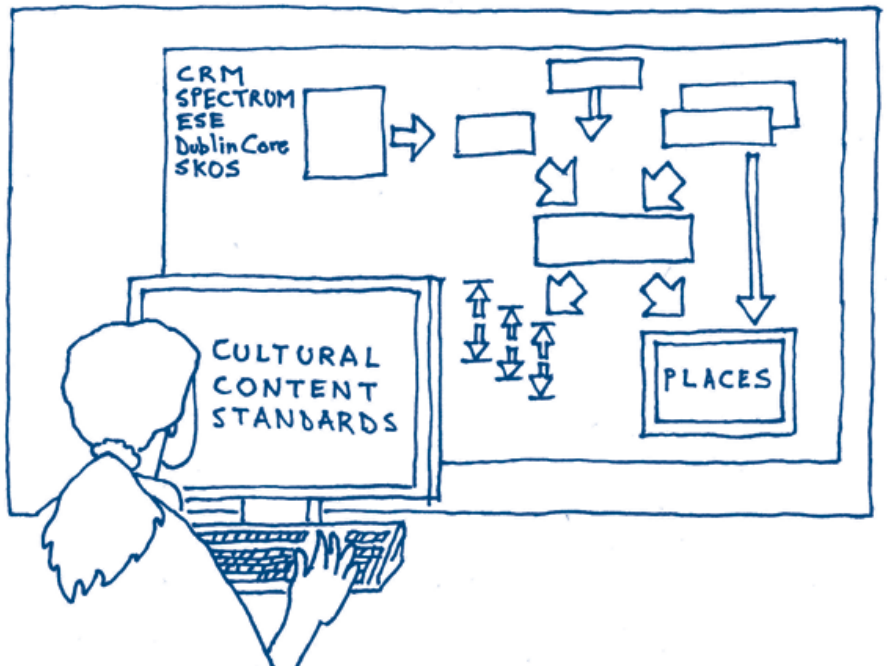
Cultural content standards



This chapter briefly describes the main standards which concern digital cultural content, with the emphasis on geographical information.

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Cultural content standards

Few highlights of geographic information in cultura content standards	
Cidoc Conceptual Reference Model (CRM)	Geographical information is included in CRM on conceptual level as “Places”. Structure of CRM establishes connection between classes “Temporal Entities”, “Physical Entities” and “Places”. “Temporal Entities” occurs at “Places” while “Physical Entities” are located at “Places”.
Spectrum Standard for Collections Information Management	SPECTRUM standard uses geographic information to describe different key aspects of object information and management which have spatial relevance. Standard lists these units of information mainly under “place information group”.
Europeana Semantic Elements Specifications (ESE)	ESE uses geographic information to further specify subject description of digital object. Coverage metadata element is used for spatial or temporal subject description of the resource and spatial applicability or jurisdiction.
Dublin Core Metadata Element Set (DCMES)	In similar way to ESE, DCMES uses geographic information to specify subject description of digital object. It lacks the formalization of geographic information. Metadata element “coverage” is defined as “the spatial or temporal topic of thresource, the spatial applicability of the resource, or the jurisdiction under which the resource is relevant”.

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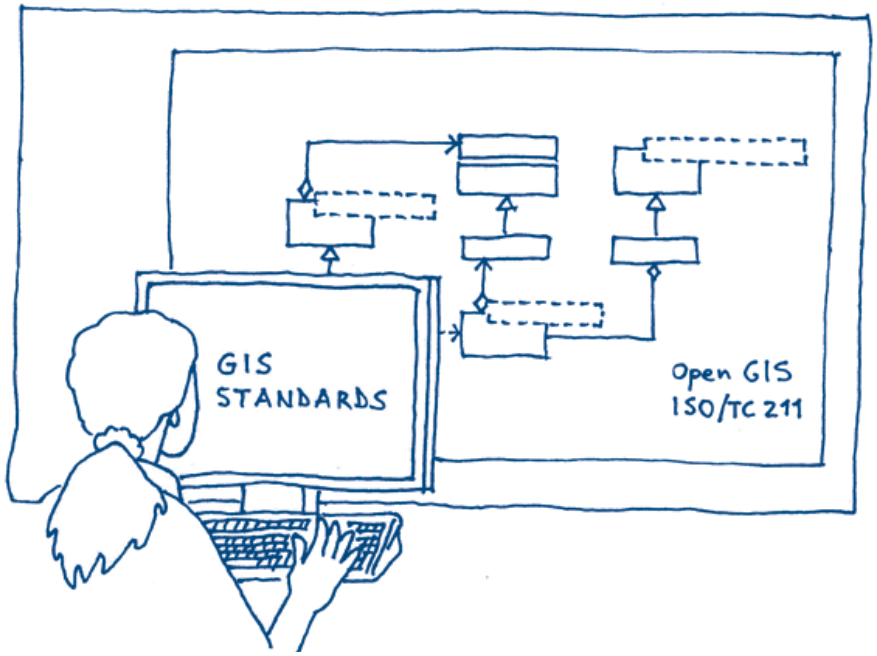
GIS standards



GIS standards concern acquiring, processing, analyzing, accessing, presenting and transferring geographical data in digital form between different users, systems and locations.

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GIS standards

Few highlights of Open Geospatial Consortium (OGC) standards	
Geography Markup Language Encoding Standard (GML)	The Geography Markup Language (GML) Language Encoding is an XML grammar for expressing geographical features.
Keyhole Markup Language (KML)	KML (submitted by Google) version 2.2 has been adopted as an OGC implementation standard.
Web Feature Service (WFS)	OpenGIS Specification that supports INSERT, Service (WFS) UPDATE, DELETE,QUERY and DISCOVERY of geographic features. WFS delivers GML representations of simple geospatial features in response to queries from HTTP clients. WFS delivers GML representations of simple geospatial features in response to queries from HTTP clients. Clients access geographic feature data through WFS by submitting a request for just those features that are needed for an application.
Web Map Service (WMS)	Provides a simple HTTP interface for requesting georegistered map images from one or more distributed geospatial databases.. A WMS request defines the geographic layer(s) and area of interest to be processed. The response to the request is one or more georegistered map images (returned as JPEG, PNG, etc.) that can be displayed in a browser application.

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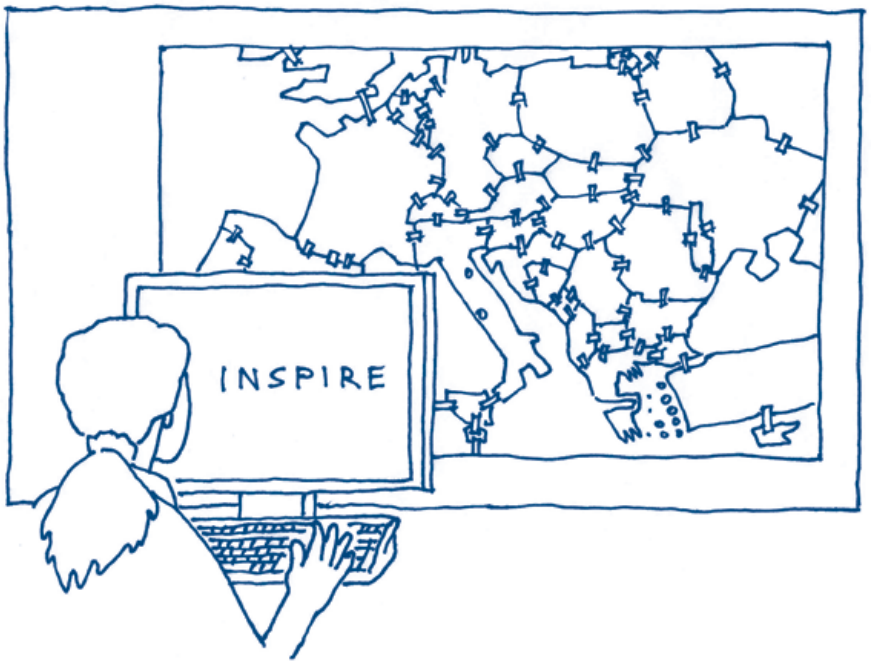
INSPIRE EU Directive



The INSPIRE (**Infrastrucure for spatial information in Europe**) EU Directive came into force on 15 May 2007 and its implementation will follow various stages until full implementation in 2019. It ensures compatibilty and usability of the spatial data infrastructures of the Member States in European Union.

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INSPIRE EU Directive

Most relevant INSPIRE themes for digital cultural content	
Coordinate reference systems	Systems for uniquely referencing spatial information in space as a set of coordinates (x,y,z) and/or latitude and longitude and height, based on a geodetic horizontal and vertical datum.
Administrative and statistical units	Territorial units of administration for local, regional and national governance, separated by administrative boundaries. It consists also statistical units for dissemination or use of statistical information.
Geographical names	Names of areas, regions, localities, cities, suburbs, towns or settlements, or any geographical or topographical feature of public or historical interest.
Addresses and buildings	Locations based on address identifiers, usually by road name, house number, postal code. It consists also the geographical location of buildings.
Protected sites	Formally by law protected areas as are protected archaeological sites and architectural buildings.
Orthoimagery	Geo-referenced image data of the Earth's surface, from either satellite or airborne sensors.
Metadata	Meta data description consists of: identification, classification of spatial data and services, keywords, geographic location, temporal reference, quality and validity, conformity, constraints related to access and use, organizations responsible for the establishment, management, maintenance and distribution of spatial data sets and services, metadata on metadata.

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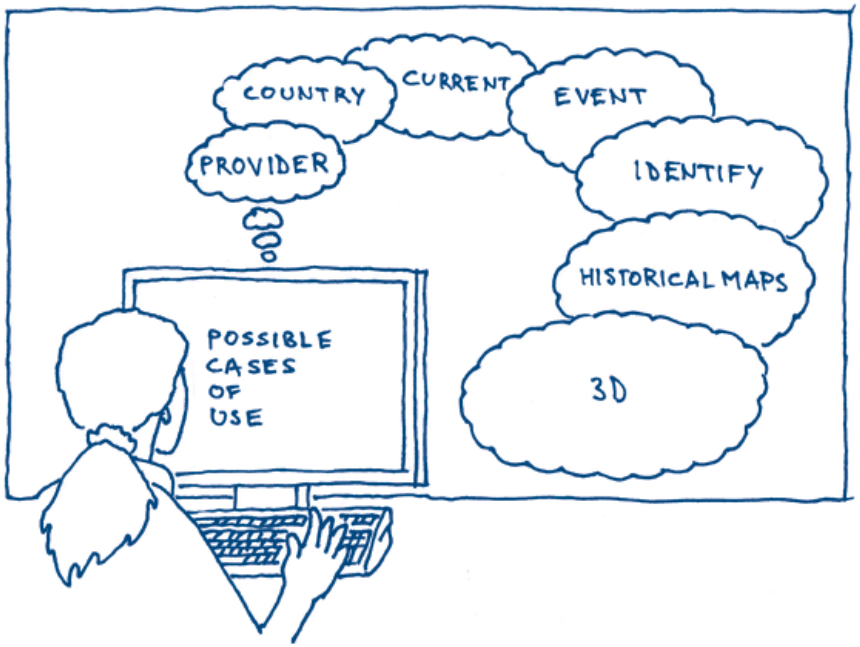
Seven use cases



The aim of this chapter is to convince the museums, libraries, archives, audio visual institutions and other cultural institutions of the usefulness of GIS technology by presenting seven use cases. With prototyping these cultural institutions can clearly "**see what they get**" when they implement a particular case.

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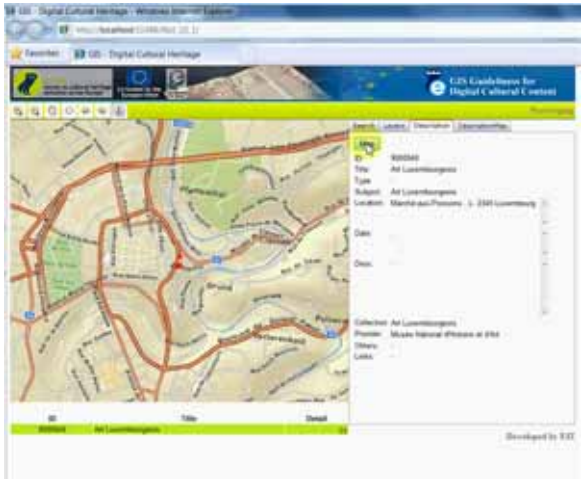
Seven use cases

1. “Provider”
only the geographic locations of content providers



2. “Country”
a graphical representation of country of content providers

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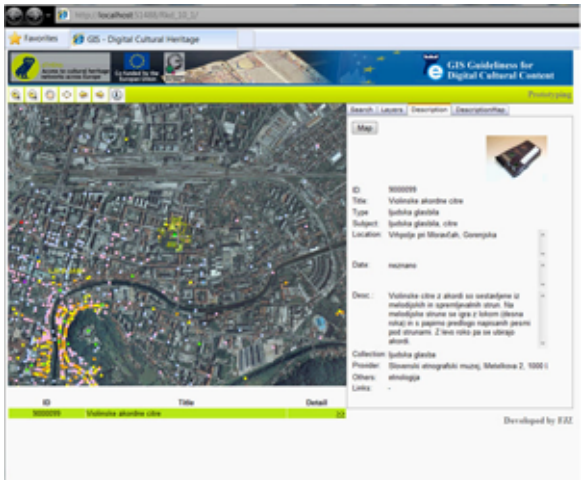
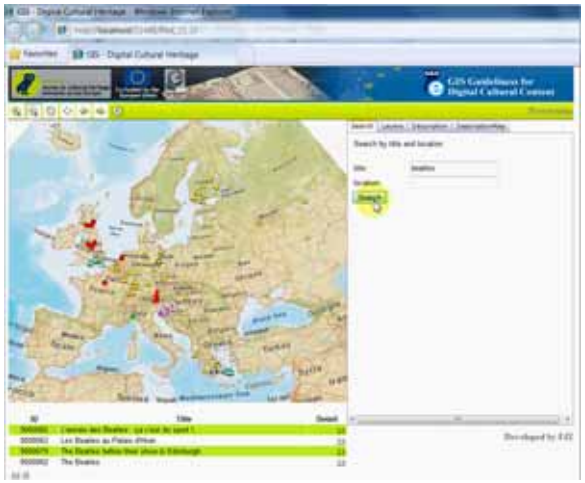
Seven use cases

3. “Current”
the current geographic location of the physical objects



4. “Event”
the geographic locations of events associated with physical objects



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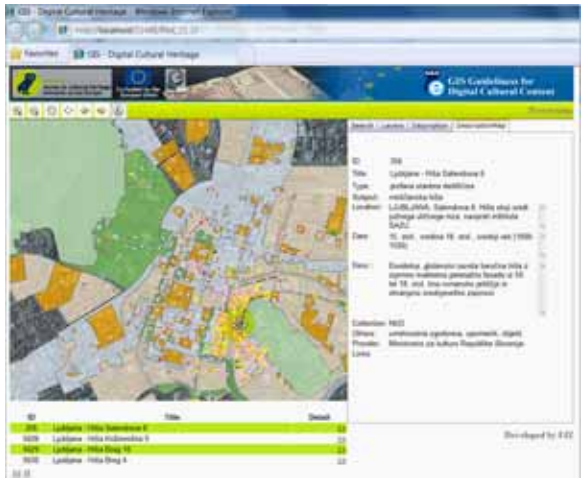
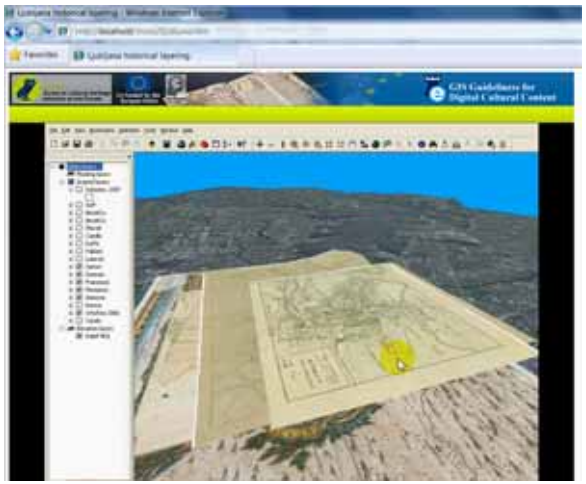
Seven use cases

5. “Identify”
makes use of geotopological relations among several GIS entities



6. “Historical maps”
geocoded historical maps



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Seven use cases

7. “3D”
three dimensional representations of movable or immovable cultural objects

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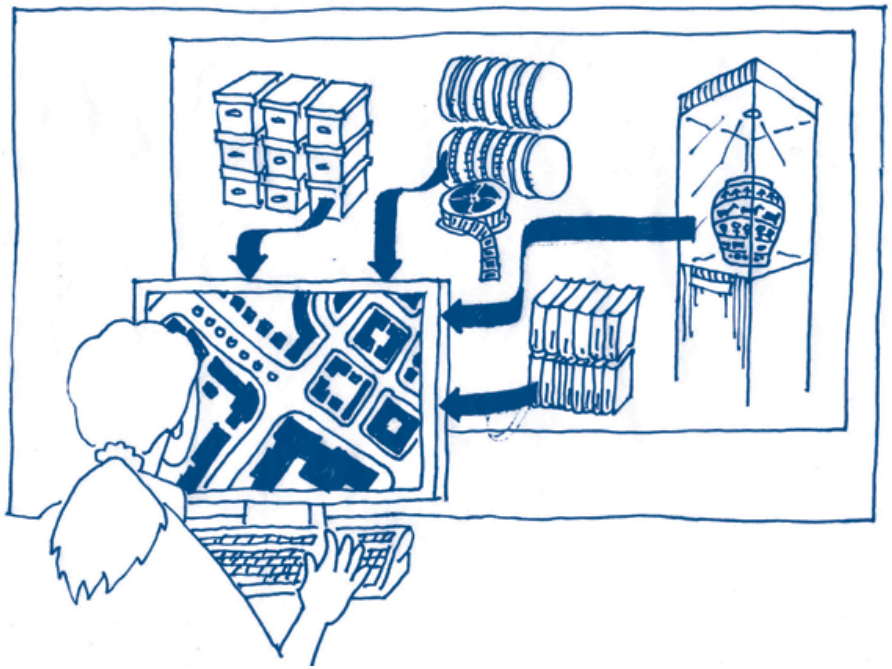
Eleven “quick thoughts”



The booklet concludes with “quick thoughts” for cultural institutions which would like to begin enriching their digital cultural content with appropriate, formalized and structured geographical information or enhance already existing data.

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Thank you

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