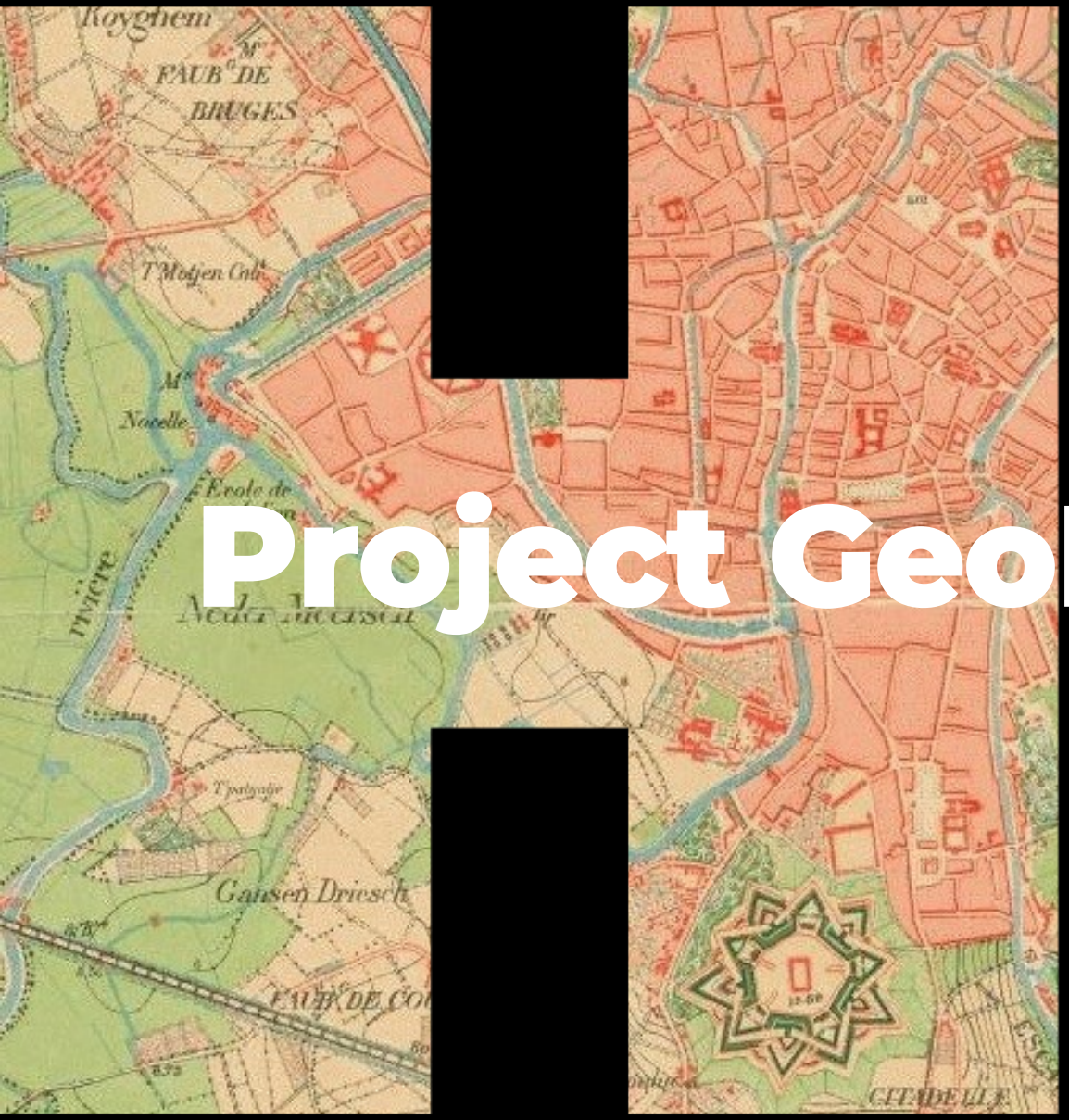

Project GeoICT

2021-2022

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Finding data

Project GeoICT

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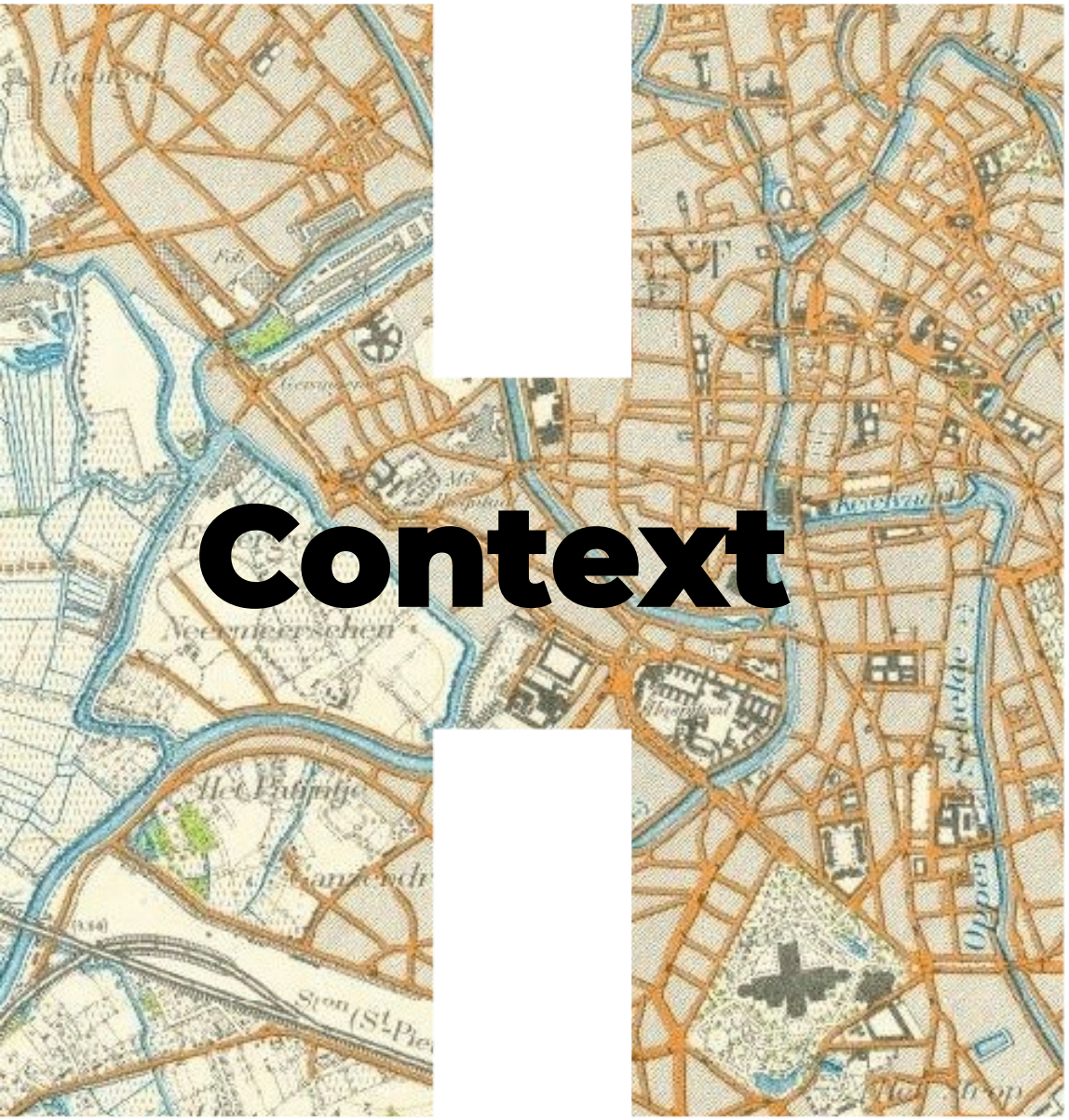

Context

Finding data

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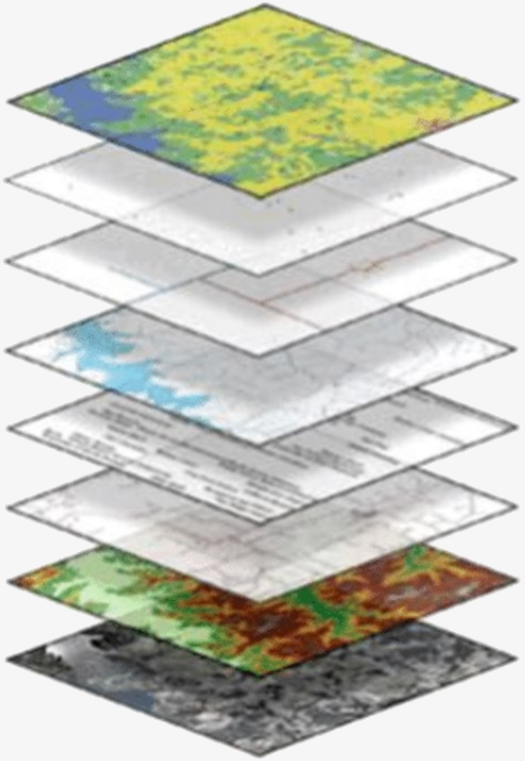
Spatial analyses require spatial data



Land use

Structures

Boundaries

Hydrography

Geographic names

Transportation

Elevation

Orthoimagery

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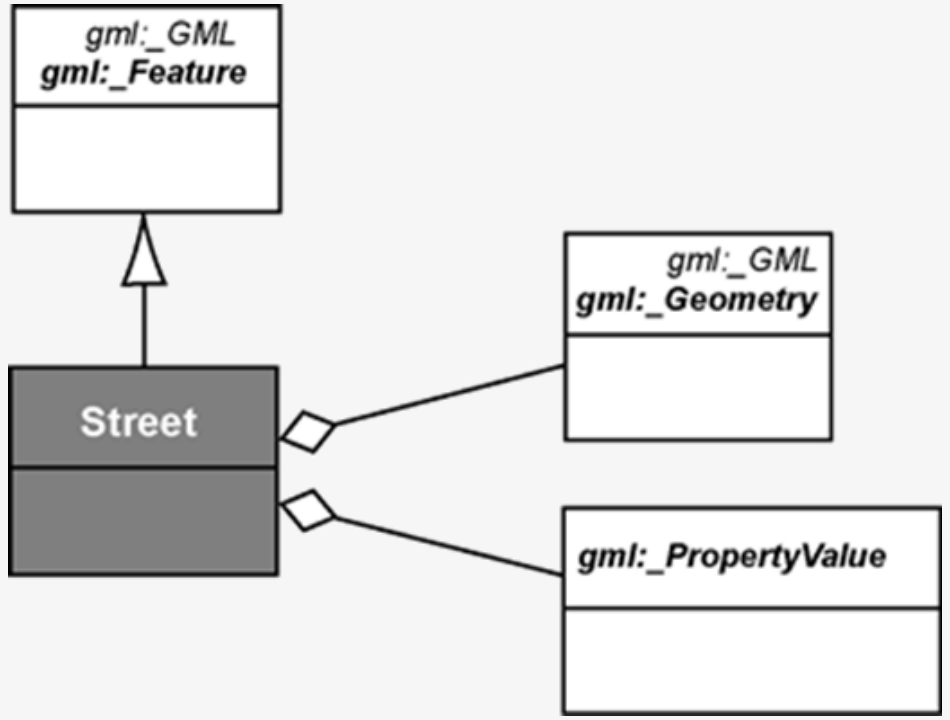
Data types

Feature → Attribute data
→ Geometrical data
→ Vector
→ Raster



Feature = object, in GIS context with spatial description

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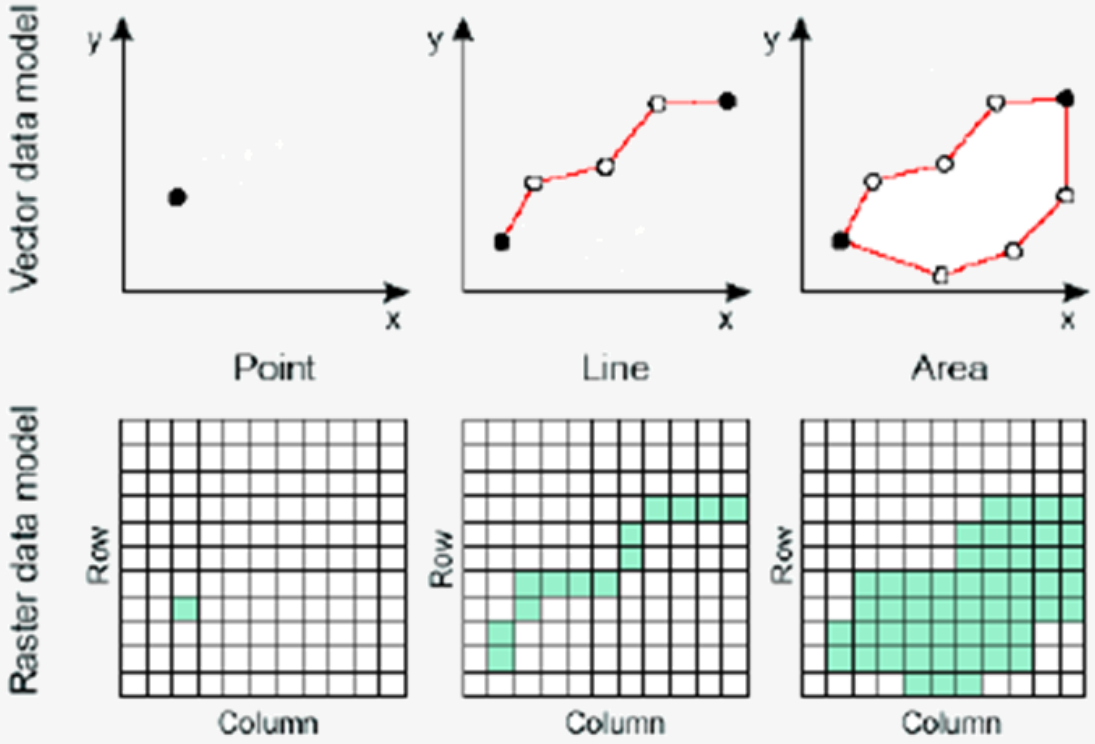
Data geometry

Vector: continuous space: point, line, polygon, ...

Raster: discrete space: cell (equidistant?)



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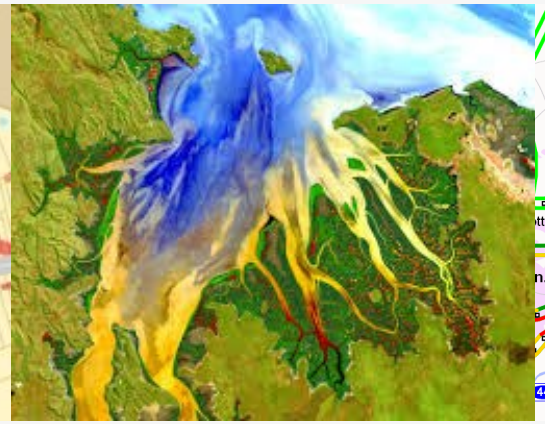
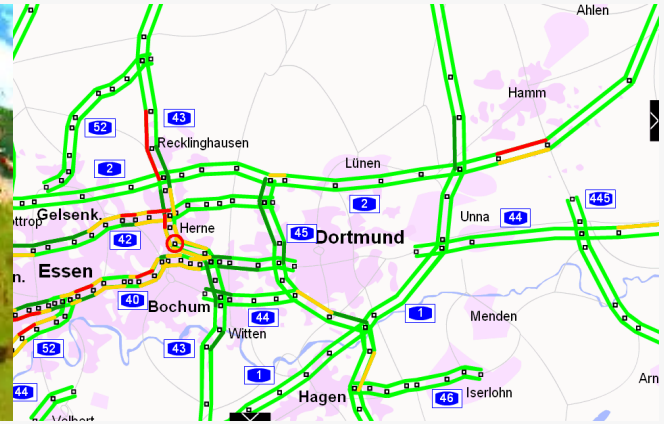
Data geometry

Determination of data storage, analyses, topological relations, … so actually the determination of the GIS problem in general

This problem also defines the way of acquiring data





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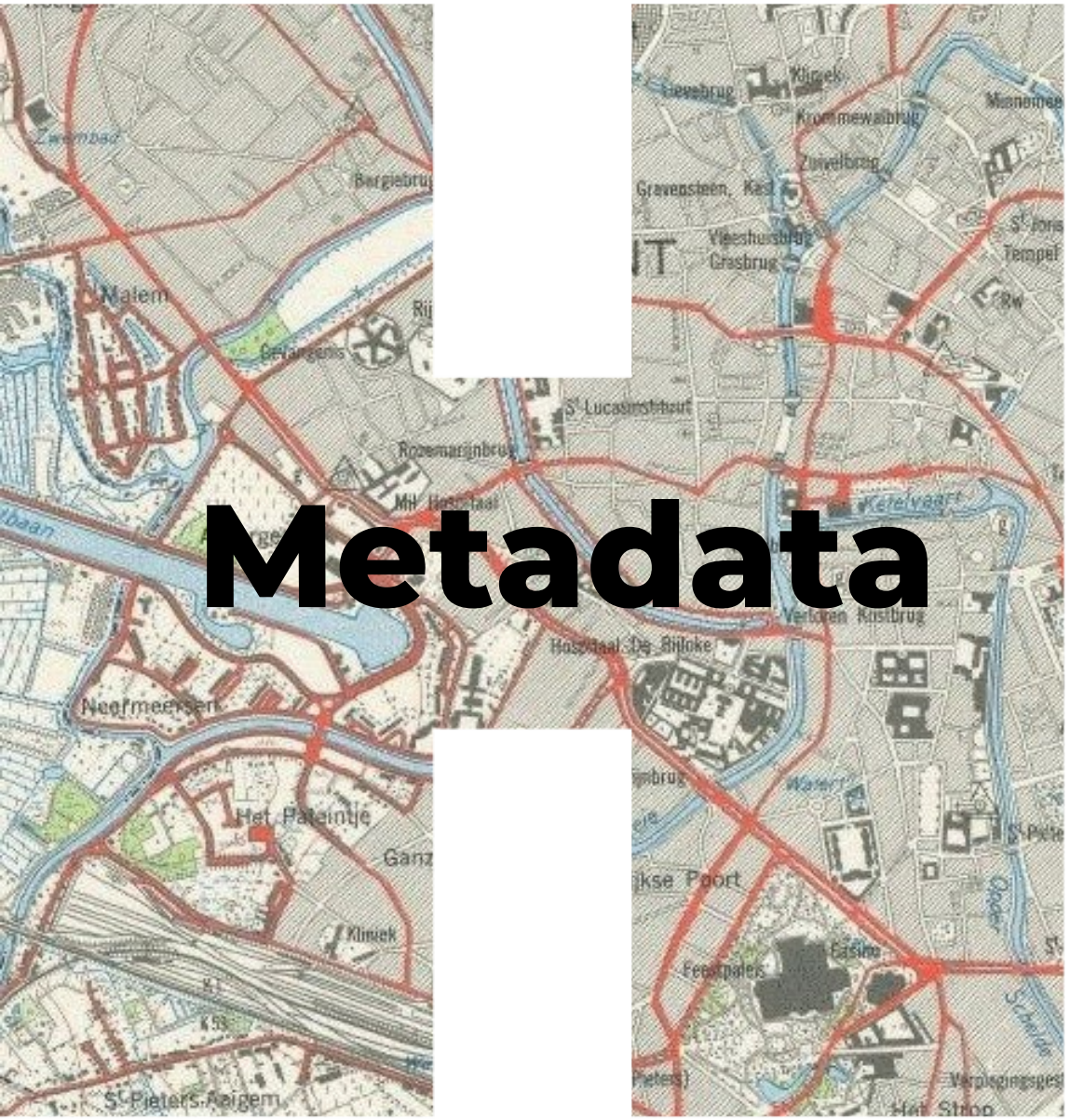

Metadata

Finding data

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How to find spatial data?

Metadata:

- “data about data”
- Description of the data (not the data itself)
- Essential for exchanging data and make them findable

Via metadata sets

Resource Title
INSPIRE Administrative Units ATKIS-DLM250

Resource Abstract
Administrative units of Germany, derived from the german digital landscape model at scale 1:250000. Mapped via EuroBoundaryMap to satisfy INSPIRE and European Location Framework conformance. The dataset is available as Open Data.

Lineage
derived from german topographic database 1:250000

Unique Resource Identifier
Code: https://registry.gdi-de.org/id/de.bund.bkg.csw/DEBKG00M00000210
Namespace: *[not available]*

Spatial Data Theme
Administrative units

Topic Category
boundaries

Reporting Tags
Priority Dataset

Spatial Scope
National

Conditions Applying To Access And Use

Limitations On Public Access
Es gelten keine Zugriffsbeschränkungen

Geographic Bounding Box

Responsible Party
Organisation name
Federal Agency for Cartography and Geodesy
E-mail dlz@bkg.bund.de

Metadata Point Of Contact
Organisation name
Federal Agency for Cartography and Geodesy
E-mail dlz@bkg.bund.de

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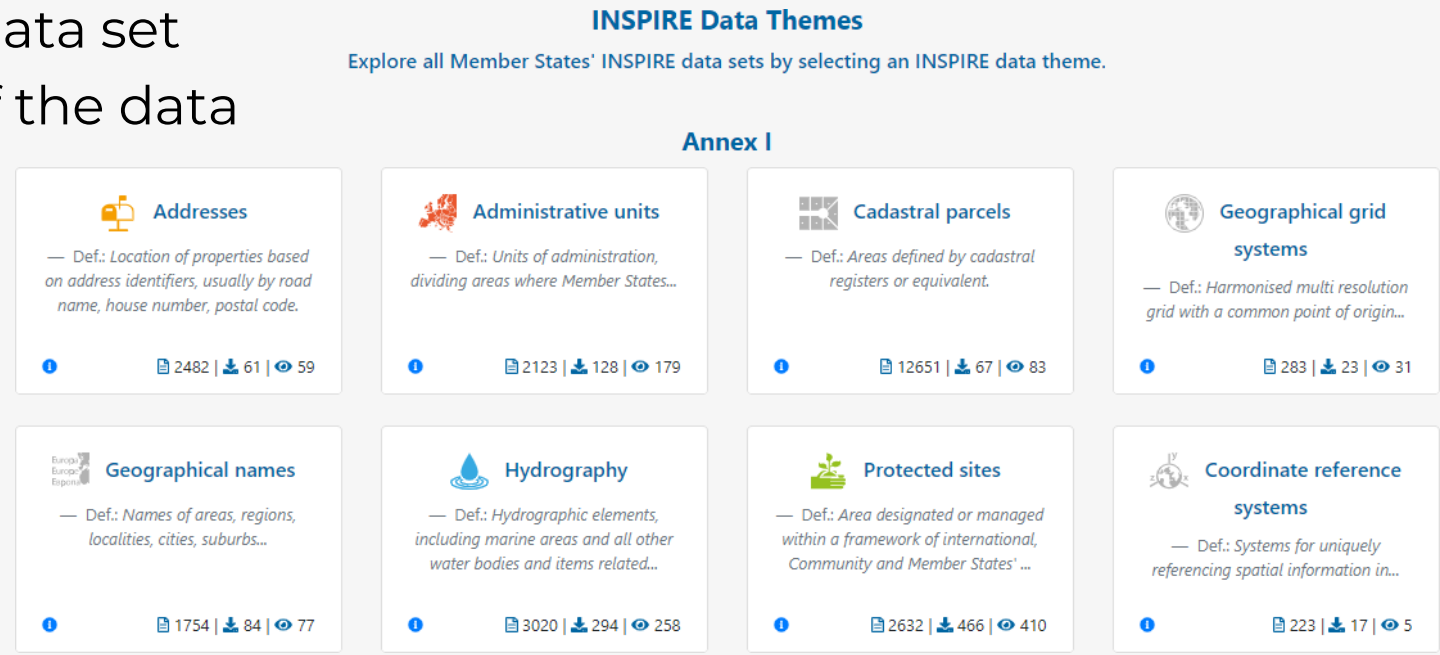
How to find spatial data?

= kind of “prescription” of a data set
Should be read for proper use of the data

Metadata sets are stored
in a “metadatabase”

E.g. published using a CSW
(= Catalog Service of the Web)



HO GENT

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    ▼<gmd:deliveryPoint>
       <gco:CharacterString>Koningin Maria Hendrikaplein 70</gco:CharacterString>
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       <gco:CharacterString>België</gco:CharacterString>
     </gmd:country>
    ▼<gmd:electronicMailAddress>
       <gco:CharacterString>contactpunt@agiv.be</gco:CharacterString>
     </gmd:electronicMailAddress>
  </gmd:CI_Address>
</gmd:address>
```

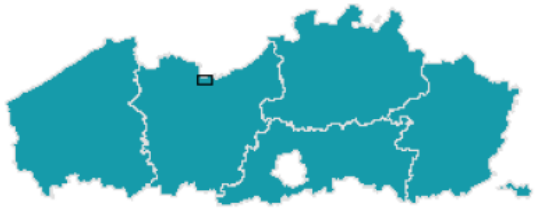
Why metadata?

Overview of available spatial data and their properties:

- Identification
- Description of content
- Spatial extent
- Information about distribution
- Meta-metadata
- …

Begrenzing

Omschrijving geografische begrenzing: Huidige begrenzing
Identificator geografische begrenzing: Gemeente Zelzate
Minimum longitude: 3.76473°
Maximum longitude: 3.85612°
Minimum latitude: 51.18164°
Maximum latitude: 51.21455°
Omschriivende rechthoek:



Temporele begrenzing: 21/02/2003 tot 11/11/2016

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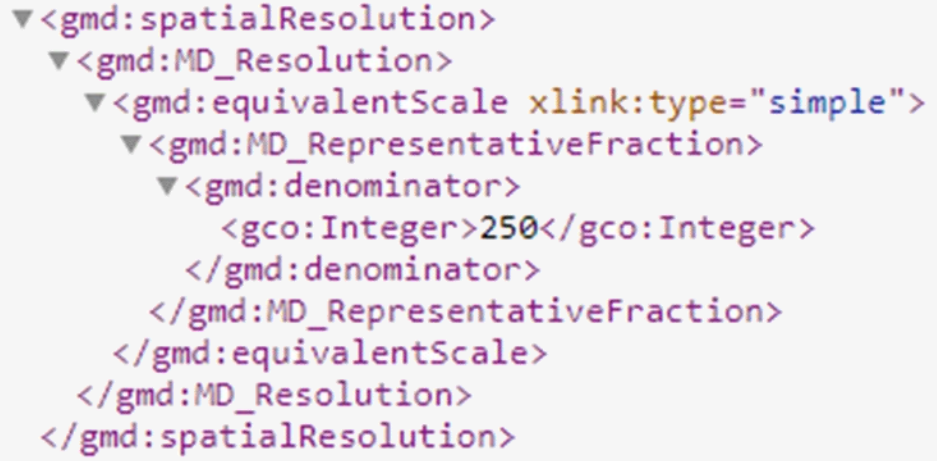
Why metadata?



- Ease of use:
  - Search for spatial data sources (data and services)
  - Search in catalogs - based on key words – that contain data on services that are described using matadata templates
- Evaluation of the data source:
  - Does the dataset meet the requirements of the user?
- Obtain :
  - Tools: user restrictions, scale, extent, temporal validity
- Simulating (re)use of data sets:
  - Avoid unnecessary data acquisition
- …

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How to collect and to publish metadata?

Metadatabase:

= collection of metadata sets

= queryable → consulting

(e.g. CSW, Catalog Service for the Web)

Prepared based on “metadata profile” (= template)

Examples:

- https://inspire-geoportal.ec.europa.eu/
- https://data.usgs.gov/datacatalog/
- http://metadata.geopunt.be

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How to collect and to publish metadata?

Guidelines: ISO-normen

- International utility
- Used by (almost) all European countries (and more…)
- Assigned as a metadata standard in the INSPIRE directive
- Metadata: ISO 19115:2003/Cor.1:2006
- Object catalog: ISO 19110:2005
- Directives on implementation: ISO/PDTS 19139

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How to collect and to publish metadata?

Norm: INSPIRE guideline 2007/2/EC

- Metadata
- Harmonization of spatial data and interoperability of services
- Network services (search, consult, transmit, transform, middleware)
- Data- and service sharing (data policy)
- Coordination and measures for monitoring and reporting
- INSPIRE Implementing Rule for Metadata

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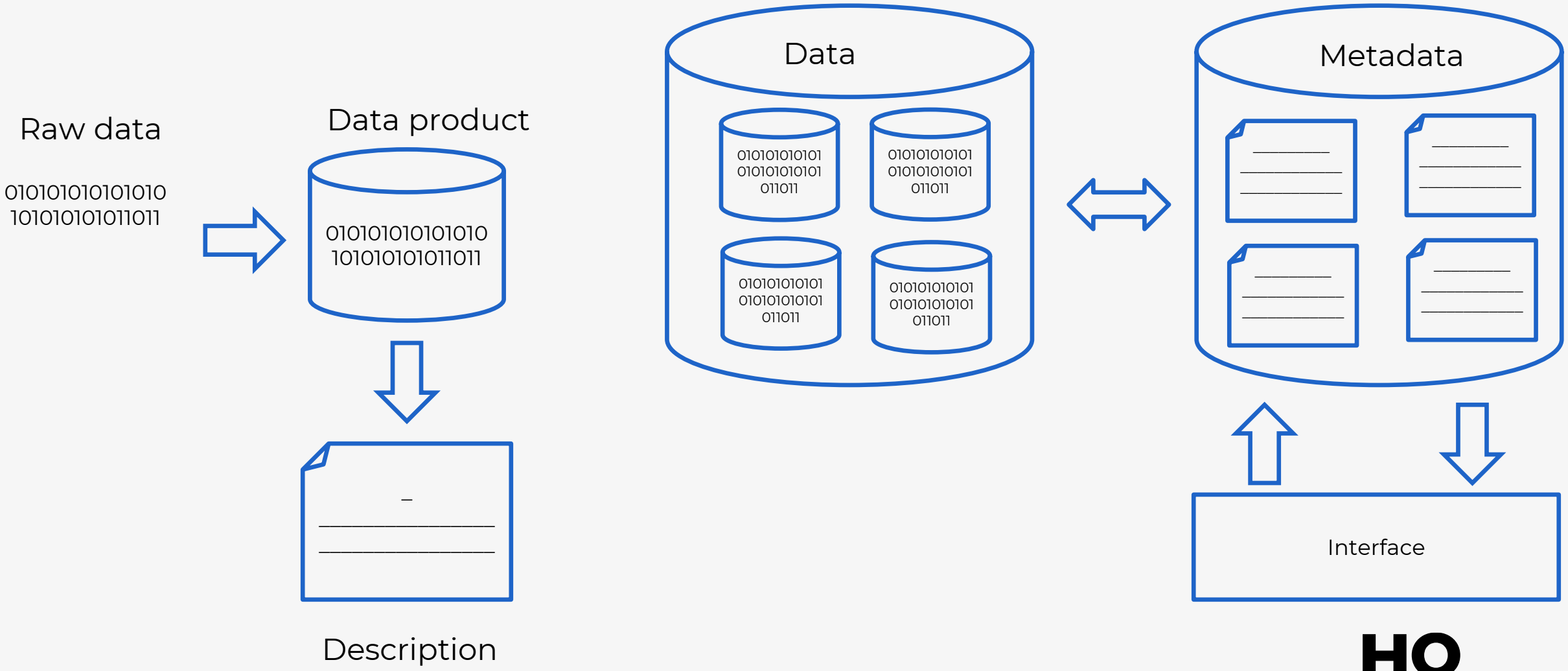
Metadata



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How to collect and to publish metadata?

Principle:

- Single data acquisition, multiple usage
- Chain: publication using multiple channels for multiple end-users (target audience)

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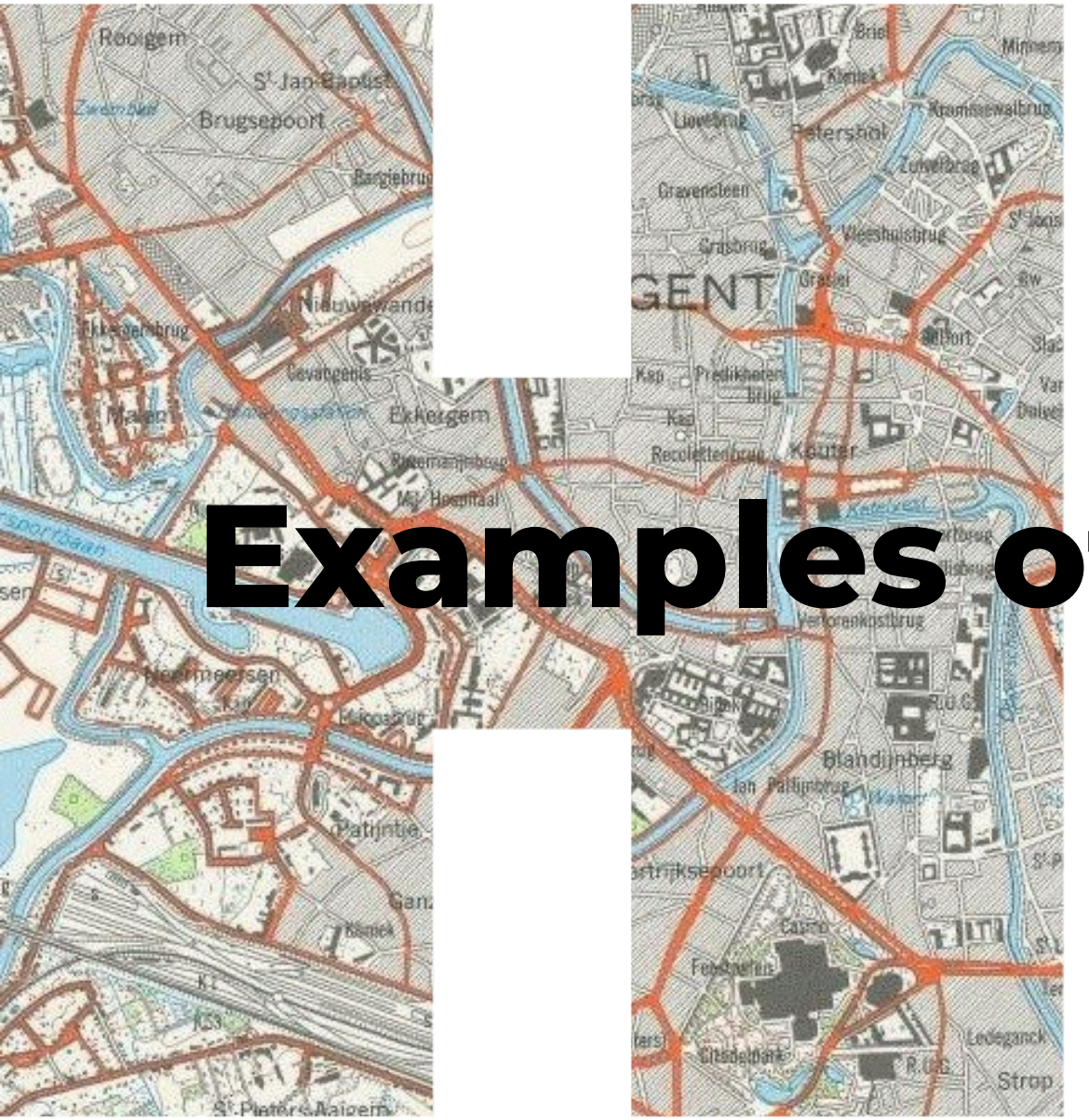

Examples of dataportals

Finding data

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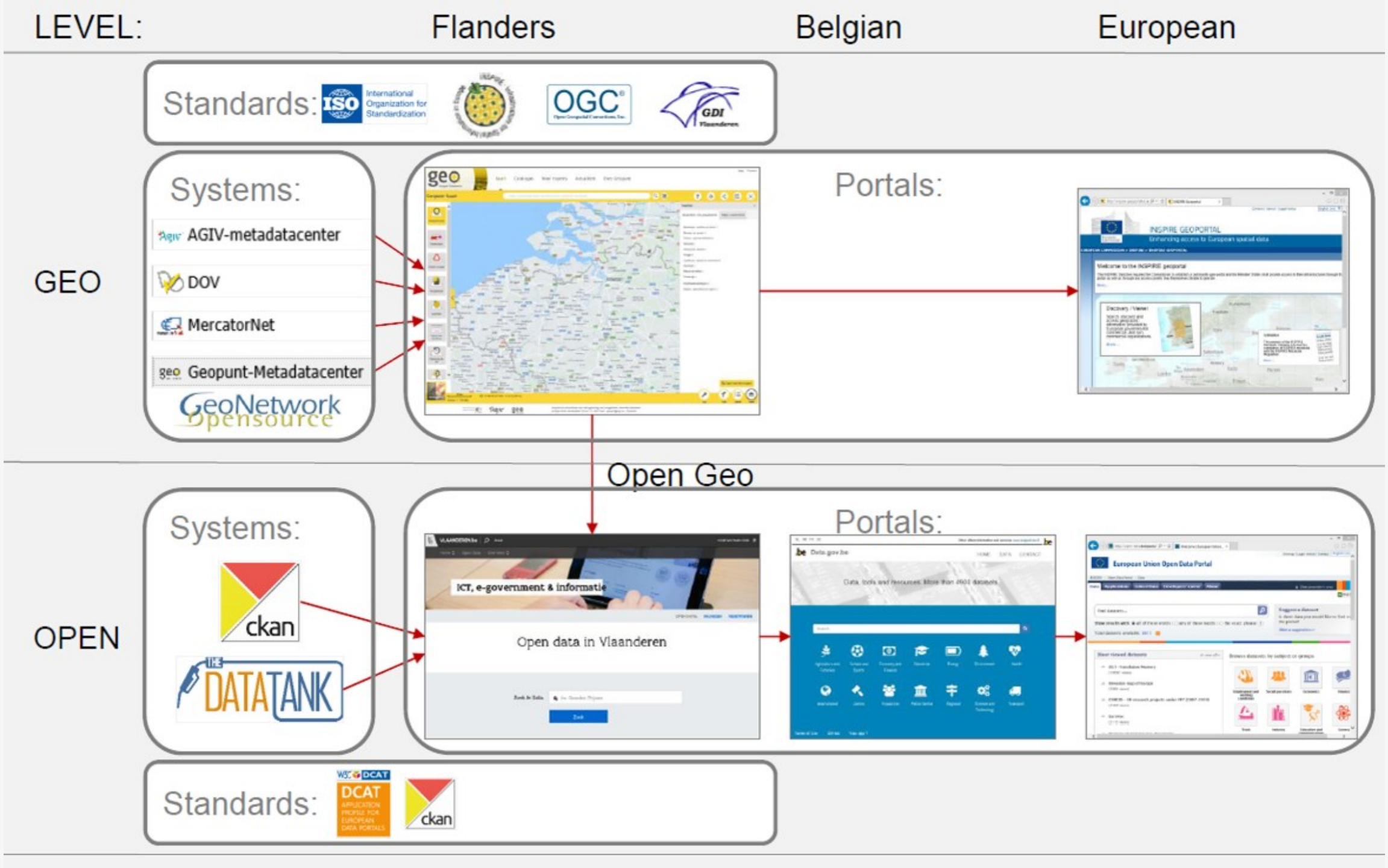

LEVEL:
Flanders
Belgian
European
Standards:
International Organization for Standardization
OGC
GDI Vlaanderen
GEO
Systems:
AGIV-metadatacenter
DOV
MercatorNet
Geopunt-Metadatacenter
GeoNetwork Opensource
Portals:
INSPIRE GEOPORTAL
Open Geo
OPEN
Systems:
ckan
DATATANK
ICT, e-government & informatie
Open data in Vlaanderen
Portals:
Data.gov.be
European Union Open Data Portal
Standards:
DCAT
ckan

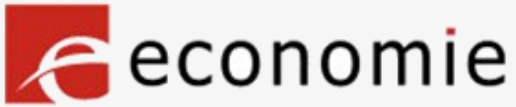
Planimetric data

World wide level
- NaturalEarth: http://www.naturalearthdata.com
  - World wise standardize vector data
- USGS: https://earthexplorer.usgs.gov
  - Mainly satellite imagery

European level
- European Environment Agency: https://www.eea.europa.eu/data-and-maps
  - Europese environment-related subjects
- Infrastructure for Spatial Information in the European Community (INSPIRE)
  - Standardize European spatial data

Belgium (Federal level)
- NGI (National Geograpgic Institute): http://www.ngi.be
  - Topographic Maps
  - Geodetic reference data
  - Administrative maps of Belgium
- General Directorate of Statistics (Dept. of Economy): http://statbel.fgov.be
  - Socio-economic indicators

Belgium (Regional level, Flanders)
- Agency for Information Flanders: http://www.geopunt.be
  - GRB (large-scale reference map)
  - VHA (Flemish hydrographic atlas)
  - Orthophoto's
  - ...



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Altimetric data

World wide level:
NASA → ASTER Global Digital Elevation Map (30m):
https://asterweb.jpl.nasa.gov/gdem.asp

DEM for Europe (30m) can be obtained via European Environment Agency:
https://www.eea.europa.eu/data-and-maps/data/digital-elevation-model-of-europe

Belgium, Flanders (example)
Agency for Information Flanders: http://www.geopunt.be

- DHMV1 → acquired 2001-2004 with 1 point per $20m^2$
- DHMV2 → acquired 2013-2015 with >8 points per m^2
- Standardized products: 1m, 5m, 25m, 100m
- Source data also available

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Other thematic data

- Farming data
  - Europe: http://ec.europa.eu/eurostat/web/agriculture/data/database
  - Belgium : http://statbel.fgov.be
  - Flanders: http://lv.vlaanderen.be/nl

- Underground (soil and geology)
  - Europe: EuroGeoSurveys= collaboration of national geological services
  - Flanders: Databank Ondergrond Vlaanderen = http://dov.vlaanderen.be

- Land cover
  - Europe: CORINE: https://www.eea.europa.eu/publications/COR0-landcover
  - Flanders: www.geopunt.be

- Cultural heritage
  - Europe: no standardization yet (https://ec.europa.eu/environment/nature/natura2000/management/pdf/Natural_and_Cultural_Heritage_report_2019_WEB.pdf)
  - Flanders: https://www.onroerenderfgoed.be/

- Landscape mapping
- Hydrographic data
- Biological maps
- Infrastructure
- Economical data

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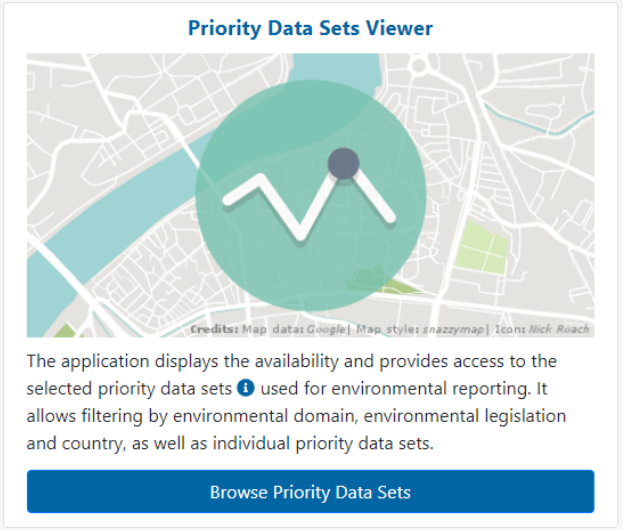
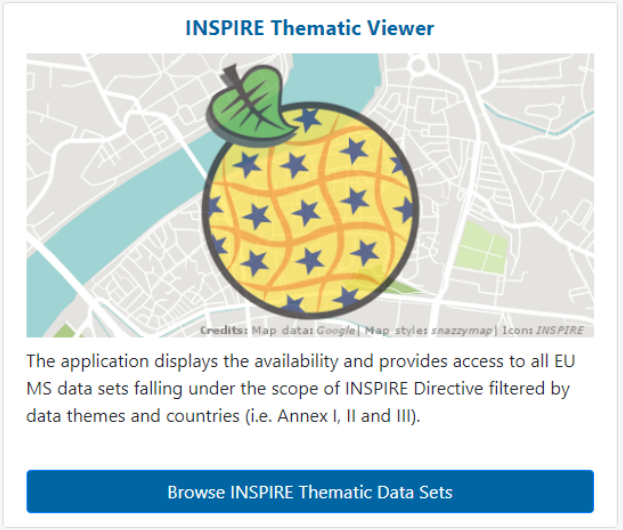
How to collect and to publish metadata?

Suggestion: visit https://inspire-geoportal.ec.europa.eu/ and inspect the various themes





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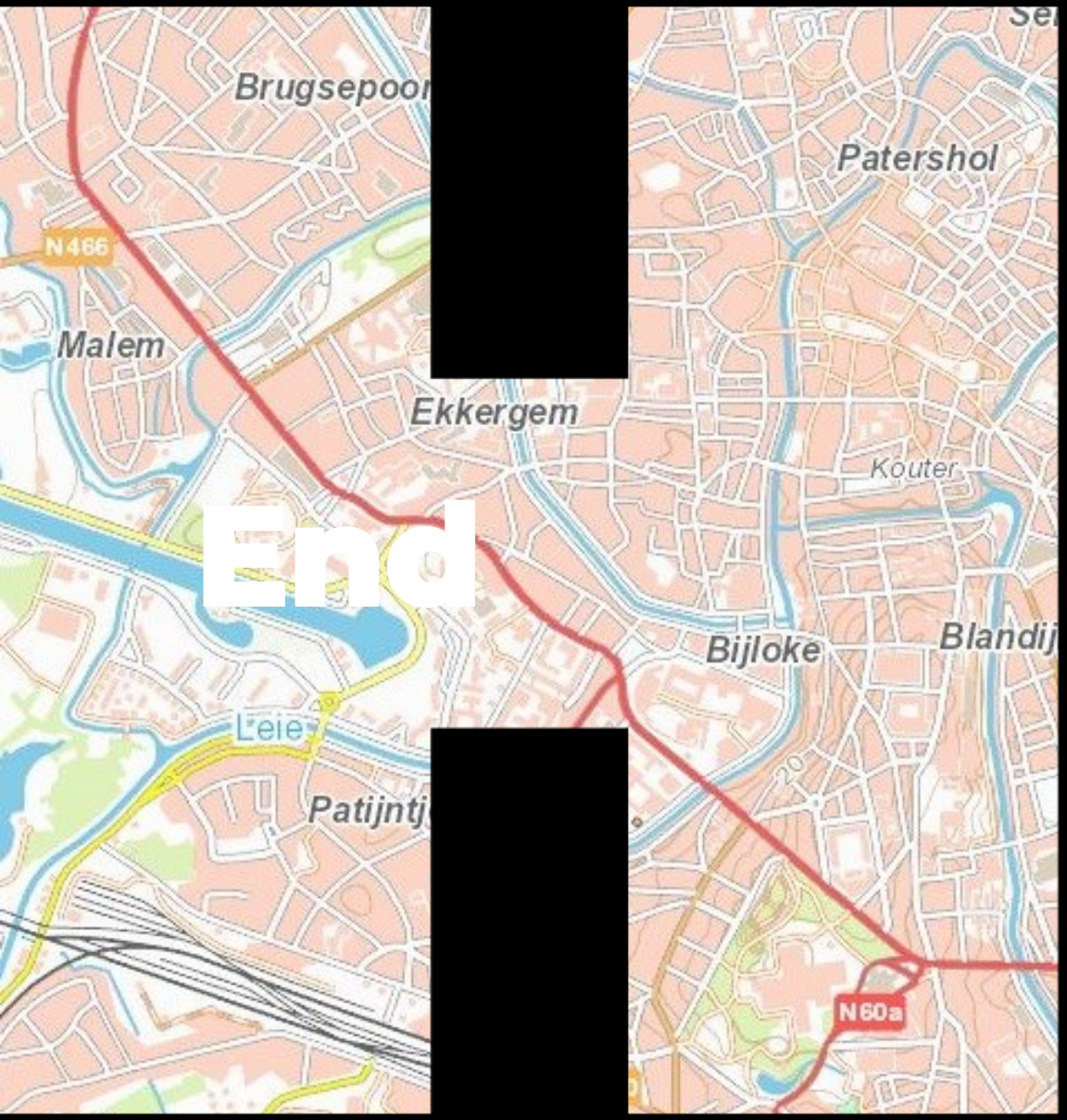

Finding data

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