



URI strategy of INSPIRE

Linked Open Data Pilot – Kick-Off

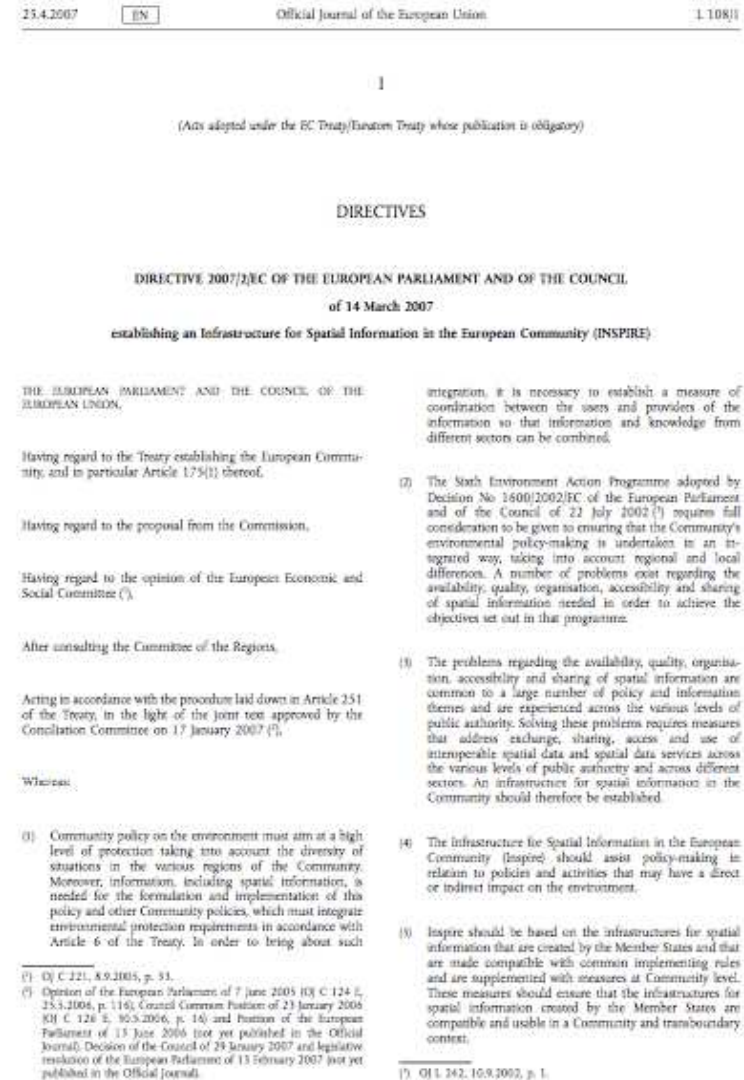
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INSPIRE Drafting Team Data Specifications (Chair)

What is INSPIRE?

- A European Directive
- INSPIRE = Infrastructure for Spatial Information in Europe
- Aims to establish a EU-wide spatial data infrastructure (SDI)
 - Obligations on public sector organisations
 - To share spatial information relevant for the environment
 - To assist policy-making across boundaries
- In force since May 2007
- Implementation ongoing
- <http://inspire.ec.europa.eu/>



Identifiers in INSPIRE

Resources:

- **Spatial Objects** (abstract representations of real-world phenomena)
 - Spatial Data Sets
- **Other Registered Items**
 - Vocabularies and Terms
 - Coordinate Reference Systems
 - Portrayal Rules and Symbols
 - etc.
- **Spatial Data Services**

Main purpose:

- Unambiguously trace resources and their lifecycle
- Support reuse by providing access to these resources

Types of identifiers in spatial data sets



thematic identifier

identifier used to identify a real-world phenomenon

**national cadastral parcel
reference:**

07012302802550001

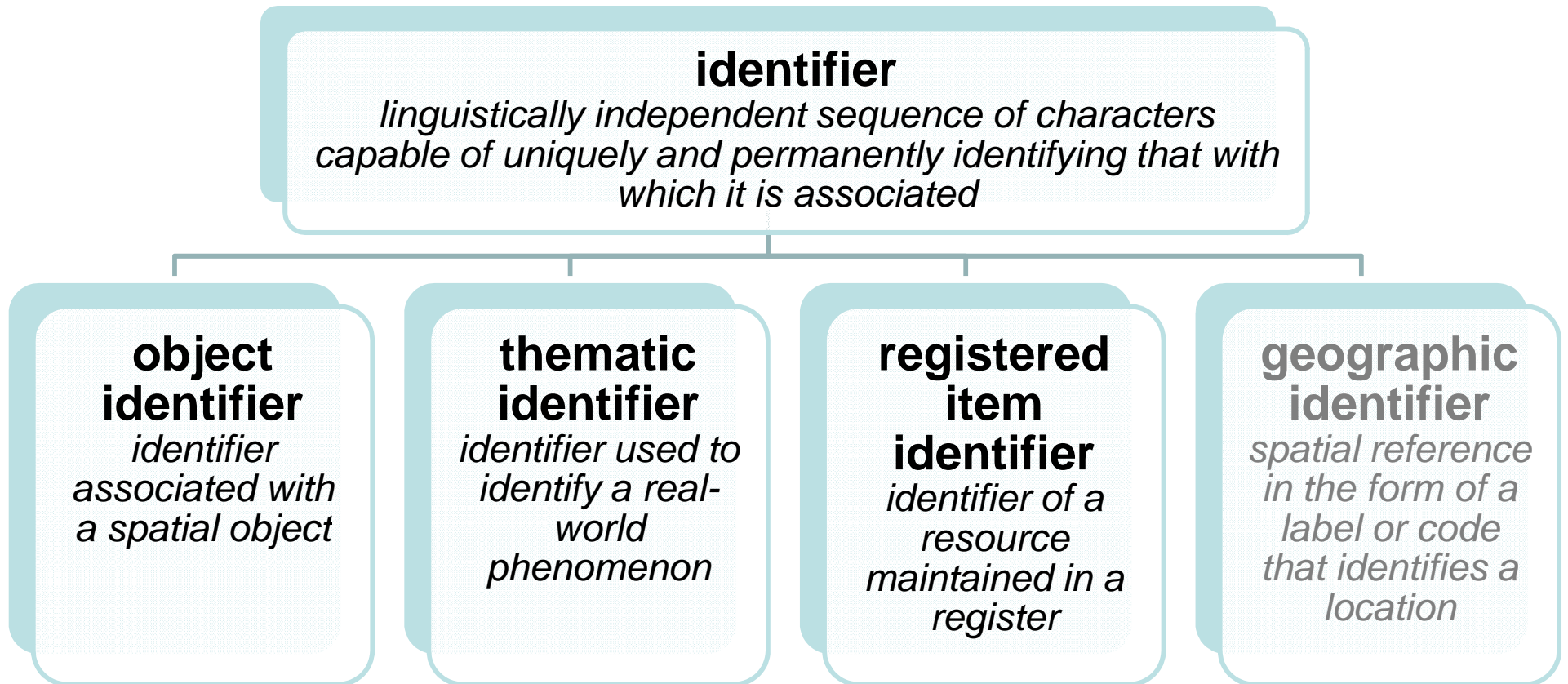
Types of identifiers in spatial data sets



object identifier
*identifier associated with a
spatial object*

identifier of the parcel
feature in the cadastral
information system:
DERPAL00ah5ztj3js2

Types of identifiers related to spatial data



From regulation to implementation

- Identifiers in the legal framework have been defined independent of an implementation platform as
 - a namespace and
 - a local identifier in the namespace
- In practice, INSPIRE is implemented as part of the web and the implementation of INSPIRE should follow the rules of the web

The web and identifiers

- In the web, http URIs have become the primary way to reference information resources
- These http URIs must be stable
- There is an expectation that using the URI information about the identified resource can be retrieved using HTTP

Implications

- Need to map all identifiers in INSPIRE to http URIs
- URIs must be independent of implementation details and should be short and mnemonic
- Member States, the Commission and other organisations assigning identifiers need to develop URI schemes to manage assignment of http URIs
- Typically this should be done with a wider scope than just spatial data
- Infrastructure needs to be set up and maintained to resolve http URIs and return information resources

Illustration

Real World

Abstraction

INSPIRE
Spatial Object

Description

INSPIRE
Representation (GML)

Cadastral Parcel



<http://kataster.example.de/id/parcel/07/123/28/255-1>

CadastralParcel	
geometry	
cadastral reference	07012302802550001
identifier	http://location.example.de/so/AAA/DERPAL00ah5ztj3js2
area value	673.5 m ²
...	

```
<cp:CadastralParcel
  gml:id="DERPAL00ah5ztj3js2">
  <gml:identifier>
    http://location.example.de/so/
    AAA/DERPAL00ah5ztj3js2
  </gml:identifier>
  <cp:areaValue uom="m2">
    673.5
  </cp:areaValue>
  <cp:label>255/1</cp:label>
  <cp:nationalCadastralReference>
    07012302802550001
  </cp:nationalCadastralReference>
  <cp:geometry>
    <gml:Polygon>... </gml:Polygon>
  </cp:geometry>
  ...
</cp:CadastralParcel>
```

[http://xyz.de/doc/parcels?
...&ID=DERPAL00ah5ztj3js2](http://xyz.de/doc/parcels?&ID=DERPAL00ah5ztj3js2)
(Request to INSPIRE Download Service)

INSPIRE

Object identifiers as http URIs

- The URI of the spatial object
<http://location.example.de/so/AAA/DERPAL00ah5ztj3js2>
- follows a simple pattern in this example:
<http://location.example.de/so/{namespace}/{localid}>
- Retrieving this URI would redirect – using standard HTTP – to an INSPIRE service that provides representations of the spatial object, e.g. in GML, JSON, HTML, RDF, etc.
- The identifier of the spatial object is stable and not affected by changes in the implementation / download services
- References to the spatial object use the stable http URI, not the URI provided by the download service

Identifiers of other shared resources

- Spatial objects reference a number of other resources that are maintained in registers and used consistently
- These resources are identified by URIs, too
- Example: The coordinate reference system of a geometry

<http://www.opengis.net/def/crs/EPSG/0/4258>

- Example: A code list value

<http://inspire.ec.europa.eu/codelist/countrycode/nl>

Status



- Stable http URIs as identifiers for spatial objects and spatial data sets are currently **recommendations**
- Additional discussions between Member States and the Commission required to develop an **agreed URI strategy**
- Stable http URIs for centrally managed, shared resources are being defined

Relevance for Linked Open Data

- To provide location context to "business information" in a way that can be used in web/mobile applications
 - property rights associated with a parcel
 - timetable of a railway station
 - statistical information for a statistical unit
 - materials used at an industrial facility,
 - etc.
- Typically a RDF encoding of spatial objects will be useful to support Linked Open Data applications