

23-24 April 2024

EuroSDR workshop on Historical and time-stamped data for SDGs

Requirement analysis from the UN-GGIM: Europe Working Group on core data

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Introduction



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UN-GGIM (United Nations initiative on Global Geospatial Information Management)

- General objective
 - Coordination forum between Member States on geographic Information
 - International governance on geographic information
 - **for Sustainable Development Goals**

Unleashing the power of 'Where'



... to make the world a better place.



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- Organisation

- Activities at global level global
 - Geodetic framework
 - Cadastre – land administration
 - Institutional arrangements
 - Global fundamental data
 -
- Activities at regional level



Core data (chaired by France)

Data integration & SDG indicators (chaired by Germany)



Core data definition [WG A]

- Core data are priority data
 - Geospatial data
 - The most useful to **analyse, achieve and monitor** the SDGs
 - Either directly or indirectly

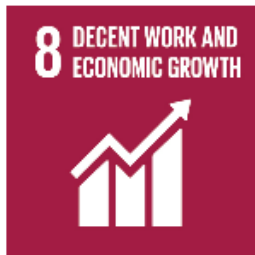


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Sustainable Development Goals



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Objectives of the Working Group on core data

- **Select core data themes**
- **For each theme, describe core data content**
 - minimum content to be available in each country
 - priorities for production of new data or data upgrade
 - recommendations for policy makers
 - on whole geographic Europe



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Comparison with INSPIRE



The INSPIRE big cheese
with lots of holes



Users begin to complain:
not so much to eat!



The core data cheese:
smaller but compact
and really filled



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Final list of selected core data themes

Annex I

Coordinate Reference Systems

Geographical Grid Systems

Geographical Names

Administrative Units

Addresses

Cadastral Parcels

Transport Networks

Hydrography

Protected Sites

Annex II

Elevation

Land Cover

OrthoImagery

Geology

Annex III

Statistical units

Buildings

Soil

Land use

Human health and safety

Utility and governmental services

Environmental monitoring facilities

Production and industrial facilities

Agricultural and aquaculture facilities

Population distribution - demography

Area management/restriction/regulation

Natural risk zones

Atmospheric conditions

Meteorological geographical features

Oceanographic geographical features

Sea regions

Bio-geographical regions

Habitats and biotopes

Species distribution

Energy resources

Mineral resources

Step 2: Recommendations for content

- For each selected theme, recommendations about:
 - Levels of detail
 - Geographic coverage
 - Data model
 - Quality requirements

Temporal aspects
included



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Step 2 : Recommendations for content

Various levels of recommendations

- Production purpose:
 - **Core recommendation**: priority 1, necessary and feasible, short term action
 - **Good practice**: priority 2, add value to core data, to be encouraged
- Research and innovation
 - **Considerations for future** : long term potential actions



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Temporal aspects in core data



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Core recommendation

Priority 1 is to capture current data

Priority is on the provision of valid, current, as recent as possible data and in regular update frequency

- From continuous (ex: CP) to 6 years (ex: HY)
- Generally 1 year (vector) and 3 years (coverage)



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Good practice

Priority 2 is to keep available for users data already produced during past years

For vector data

- Use INSPIRE mechanisms (life-cycle attributes)
- Incremental update

For coverage data

- Keep previous versions available (snapshot)



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Production of historical data

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Habitats and biotopes

Species distribution

Energy resources

Miscellaneous

Administrative and statistical units

Concerned requirement :

- One of the purposes of statistics is to show the trends on a given topic through time.
- To understand and describe these trends, statisticians use time series, i.e. statistic data related to many years
- Geographic data related to these statistical units should be available for the past years.



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Administrative and statistical units

Issue:

– Most of statistical units are based on administrative units

- Territorial statistic units
- Urban areas
- Enumeration districts

Grouping and/or
subdivision of AU

– **But AU change over time**



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Administrative and statistical units

Potential solutions

- Enabling the geographic representation of old statistical data
 - **Production of GIS data about related (old) AU and SU**
- Representing statistical data of several years on same geographic features => to enable easiest comparisons
 - Inform users : precise time-tracking, document evolutions (e.g. scissions)
 - Develop relevant procedures to transfer statistical data from SU (t1) to SU (t2) or vice-versa



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Administrative and statistical units

Potential solutions

- Get rid of administrative units :
 - Point-based statistic capture (AD, CP, BU) for internal production data
 - Aggregation done on-demand on any kind of SU for data delivery
 - Promotion of (persistent) geographical grids to display the results

**Solution
for future**



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Hydrography

Similar situation:

- Linking time series of monitoring data on water
- **Need for historical data on HY**



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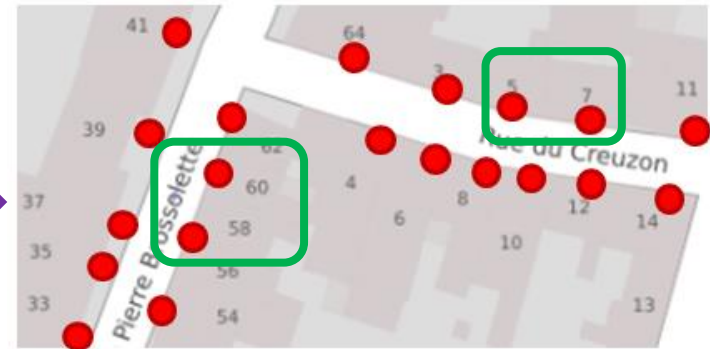


Addresses

Concerned requirement:

- Geocoding

Feature of interest		
Address	Name	Attribute 1
5, Rue du Creuzon – Paris	MARTIN	xxx
7, Rue du Creuzon – Paris	DUPONT	xxx
58, Rue Pierre Brossolette – Paris	DURAND	xxx
60, Rue Pierre Brossolette – Paris	TARTEMPION	xxx



features of interest with their geographic position.

Textual list of features of interest with their address



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Addresses

Geocoding business registers; checking identity documents, etc

Issue :

- Many stakeholders have text only data on addresses
- Some of these **textual addresses may have been superseded**
- Need of GIS data on addresses at same date in the past



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Addresses

Potential solution:

- **Production of historical data on addresses**
- How far in the past ?
- Are the benefits worth the costs (AD is big data) ?



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Orthoimage

Concerned requirement :

- OI is main source for :
 - Topographic data : TN, HY, BU, etc
 - Land Cover and Land Use
- Historical data on OI would be quite useful to assess the evolution of derived features



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Orthoimage

Potential solutions :

- **Production of historical data on OI**
- Various strategies:
 - Exhaustive production of OI from old photos / only on-demand
 - Priority to old photos (that may be destroyed over time) or to relatively more recent ones (better quality)



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Land Cover

Concerned requirement:

- some SDG related policies may require to understand the **evolution of land cover** during a long period and not just from the last twenty or thirty years for which digital land cover data are available.



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Land Cover

Potential solution:

- **Production of historical data on LC**
- From old photographs or from historical maps
- Many difficulties both in georeferencing and in semantic interpretation



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Land Cover

Persistent challenge:

- Measuring LC evolution is easiest with data keeping same specifications
- But users also want better, finer data ... that become feasible due to technical progress
- **Place for research to help solving this issue.**



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Regulated or managed zones

Concerned requirement:

The extent of an AM is defined in legal text according to 3 main methods :

- a) By delimiting this extent as a feature in GIS and by referring to this (digital) feature in the legal text
- b) By defining the zone boundaries by a list of points with their coordinates in a given Coordinate Reference System
- c) **By describing in the text this extent according to background data (e.g. as a set of parcels or of administrative units, by its boundaries provided through a list of streets or of topographic limits)**



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Regulated or managed zones

Potential solutions:

- Production of historical data on background features
 - CP, AD, AU, AD, TN, HY
 - More generally Geographical Names
- Improving legal texts – removing ambiguities & references to features no longer existing



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Conclusions



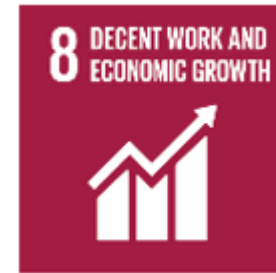
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What about SDGs?

- Most core themes are necessary for several SDGs
- **Land Cover and statistics are mainly useful to analyse and monitor SDGs (over time)**
- “Administrative themes” are necessary to **achieve the SDGs (operational phase)**



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What about historical data

- How far to go back in the past?
 - No accurate answer
 - But main requirement is about relatively recent data
 - data from 20th century
 - or even data after 1950



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Two main requirements for historical data

- To understand the evolution of territory across time
 - Themes SU- AU, OI and LC
 - Production of historical data is useful
 - But doesn't solve all issues (comparison may be difficult between data not having same geometry or specification)
- Historical data impacts current applications
 - Geocoding (theme AD)
 - Delimitation of AM (historical background data required)



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Topics for research

- Methods for production of historical data
- Methods for exploitation of historical data
 - Generally lower standard than today
 - Making comparison with today data not easy
- Cost-benefits analysis

Strong interest for knowledge exchange



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- For more information:

<http://un-ggim-europe.org/content/wg-a-core-data>

- Thanks for your attention



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