

Digitalisation of Urban Planning

***Updated from version prepared as presentation to
the Urban Agenda Digital Transition Partnership
Digitalisation of Urban Planning (Sept. 2017)***

The Raw Material of Urban Planning is Geospatial Data

80% of Public Data is Geospatial Data

BUT, until now...

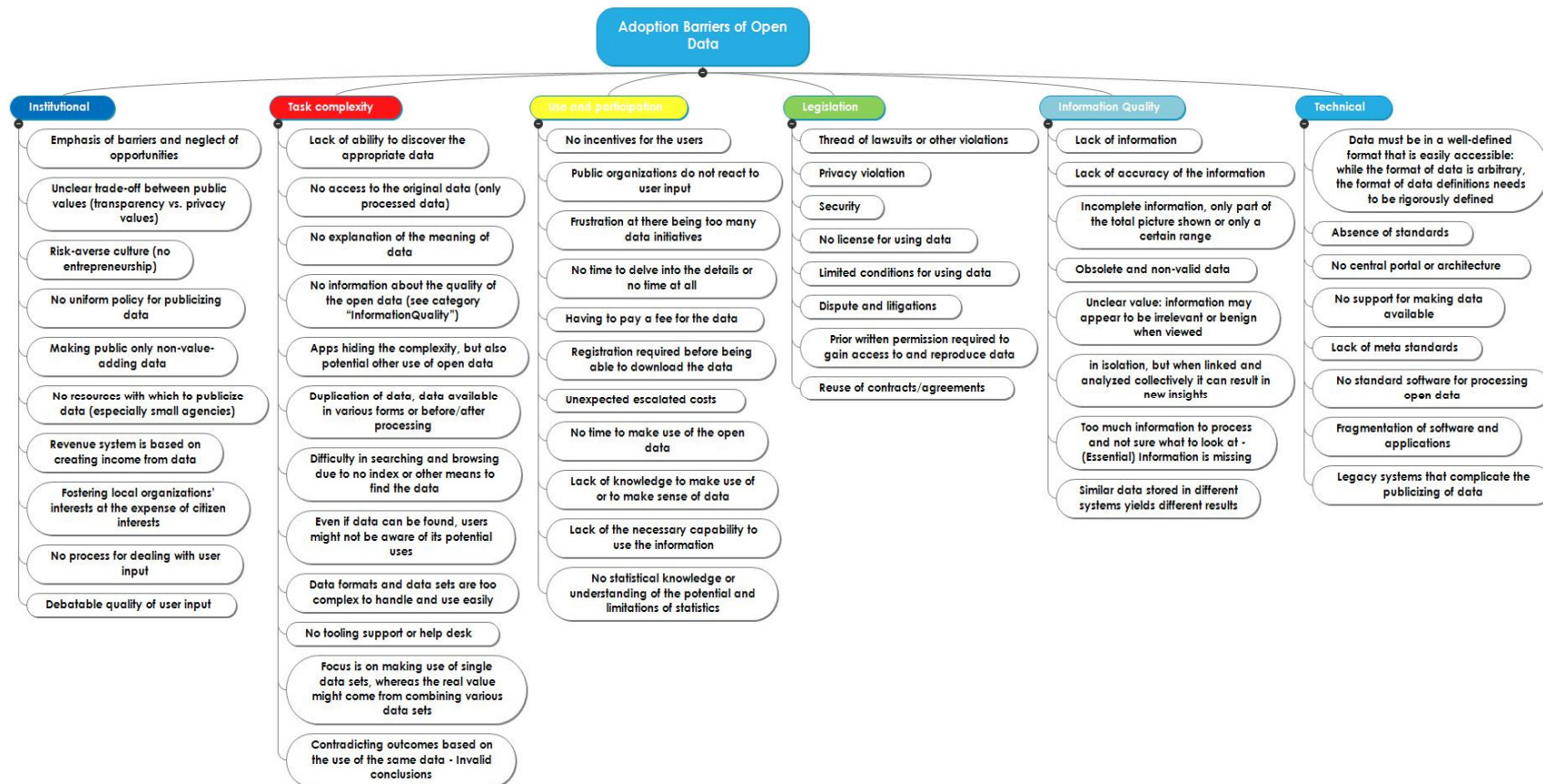
- *GIS involved expensive hardware and proprietary software with restricted license*
- *Relied on highly specialised GIS expertise only available to large cities/agencies or through contract*
- *Data was either not digital, incomplete, of unknown source, incompatible format, unreliable quality, legally restricted, not timely*
- *Expertise, time and resources consumed in data sourcing, cleaning, processing and much less on making sense of the information produced*

Most Significant Trend of the Last 5 Years For Local Authorities Planners

- GIS transition to Web-based GIS: much cheaper software solutions – less expertise required for use – less data storage on site.
- Growth in Geospatial Open Source Software, Open Data Repositories, Open Standards for Systems and Formats
- Computing power and Vizualisation processes and formats enable easy production and rendition of 3D on standard desktop
- Increasing access to and merging of dynamic and static sources through same processing platform
- New applications emerging
- Huge policy drive at EU and Global (UN) level to set up a Global Spatial Data Infrastructure

Typical Problems Faced by Digital Planners

Note: This example refers to open data but applies more generally



Source – Survey reported in [“Benefits, Adoption Barriers and Myths of Open Data and Open Government” 2012](#)

The Geospatial Data *Revolution..Happening Now*

WHO?

**A Geospatial Data Revolution is Underway and it is
Very much top-down driven**

UN->EU->National->Local?

Why the UN and Why now?

- *December 2015: Paris Agreement - Climate Change*
- *July 2016: Sustainable Development Goals - 2030 Agenda*
- *October 2016: Habitat III New Urban Agenda*

***All 3 set Policy Priorities requiring the global collection of Geospatial Evidence on
unprecedented scale***

ALSO bear in mind ...

***Core Mandate of the UN since its origin includes Population Census, Trade and Eco statistics,
Geographical Place-names standards. *More on that later..****

The Geospatial Data *Revolution..Happening Now*

WHAT?

Concrete Goal : Setting a Global Spatial Data Infrastructure

aiming at:

- *Digitally Mapping ALL of the world's population, physical assets and environmental features*
- *Generating and accessing live dynamic data on all movements of people, goods and environmental features (ex: weather/water) globally*

Involves (accelerated since 2015 an ongoing):

- *Major Physical infrastructure Investments: Satellites, Sensor Networks, Supercomputers*
- *Major expansion of globally agreed norms and standards for Data and Information (Definitions, Geocoding Collection Semantics, Metadata, interoperability etc..)*

The Geospatial Data *Revolution..Happening Now* *in Europe*

- *Especially since 2015*, major push towards a European Digital Spatial Infrastructure through the Convergence of Priorities for several policy instruments around the 'INSPIRE' ecosystem

EU' s immediate priorities:

- *EU level Completing Geospatial Data framework/infrastructure for mandatory public sector environmental reporting data at nat. and sub-nat levels (Initial reason for INSPIRE) – framework/infrastructure to be extended to other public sector geospatial data in related thematic areas such as Energy, Buildings*
- *Other programmes and policies feed from and into the INSPIRE ecosystem: Copernicus Satellite Data, eGovernment Action Plan, Open data, ISA2 Public Sector sharing and reuse of data and solutions...*

The Geospatial Data *Revolution.. EU LEVEL* *ECOSYSTEM (bodies, associations and lobbies)*



Prepared for the Urban Agenda Digital Transition Partnership Meeting of 6-8 September 2017, Helsingborg, SWEDEN

The Geospatial Data *Revolution.. Global Ecosystem (Agreed GEOSS data contributors)*



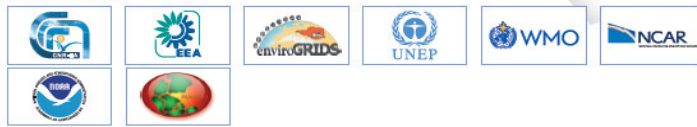
Updated on 19/10/2017

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The Geospatial Data *Revolution.. Global Ecosystem (Agreed GEOSS data contributors)*

International Data Providers*

Environment



Disasters



Biodiversity



Energy



Food & Security



Satellites



Water



Regional and National Providers*

Chile



China



France



Germany



India



Italy



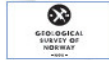
Japan



New Zealand



Norway



Russia



South Africa



Spain



Switzerland



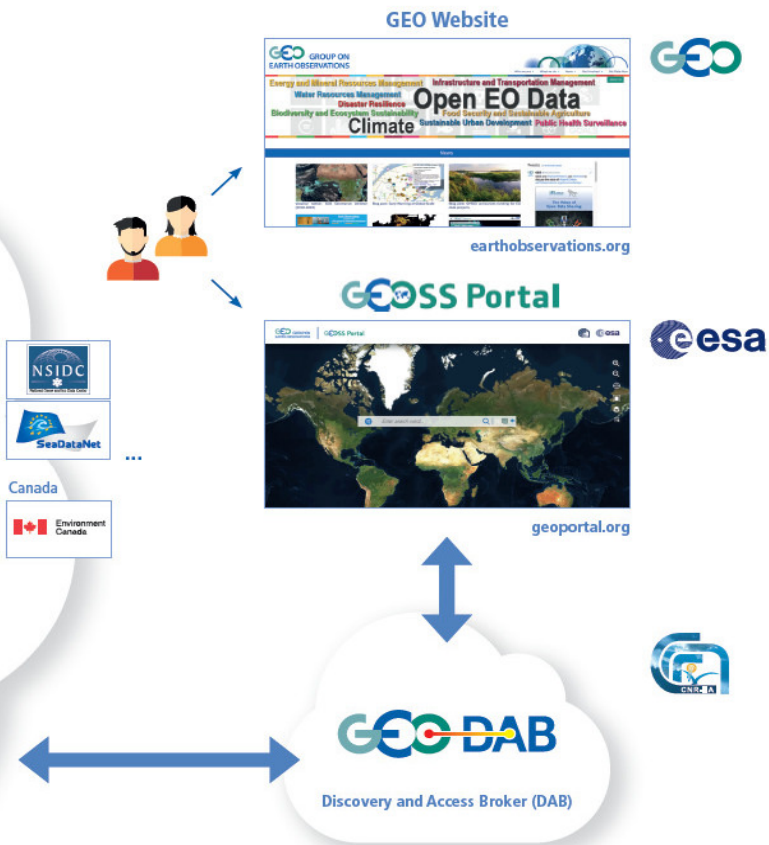
Private Sector Providers



* a selection of more than 150 providers

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Part 2

State of Play

What is happening

What is not (yet) happening

What is happening – 1 of 2

- *Over the coming 5 to 10 years, an unprecedented amount of geospatial and geocoded data will become available about YOUR municipality, its population, economy, physical and natural environment...*
 - ***Global Census 2021***
 - *Extremely detailed information on population to be digitally geolocated and geocoded comprehensively for the first time at EU level (goal of Geostat 3 initiative) –*
 - *see slides on EU - Mandatory Census Data – 2008 Regulation*
 - ***ESA Copernicus Satellite Data***
 - *historical and ongoing satellite observations for a range of topics Water, Weather, Land use.*
 - ***Geodata remotely accessible from sensor networks in Transport, Energy and Mobile Communication***
 - *These are expected to explode in volume as the enabling conditions (technical standards, legal frameworks) are being developed at EU and Global level*

What is happening – 2 of 2

- *Municipalities - and municipal digital planners remain, collectively, the **largest source/producers and primary users of geospatial data.***
- *At EU level an **extensive amount of projects are funded** that develop one or more elements of future digital planning applications and spatial data resources*
 - *Under H2020 alone, more than 200 such projects are currently ongoing, many involving local authorities as direct participants*
- *At EU level, there are extensive efforts and many initiatives ongoing around digitalizing, structuring, coordinating and networking this – mostly public-sector sourced -geospatial data*
 - *done mostly through coordination with national level authorities and agencies, and academic/industry experts networks (**Inspire, Copernicus, ISA, eGovernment**)*
- *EU level initiatives are well integrated with the largest **UN led standards-setting initiatives** (GSDI, GGIM, SDG, Habitat III, Population Statistics)*

What is not happening (yet)

- *Despite the many initiatives at EU level around geospatial data, still missing is a comprehensive EU funded programme/initiative to **systematically inform, train. equip the planning teams of EU cities**, especially the 90% small and medium size cities.*
- ***Results of the hundreds of EU funded projects** (H2020, mostly but not only) are spread around as many websites and very **difficult to compare or reuse** for municipalities.*
- *Legal and technical efforts to facilitate the access and use of public-sector data by private commercial entities are not matched by similar efforts to **facilitate the access and use of private commercial data by public-sector entities***

What is not happening (yet)

- *In the many ongoing EU level coordination networks around geospatial data, it appears that municipalities and municipal urban planners **not involved/represented** in any comprehensive and active way, except on individual ad-hoc basis or peripherally through EU professional associations of planners, for ex.*
- *The published goals and activities of ongoing EU level programmes (INSPIRE, ISA, Copernicus etc..and sub-programmes) appear to be missing **any explicit reference of a role for municipalities and municipal urban planners** in those programmes.*

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Part 3

Background

Full Bibliographic Resources on Zotero

<https://www.zotero.org/gallelegars/items/collectionKey/35CB7HMZ>

The screenshot shows the Zotero website interface. At the top, the Zotero logo is displayed in a large, bold font. Below the logo is a navigation bar with the following links: Home, Groups, People, Documentation, Forums, and Get Involved. The 'People' link is currently selected. Below the navigation bar, a breadcrumb trail reads: Home > People > Gaelle Le Gars > Library. On the left side, there is a sidebar menu for the 'Library' section. The 'Library' folder is expanded, showing a sub-folder named 'Background-Helsingborg' with a date of '11/09/2017'. Below this, several other folders are listed: Applications, EU, Important or useful reports, Standardisation, Statistics & Indicators, and United Nations. On the right side, a list of items is displayed under the heading 'Title'. The list contains five items, each with a checkbox and a document icon:

- \$10 Billion Geographic Information System (GIS) Market by Co...
- 3D data | Siradel
- 67 Important GIS Applications and Uses
- 80+ Startups Making Cities Smarter Across Traffic, Waste, En...
- A collective human mobility analysis method based on data us...

United Nations – References – 1 of 2

United Nation - Data Revolution Report (2014) United Nations.

<http://www.undatarevolution.org/report/>

UN Data Revolution United Nations Initiatives on the data revolution for post-2015 - . <http://www.undatarevolution.org/catalog/>

UN E-Government Survey 2016 (2016). <https://publicadministration.un.org/egovkb/en-us/reports/un-e-government-survey-2016>

UN GGIM _ A Guide to the Role of Standards in Geospatial Information Management (2015)

<http://ggim.un.org/docs/Standards%20Guide%20for%20UNGGIM%20-%20Final.pdf>

UN-GGIM Background Document on Proposal for a Global Statistical Geospatial Framework (2016) UN GGIM.

<http://ggim.un.org/docs/meetings/GGIM6/Background-Paper-Proposal-for-a-global-statistical-geospatial-framework.pdf>

United Nations – References – 2 of 2

GGIM | United Nations Committee of Experts on Global Geospatial Information Management (2017). <http://ggim.un.org/>

UN-GGIM PSN United Nations Committee of Experts on Global Geospatial Information Management - Private Sector Network <http://unggim-psn.org/preamble.html>

UN GGIM Academic Network - <http://unggim.academicnetwork.org/activities/>

Sustainable cities and human settlements -Sustainable Development Knowledge Platform
<https://sustainabledevelopment.un.org/topics/sustainablecities>

GSDI - NSDI Index (2017). <http://gsdiassociation.org/index.php/projects/nsdi-index.html>

GSDI ASSOCIATION (2017) GSDI - Towards a Global NSDI Index Project.
<http://gsdiassociation.org/index.php/projects/nsdi-index/725-towards-a-global-nsdi-index-project.html>

Related EU LEVEL INITIATIVES Lead Services at EC level

- *INSPIRE (Lead: DG ENVIRONMENT -JRC, Also REGIO, DIGIT, CONNECT, RTD, EUROSTAT, JRC, GROW, ENERGY, MOVE)*
- *GEOSTAT (Lead: Eurostat)*
- *COPERNICUS (Lead: ESA, Commission: RTD, CONNECT, GROW)*
- *H2020 including Smart-Cities (Lead: CONNECT, ENERGY, MOVE, Also: RTD, GROW, ENVIRONMENT)*
- *Digital Single Market – including eGovernment and CEF (Lead: CONNECT Also: DIGIT)*
- *ISA including EULF and EIF (Lead: DIGIT, Also: CONNECT)*
- *EPSON (Lead: REGIO)*

All links to relevant sites and documents on

<https://www.zotero.org/gaellelegars/items/collectionKey/AJZYJYNA>

EU - Mandatory Census Data – 2008 Regulation

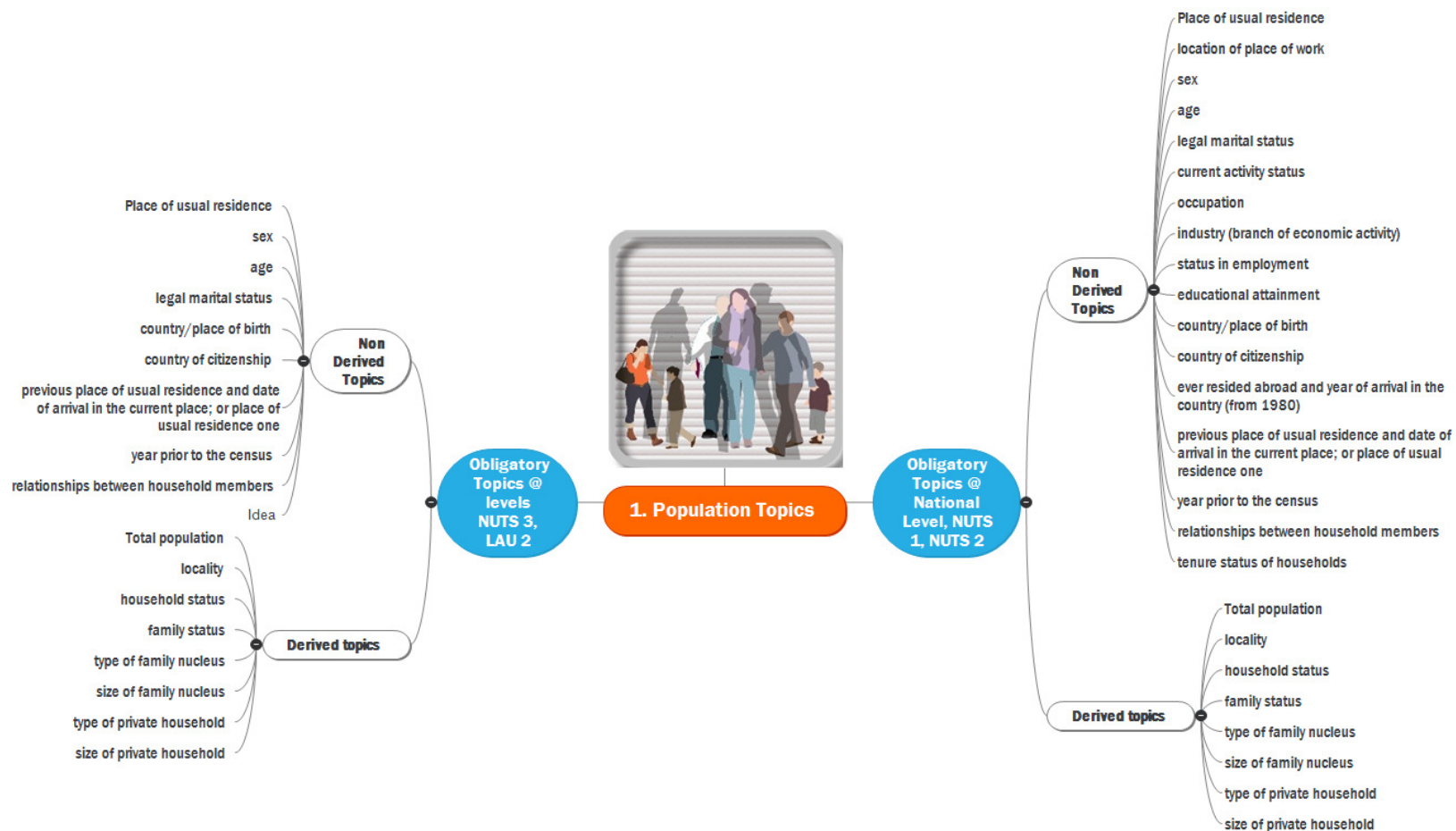
**REGULATION (EC) No 763/2008 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 9 July 2008 on population and housing censuses - [OJ L 218/14](#)
[13.08. 2008](#)**

Article 3 - Data submission - Member States shall submit to the Commission (Eurostat) data on the population covering determined demographic, social and economic characteristics of persons, families and households, as well as on housing at a national, regional and local level, as set out in the Annex. (see next slides)

Article 5 - Data transmission - 5. Member States shall transmit to the Commission (Eurostat) the validated data and metadata in electronic form. The Commission (Eurostat) shall adopt the appropriate technical format to be used for the transmission of the required data, in accordance with the regulatory procedure referred to in Article 8(2).

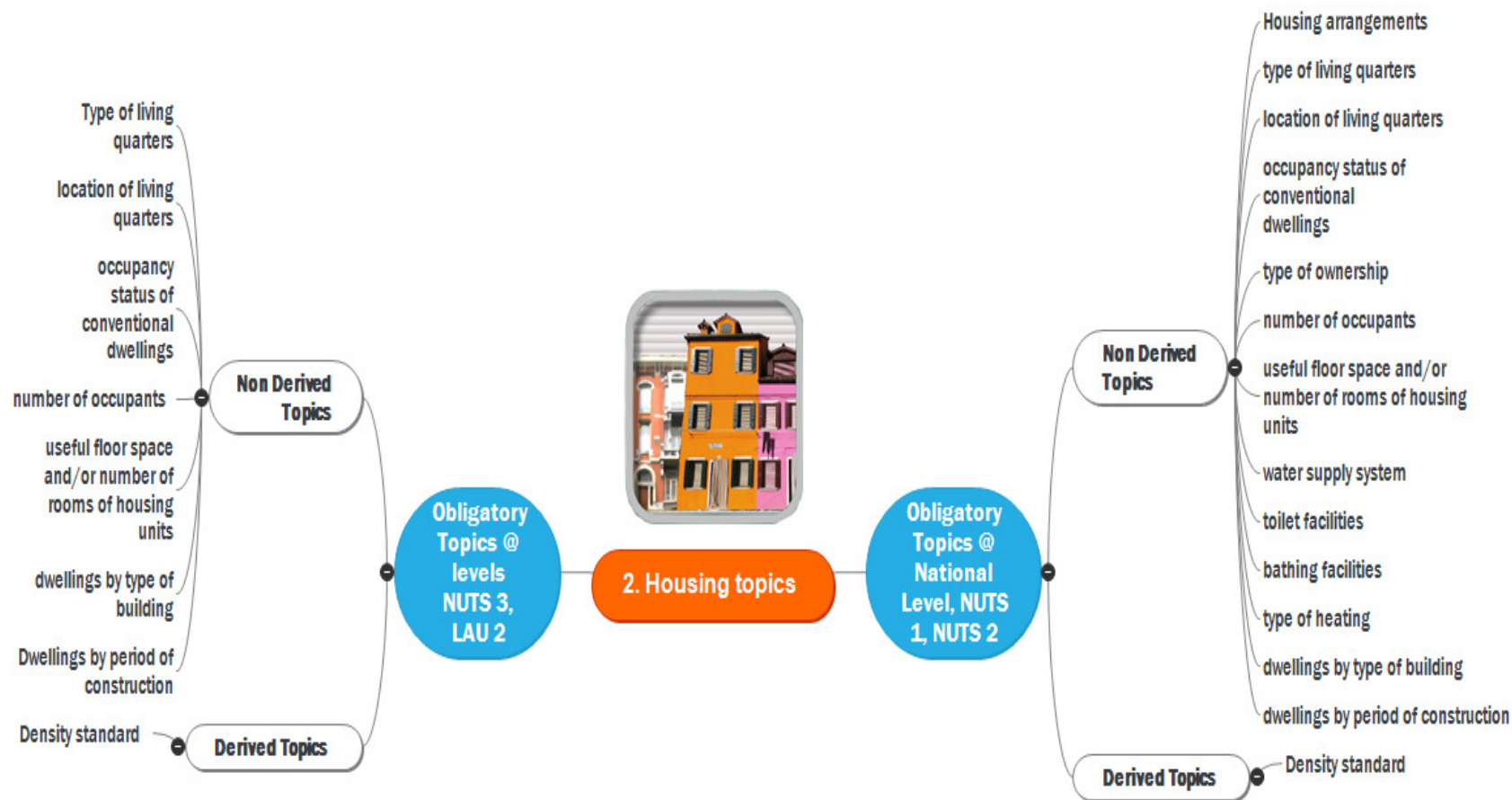
Mandatory Census Data – Population

List from Annex to 2008 Regulation



Mandatory Census Data – Housing

List from Annex to 2008 Regulation



INSPIRE Links to main parts

[INSPIRE knowledge base](#)

[INSPIRE Legislation](#)

[INSPIRE Library](#)

[INSPIRE Themes](#)

[INSPIRE Thematic clusters](#)

and especially the geoportal:

<http://inspire-geoportal.ec.europa.eu/>



ISA2



European Union Location Framework (EULF)

- *The European Union Location Framework (EULF) Blueprint is framework of guidance for a wide audience to implement actions that **foster cross-sector and cross-border interoperability and use of location information in digital public services, building on INSPIRE.***
- *The Blueprint has been developed as part of a wider programme of ICT interoperability solutions, developed in the ISA2 programme, and the predecessor ISA programme.*
- *It is complemented by **other geospatial actions in ISA/ISA2 that promote and support the wide application of INSPIRE in e-Government.***

New Applications: Examples 1 of 2

- 55. Infrastructure Development:** *Advancement and availability of technology has set a new mark for professionals in the infrastructure development area. Now more and more professionals are seeking help of these technologically smart and improved information systems like GIS for infrastructure development. Each and every phase of infrastructure life cycle is greatly affected and enhanced by the enrollment of GIS.*
- 56. Coastal Development and Management:** *The coastal zone represents varied and highly productive ecosystem such as mangrove, coral reefs, sea grasses and sand dunes. GIS could be generating data required for macro and micro level planning of coastal zone management. GIS could be used in creating baseline inventory of mapping and monitoring coastal resources, selecting sites for brackish water aquaculture, studying coastal land forms.*
- 57. Crime Analysis:** *GIS is a necessary tool for crime mapping in law enforcement agencies worldwide. Crime mapping is a key component of crime analysis. Satellite images can display important information about criminal activities. The efficiency and the speed of the GIS analysis will increase the capabilities of crime fighting.*

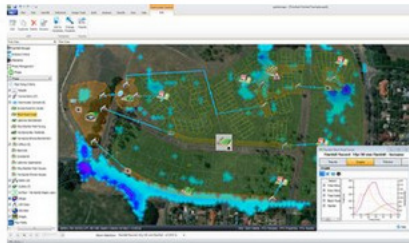
Randomly picked from the must-read blog-post listing 64!

- **“67 Important GIS Applications and Uses”**
<http://grindgis.com/blog/gis-applications-uses> **2015-06-14**

New Applications: Examples 2 of 2

Urban Stormwater System software

Related terms for "urban stormwater system": [stormwater software](#) , [stormwater system software](#) ,



Premium

XPDRAINAGE - Automated Stormwater Design & Sizing Software

XPDRAINAGE is an Automated Stormwater Design & Sizing Software program that allows stormwater designers to save time in the overall workflow, have confidence in their work, and speed the approval process.



Premium

XPSTORM - Integrated 1D/2D Stormwater and Floodplain Model

Use XPSTORM for fully integrated hydrologic and hydraulic stormwater and floodplain modelling, from cloud to ocean. XPSTORM is a versatile software package for dynamic modelling of urban stormwater systems, river systems and floodplains including ponds, rivers, lakes and interaction with groundwater. This

UPDATE...

EU programmes funding opportunities: Competitive Grants

<http://ec.europa.eu/research/participants/portal/desktop/en/home.html>

Calls are [here](#)

Keep an eye on:

Census 2021 is the date of the next Global Population Census and the goal is to have all that data digitalised and [geocoded to the 1km² grid](#)

Reform of the e-privacy directive <https://epthinktank.eu/2017/09/07/reform-of-the-e-privacy-directive-eu-legislation-in-progress/>

<https://epthinktank.eu/2017/10/09/contracts-for-supply-of-digital-content-to-consumers-eu-legislation-in-progress/>

<https://epthinktank.eu/2017/08/02/rights-for-consumers-of-digital-content-what-is-europe-doing-for-its-citizens/>

<https://epthinktank.eu/2017/05/16/contracts-for-the-supply-of-digital-content-and-personal-data-protection/>

