### **UN-GGIM & UN SDGs** better integration of geospatial information and statistics to support the UN SDG monitoring

Pier-Giorgio Zaccheddu, "International affairs" @ BKG



UNITED NATIONS COMMITEE OF EXPERTS ON GLOBAL GEOSPATIAL INFORMATION MANAGEMENT



## Content

- Connecting geospatial and statistical communities

   "Building bridges"
- UN Sustainable Development Goals (UN SDGs) Agenda 2030
- UN-GGIM What's it all about?
- UN-GGIM: Europe Just another European body?

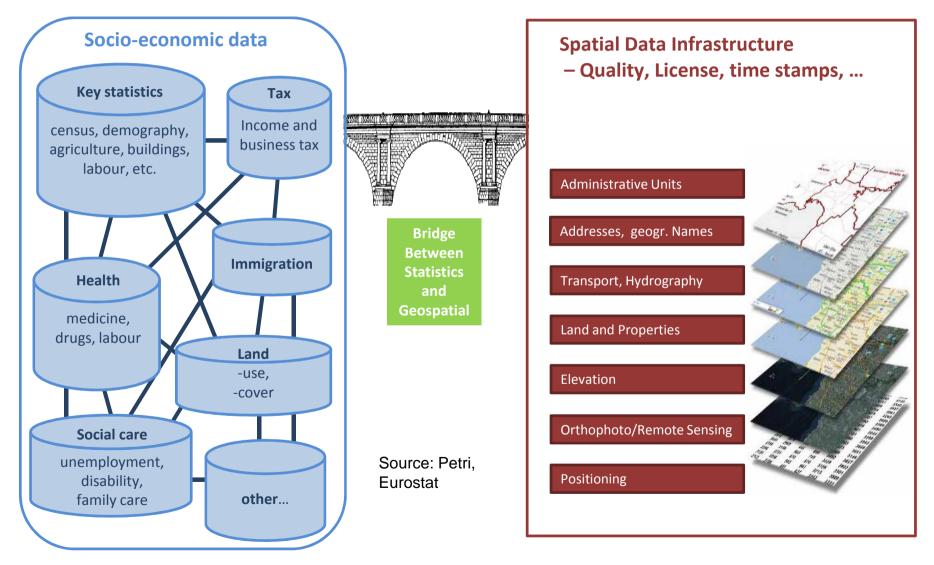




# **Connecting geospatial and statistical communities**

### **Statistical Community**

### **Geo Community**



### **Connecting geospatial and statistical communities** --- "A Data Revolution" ---

"Data are the lifeblood of decision-making and the raw material for accountability. Without high-quality data providing the right information on the right things at the right time; designing, monitoring and evaluating effective policies becomes almost impossible."

A World that Counts, UN Secretary-General's Independent Expert Advisory Group on a Data Revolution for Sustainable Development

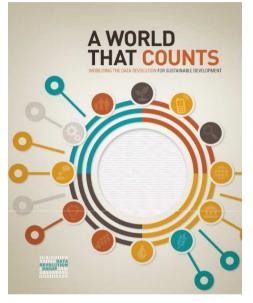
The report highlights two big global challenges for the current state of data:

- The challenge of invisibility
- The challenge of inequality

http://www.undatarevolution.org/wp-content/uploads/2014/12/A-World-That-Counts2.pdf



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## **Connecting geospatial and statistical communities** --- ESS Vision 2020 ---

- "ESS Vision 2020" is a strategic document on the challenges that official statistics is facing in building the future for European statistics.
- Who is the catalyst and driver that can connect the geospatial and statistical communities together at regional and global levels, addressing the "data revolution" challenges?







# Connecting geospatial and statistical communities --- 2021 Round of Censuses ---

• "... undertaking a census can provide a catalyst for the statistical and mapping agencies to work together to the benefit of both agencies and the community. Even more importantly and at both the global and regional levels there is a continuing initiative to ensure a complete integration of statistical and geospatial information as a critical piece of national systems for providing comprehensive overview of many social, economic and environmental phenomena."

### Principles and Recommendations for Population and Housing Censuses: the 2020 Round Rev 3, March 2015

Statistical Commission

### The 2021 round of censuses is an opportunity to address this issue:

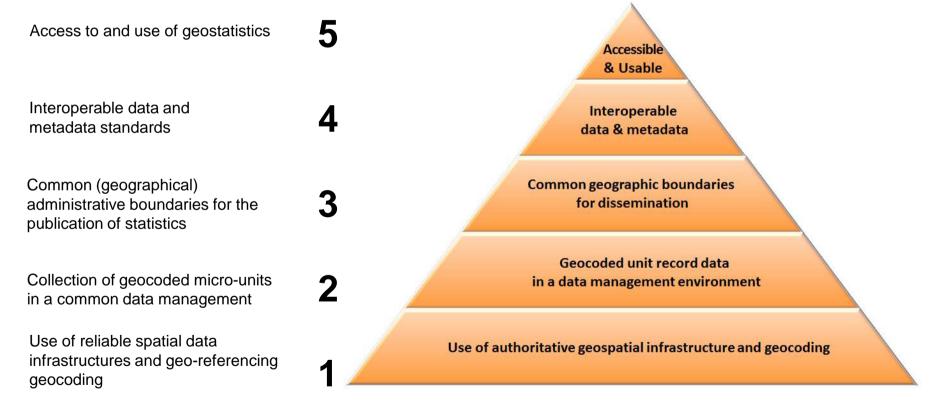
- by collecting statistical and geospatial data at the same time
- collecting and geocoding at detailed capture levels of geography and aggregating to higher levels, geocoding and grid statistics
- global statistical and geospatial framework





## **Connecting geospatial and statistical communities** --- Statistical Geospatial Framework (SGF)

UN Expert Group on the integration of statistics and geospatial info. (UN EG-ISGI)





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All the states

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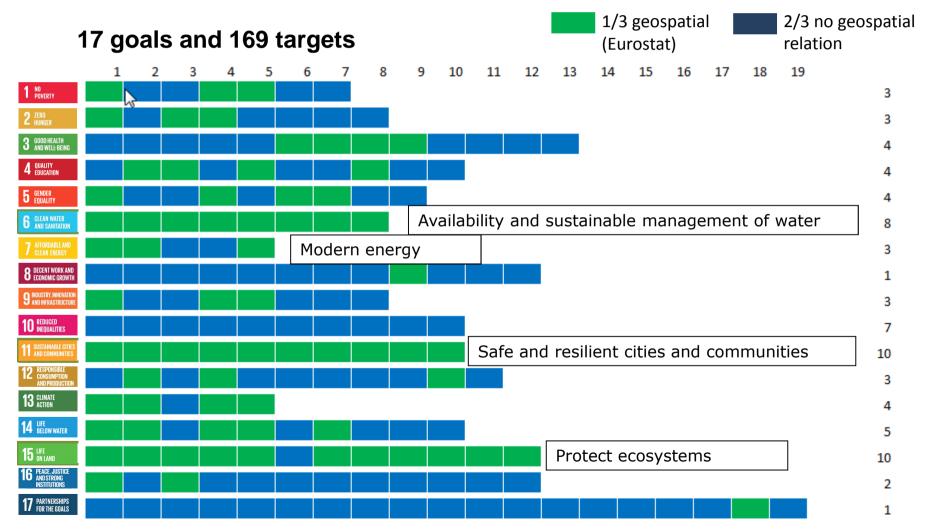
**SUSTAINABLE** DEVELOPMEN





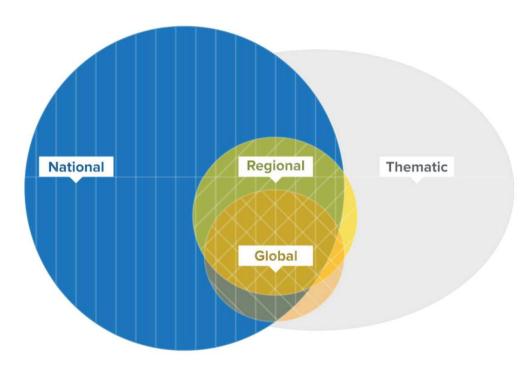
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Source: Eurostat





Global monitoring:

- Each target (169) shall be measured → at least 1 indicator/target
- Global indicators to be measured by all Members States
- Additionally regional and national indicators
- Predominantly taken from official data
- Status # 231 indicators:
  - 40% negotiated (calculation possible)
  - 30% to be adapted
  - 10% calculation not yet possible
  - 20% to be determined





Water scarcity, poor water quality and inadequate sanitation negatively impact food security, livelihood choices and educational opportunities for poor families across the world. Drought afflicts some of the world's poorest countries, worsening hunger and malnutrition.

By 2050, at least one in four people is likely to live in a country affected by chronic or recurring shortages of fresh water.



Source: UN







- 6.1: By 2030, achieve universal and equitable access to safe and affordable drinking water for all
- [...]
- 6.5: By 2030, implement integrated water resources management at all levels, including through transboundary cooperation as appropriate
- 6.6: By 2020, protect and restore water-related ecosystems, including mountains, forests, wetlands, rivers, aquifers and lakes
- [...]

Source: UN







 6.6: By 2020, protect and restore water-related ecosystems, including mountains, forests, wetlands, rivers, aquifers and lakes

Proposal indicator 6.6.1:

- *"Percentage of change in the extent of water-related ecosystems over time*"
- $\rightarrow$  indicator needs geospatial data for measurement

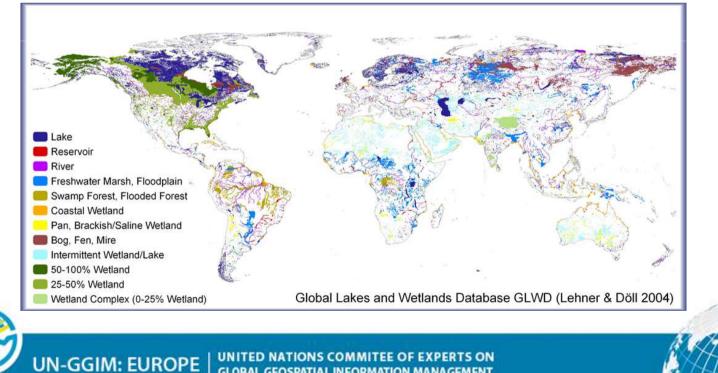
How can geospatial data support the analysis for the measurement?

- Identify catchment areas, lakes, rivers, basins, and water bodies
- Identify transboundary water resources
- Identify proximity to urban settlements
- Monitor the changes in the regions





- 6.6: By 2020, protect and restore water-related ecosystems, including mountains, forests, wetlands, rivers, aquifers and lakes
- more than 20 global and regional data sets exist already...





### Examples: geospatial data can support the indicator measurement

2 ZERO HUNGER	Indicator 2.4.1:	<ul> <li>Percentage of agricultural area under sustainable agricultural practices</li> <li>Denominator: Agricultural Area = sum of arable land + permanent crops + permanent meadows and pastures (FAOSTAT)</li> <li>Numerator: Land areas under productive and sustainable agricultural practices are those where indicators selected across the environmental, economic and social dimensions reach certain predefined values</li> </ul>
6 CLEAN WATER AND SANITATION	Indicator 6.5.2: Indicator 6.6.1:	Proportion of transboundary basin area with an operational arrangement for water cooperation Change in the extent of water-related ecosystems over time
15 LIFE ON LAND	Indicator 15.1.1: Indicator 15.3.1: Indicator 15.4.2:	Forest area as a proportion of total land area Proportion of land that is degraded over total land area Mountain Green Cover Index
UN-GGIM: E		Spaceflightnow.com/soyuz/vs07/images/ http://www.d-copernicus.de/



### Possible conflicts of interest for the monitoring and reporting...

### Competition of different actors

concerning the definition of methods, coordination

**Competition of different analysis levels** global vs. national vs. regional

**Competition of available geospatial data** remote sensing data vs. In-situ (geospatial reference vs. thematic)

**Competition of different analysis methods** for different resolution levels / scales

Information exchange and coordination needed between organisations, working groups (national, European)





There are still some questions to be answered...

At which time the indicators are consolidated and approved?

Who is in charge nationally to consolidate the information for the Members States?

Which national ministry will be in charge for the coordination?

Which national organization collects and submits the reports to the UN?

Which organisation validates the information compiled for the UN?





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## **UN geospatial activities**



UN-GGIM: EUROPE

UNITED NATIONS COMMITEE OF EXPERTS ON GLOBAL GEOSPATIAL INFORMATION MANAGEMENT

### **Geospatial Information**

is associated to the "Statistics Division" (UNSD) of the UN

- → which is part of the "Department of Economic and Social Affairs" (DESA)
- → reporting to the "Economic and Social Council" (ECOSOC) of the UN



## **UN geospatial activities**

#### UN Home | Department of Economic and Social Affairs | Economic and Social Development Home About us | Contact us | Site Map

UN Statistics Home | UN Home



Databases

United Nations Programs on Global Geospatial Information Management

#### PROGRAMME OF WORK

Home

| Economic Statistics | Demographic & Social Statistics | Environment & Energy Statistics | Gender Statistics | Big Data for Official Statistics | Quality Assurance Framework | Millennium Developmen Goals | Geospatial Informatio Statistical Capacity Building COMMITMENTS

 Principles Governing International Statistical Activities
 Fundamental Principles of Official Statistics

#### UNSD PARTNERS

| Committee for the Coordination of Statistical Activities (CCSA)

UN System Meeting

| International Agencies

#### UN-GGIM United Nations Commitee of Experts on Global Geospatial Information Management

There is general agreement of an urgent need for an inter-government consultative mechanism that can play a leadership role in setting the agenda for the development of global geospatial information and to promote its use to address key global challenges; to liaise and coordinate among Member States, and between Member States and international organizations.



- -----

### UNGEGN United Nations Group of Experts on Geographical Names

In 1959, the Economic and Social Council (ECOSOC) paved the way for a small group of experts to meet and provide technical recommendations on standardizing geographical names at the national and international levels. This meeting gave rise to the United Nations Conferences on the Standardization of Geographical Names (UNCSGN) and to the United Nations Group of Experts on Geographical Names (UNGEGN).



### UNRCC | United Nations Regional Cartographic Conferences

The Statistics Division organizes and services the following cartographic conferences: the United Nations Regional Cartographic Conference for Asia and the Pacific, convened every three years, and the United Nations Regional Cartographic Conference for the Americas, convened every four years, in collaboration with the Permanent Committees on Spatial Data Infrastructure for the Americas (PC-IDEA) and GIS Infrastructure for Asia and the Pacific (PCGIAP).

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## **UN-GGIM: roles and tasks**



"To make accurate, reliable and authoritative geospatial information readily available to support national, regional and global development"





UN-GGIM: EUROPE | UNITED NATIONS COMMITEE OF EXPERTS ON



## Formal inter-governmental UN Committee of Experts

- **Discuss, enhance and coordinate activities** by involving Member States at the highest level.
- Make joint decisions and set directions on the use of geospatial information within policy frameworks.
- Address **global issues** and contribute collective knowledge as a community with shared interests and concerns.
  - E.g. "Reference Group" for the geospatial dimension in the UN SDGs
- Develop effective **strategies** to build geospatial capacity in developing countries.



UN-GGIM: EUROPE | UNITED NATIONS COMMITEE OF EXPERTS ON GLOBAL GEOSPATIAL INFORMATION MANAGEMENT

## **UN-GGIM: Expert and Working Groups**

-GGIM | United Nations Committee of Experts on Global Geospatial Information Management

#### UN-GGIM EXPERT AND WORKING GROUPS

In pursuance of the objectives of setting the agenda for the management of global geospatial information to address key global challenges and providing a platform for the development of effective strategies on how to build and strengthen national capacity on geospatial information, the Committee of Experts has created several working groups and an Expert Group. These groups focus on progressing the work items and following up on decisions adopted at the annual session.

#### Expert Group

- 1. United Nations Expert Group on the Integration of Statistical and Geospatial Information
- 2. The United Nations Expert Group on Land Administration and Management (UN-EG-LAM)

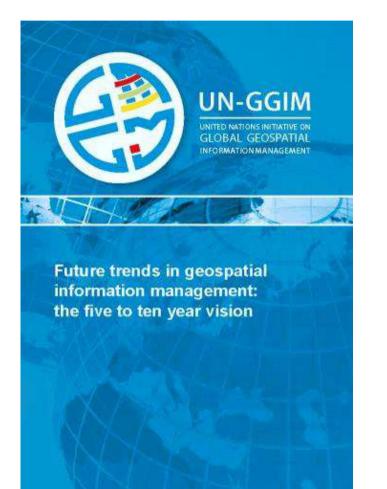
#### Working Groups

- 1. Working Group on Global Geodetic Reference Frame
- 2. Working Group on Development of a Statement of Shared Principles for the Management of Geospatial Information
- 3. Working Group on Global Map for Sustainable Development (GM4SD)
- 4. Working Group on Trends in National Institutional Arrangements in Geospatial Information Management
- 5. Working Group on Geospatial Information and Services for Disasters (WG-Disasters)



N-GGIM: EUROPE | UNITED NATIONS COMMITEE OF EXPERTS ON

# UN-GGIM: Report – *"Future trends in geospatial information management: the 5-10 year vision"*



Available in 6 official UN languages: English | Chinese | French | Russian | Spanish | Arabic



Tendencias a futuro en la gestión de información geoespacial: La visión de cinco a diez años



Закондумые и сталает ООН но Голбанание, Тарон ни ко Голдостратованов. Парбразалия Совремуют влималия: Организаци Областики. Полибало Геогропирательного у Итфарматиантову Меладузевату

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#### Будуние теплетиция управления геопространствения вогляд на цять-лесять дет Солгозацие:

. Если одарность и условия предоставления пиформация

Сратила и ні кормання

#### ведские 7 билила сочатко на 9

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UN-GGIM: EUROPE | UNITED NATIONS COMMITEE OF EXPERTS ON GLOBAL GEOSPATIAL INFORMATION MANAGEMENT

### **UN-GGIM: Committee of Experts – Regional Committees**



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## UN-GGIM: Europe – Work Plan 2015-2018

The substantial part of the proposed Work Plan for 2015 – 2018 is the continuation of the Plan adopted in 2014:

Work Group A: Core Data

- 1. Specifications of core data (End 2017)
- 2. Economic model for production & distribution of core data (*End 2018*)
- 3. Existing political & financial frameworks supporting core data availability (*End 2018*)

### Work Group B: Data Integration

- 1. Definition of the priority user needs for data combinations (*accomplished*)
- 2. Recommendation for implementing prioritized combinations of data (Mid-2016)
- 3. Recommendation how to manage side-effects induced by data combinations (*Mid-2016*)

Plus additional focus on new work areas: topics and agenda items emerging from GGIM 5



# UN-GGIM-5 (2015): new work items for UN-GGIM: Europe

## Global Geodetic Reference Frame (GGRF)

- "develop and communicate regional **best practice** and initiatives and work with the global working Group on GGRF to delivering a **road map** and leveraging the importance of geodetic data at the European Level"
- → Develop roadmap and establish a Working Group GGRF: Europe



## Sustainable Development Goals (UN SDGs)

- "focus on the how geospatial data can enhance sustainable development and the 2030 Agenda in Europe"
  - European support SDGs





# UN-GGIM-5 (2015): new work items for UN-GGIM: Europe

## Land Administration and Management

- "contribute at the global level by sharing practical regional examples of land administration good practice"
- $\rightarrow$  European support of land management

### Global Fundamental Geospatial Data Themes

• "UN-GGIM: Europe given a mandate by the Committee of Experts to lead a global work in collaboration with other Regional Committees, Member States and observers to develop an agreed minimum set of global fundamental geospatial data themes"



Europe coordinates this activity







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# Further information about UN-GGIM: Europe WG A "Core Data" – Website

BOUT UN-GGIM: EUROPE 🛛 🔘	WG A Core Data	LATEST NEWS:
RTICLES AND RULES		Members from UN-GGIM: Europe participate in 3rd Regional Meeting of UN-GGIM: Arab States
JROPEAN UN MEMBER STATES O	Point of Contact: Francois Chirie – Francois.Chirie (at) ign.fr	Executive Committee of UN-GGIM: Europe holds first meeting of 2016
MCAS AND NSIS IN EUROPEAN UN EMBER STATES	Working Group 1 Report	UN-GGIM: Europe Working Group A select core data themes for Europe
BSERVER ORGANISATION S		Widening the engagement with the geospatial community in Europe
G A Core Data 🔘		UN-GGIM: Europe is one year old
/G B Data Integration O	http://un-ggim-europe.org/content/wg-a-c	ore-data

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## Report B1: "priority user needs " accomplished mid-2015

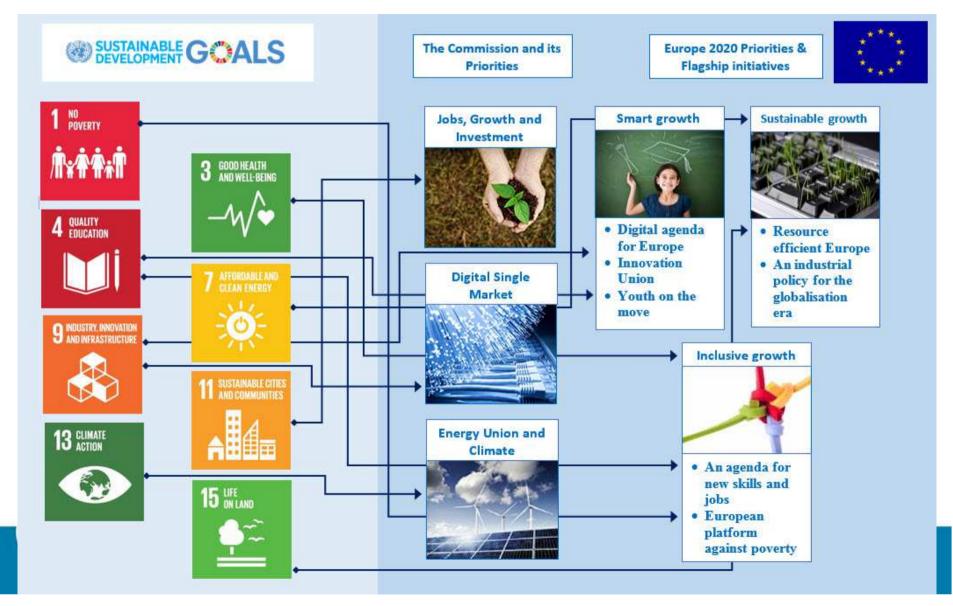
 Definition of the priority user needs for combinations of data (Mid-2015).

*Title: "Definition of priority user needs for combinations of data"* 

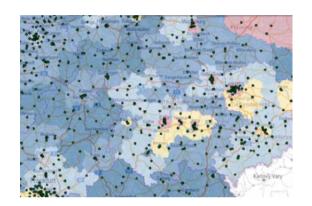
- Collect policy relevant use cases, focus on evidence based decision making
- Elaborate use cases → derive user needs → recommendations
- 40+ Use cases were collected
- 5 Recommendations
- Report uploaded on the UN-GGIM: Europe website



### **Report B1: "priority user needs"** ...there are a lot of policies in Europe...



### **Report B1: "priority user needs" – National use cases**

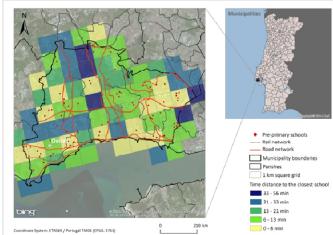


DE-examples from the geoportal <u>www.geoportal.de</u>:

- 1. Wind Power
- 2. Flood protection
- 3. Future development of the school population
- 4. Accessibility of Central Locations

Albania Germany Denmark Spain Italy Poland Portugal Sweden Turkey United Kingdom

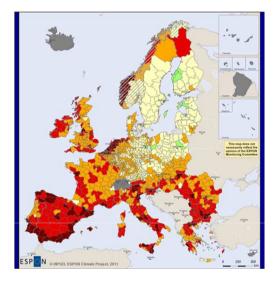








### **Report B1: "priority user needs" – Cross-border use cases**

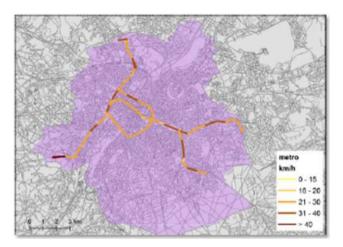


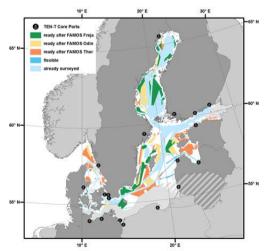
### Examples:

- NL Fighting international organised crime
- 2. ESPON Availability of secondary schools
- 3. [...]

DG REGIO (EU-COM) Netherlands Sweden ESPON GEOSTAT 1B (Eurostat)

European Court of Auditors and European Commission







# Further information about UN-GGIM: Europe WG "Data Integration" – Website



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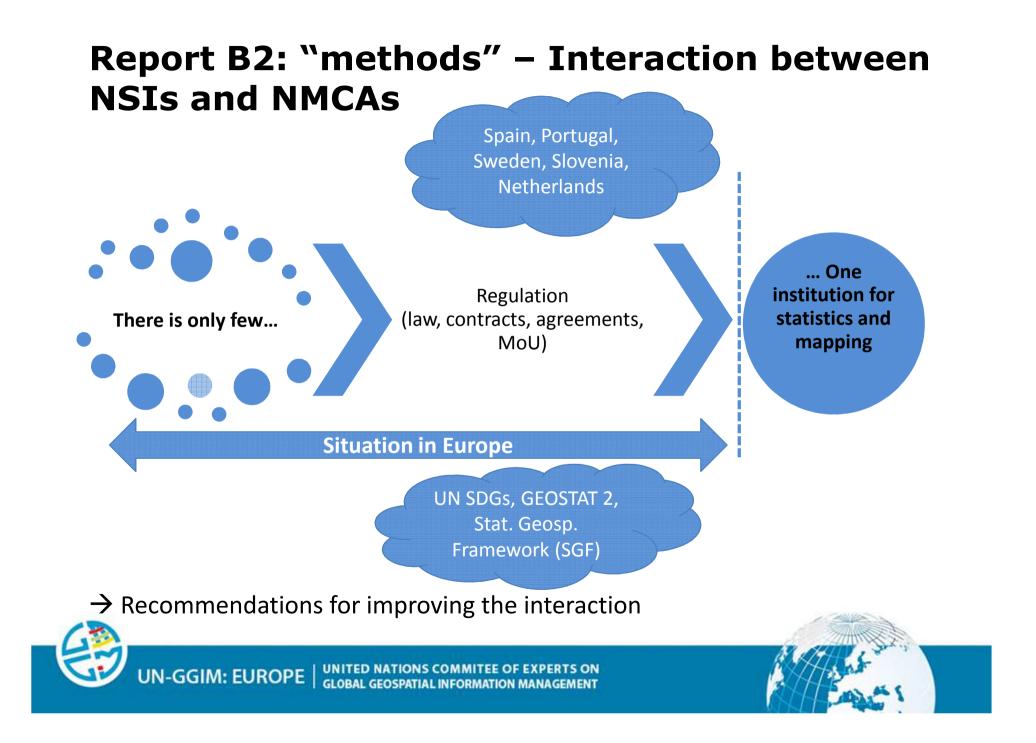
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### Work Group B: Data Integration

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- 1. Definition of the priority user needs for data combinations (*accomplished*)
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- 3. Recommendation how to manage side-effects induced by data combinations (Mid-2016)





### **Report B2: "methods" – Multiple sources**

Review of the current use of data from multiple sources

 identify case studies and best practices relevant for data combinations (particularly with core data)



## UN-GGIM: Europe – Work Plan 2015-2018

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## **3.** Recommendation how to manage side-effects induced by data combinations (*Mid-2016*)





## **Report B3: "side-effects" – mainly obstacles**

- What is a "side effect"?
  - "[...] is something that occurs unintendedly after the data combination and needs further effort to be removed, exploited or steered... maximize the positive effects and minimize the negative [...]"
- Side effect classification
  - using the aspects of (interoperability) frameworks
- Collection of side effect examples (description)
  - side effects in existing B1 examples and other Member States examples
- How do side effects influence interoperability and usability?

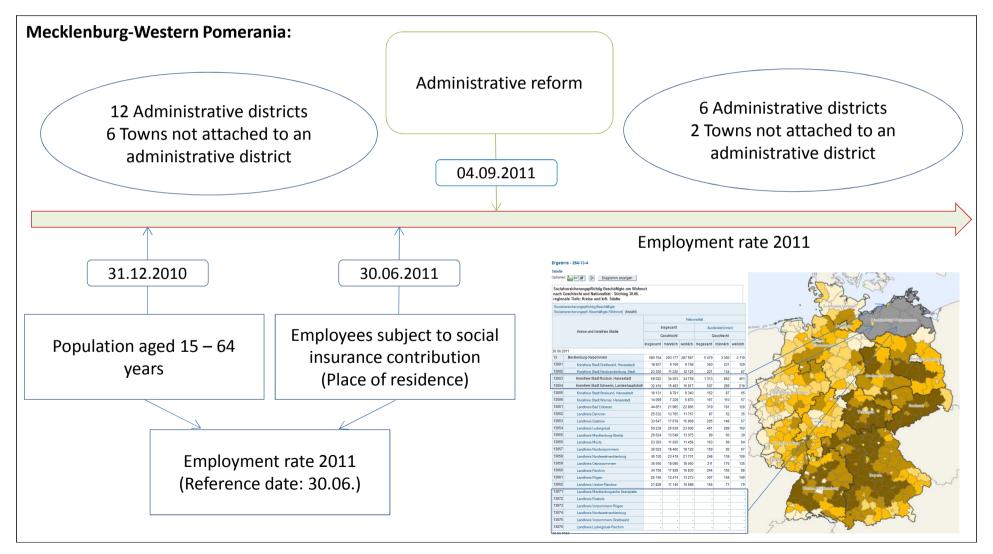




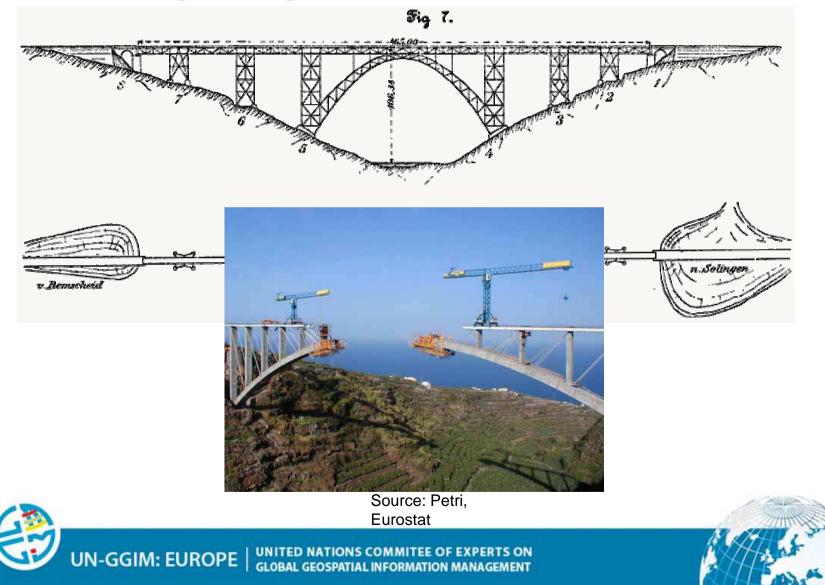


### **Report B3: "side-effects" – examples**

a) Matching statistics with administrative boundaries



### UN-GGIM / UN-GGIM:Europe -> UN SDGs "Building bridges"



## Thank you for your kind attention!



Chair: Prof. Hansjörg Kutterer Contact: UN-GGIM: Europe, WG B "Data Integration": Pier-Giorgio Zaccheddu, "Technical Leader" E-Mail: <u>pier-giorgio.zaccheddu@bkg.bund.de</u>



