UN-GGIM:Europe WG B on Data Integration
Support of better integration of geospatial information and statistics and the UN SDG monitoring

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UN-GGIM EUROPE

UNITED NATIONS
COMMITEE OF EXPERTS ON
GLOBAL GEOSPATIAL
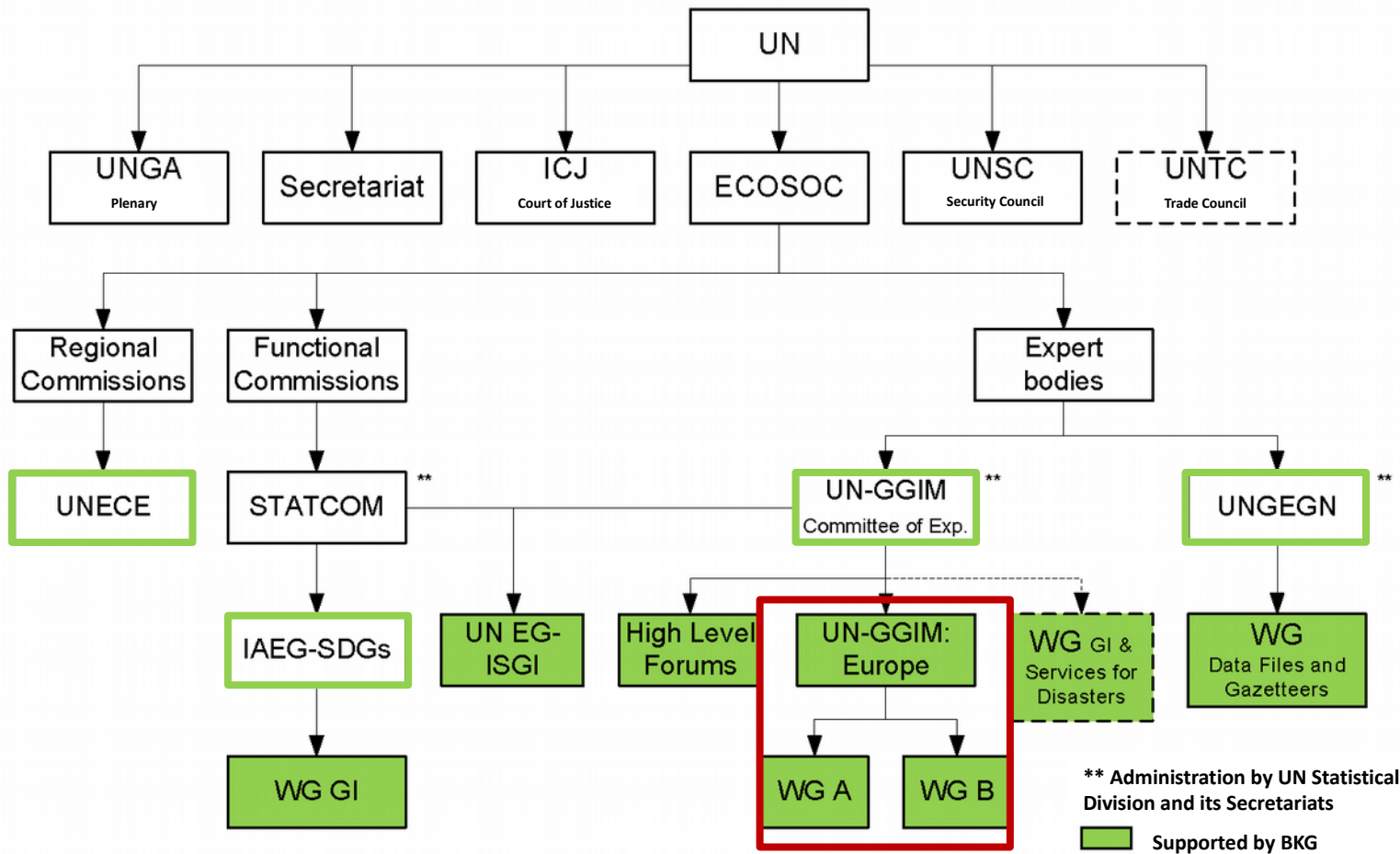INFORMATION MANAGEMENT

SUSTAINABLE DEVELOPMENT G♦ALS

Content

- UN-GGIM: Europe – WG Data Integration to support the global UN SDG monitoring using INSPIRE

- Connecting geospatial and statistical communities – „Building bridges"

The UN community

UN-GGIM: Europe – WG-B

Work Group B "Data Integration" (WG B)

- is chaired by Germany and

- deals with the integration of geospatial data (including cadastral parcels) with other information.

- Currently there are

    - 17 European UN Member States comprising

    - 20 National Mapping and Cadastral Authorities or National Statistical Institutes participating in WG B.
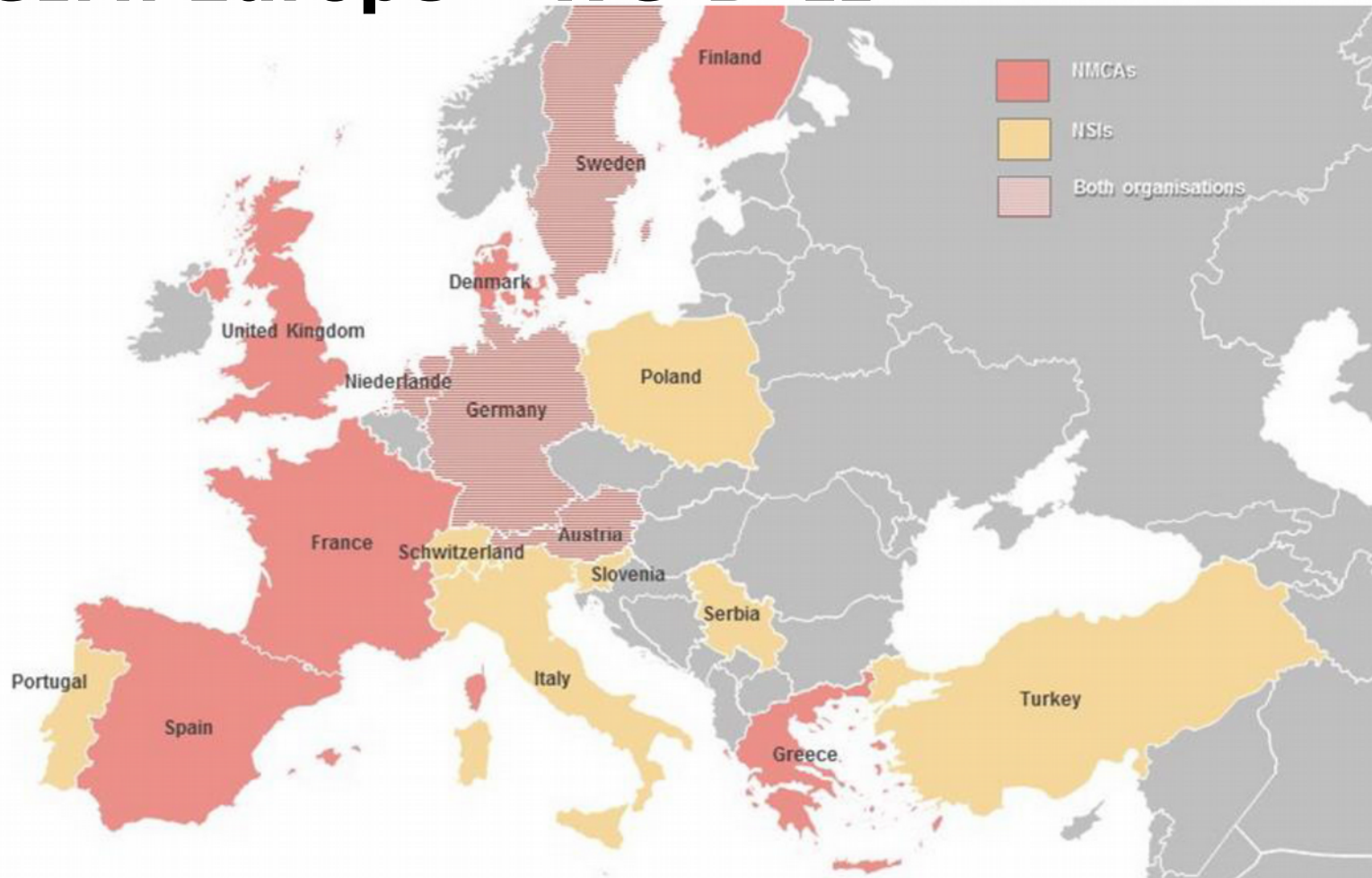
UN-GGIM: Europe – WG-B II

Figure 1 – Current members of UN-GGIM: Europe WG B "Data Integration"

UN-GGIM: Europe – WG-B III

WG B distributed its work into three sub-groups, each focusing on one of three main tasks:

- definition of the priority user needs for combinations of data (B1),

- recommendation for methods implementing the prioritized combinations of data (B2), and

- recommendation about how to manage side-effects induced by data combinations (B3).

The coordination between WG A and B is deemed crucial.

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 2015:

Work Group A: Core Data
1. Specifications of core data (*End of 2016*)
2. Economic model for production & distribution of core data (*End 2017*)
3. Existing political & financial frameworks supporting core data availability (*Mid-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*)
      → To be completed in November/December 2016
3. Recommendation how to manage side-effects induced by data combinations (*accomplished*)

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

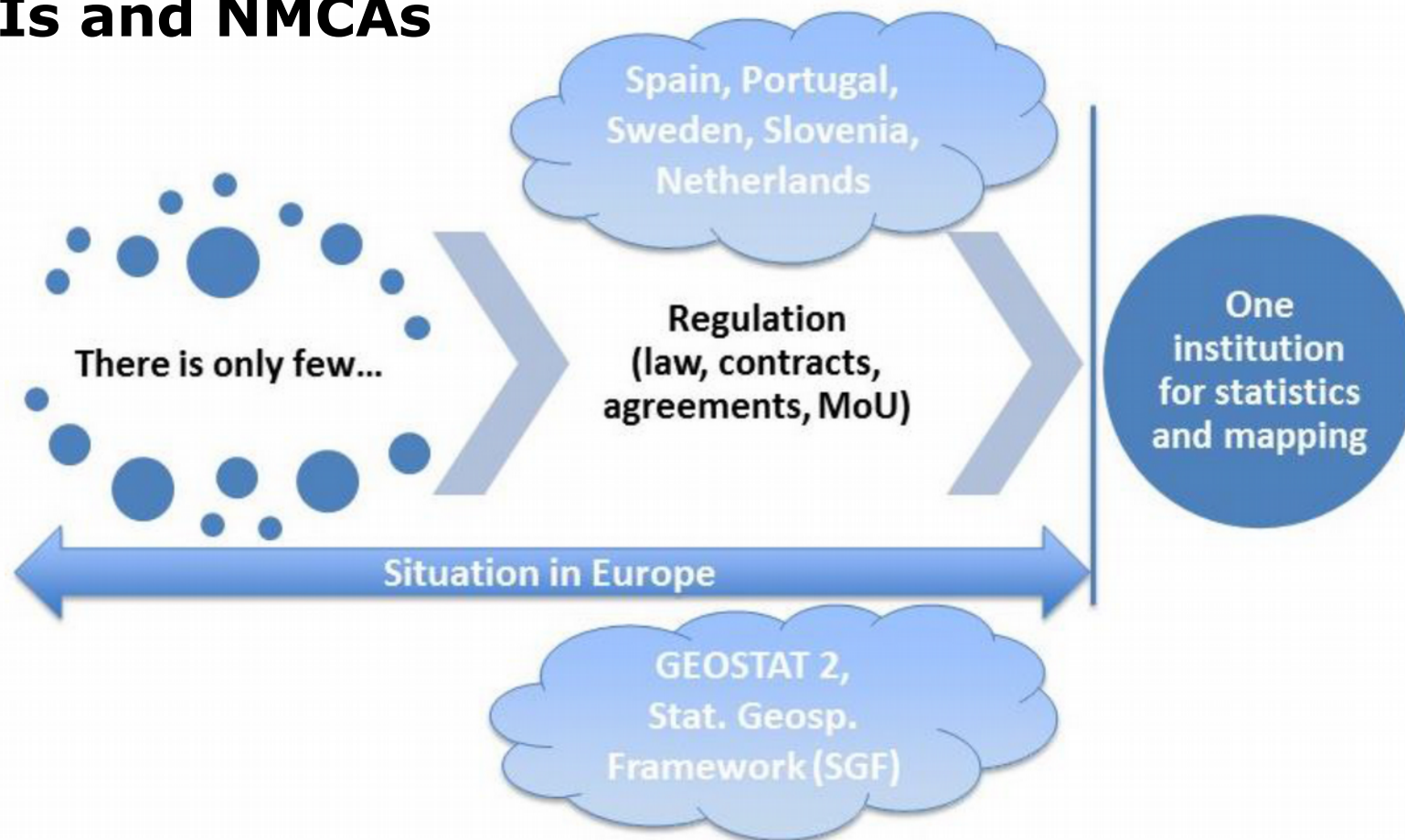# Report B2: "methods" – Interaction between NSIs and NMCAs

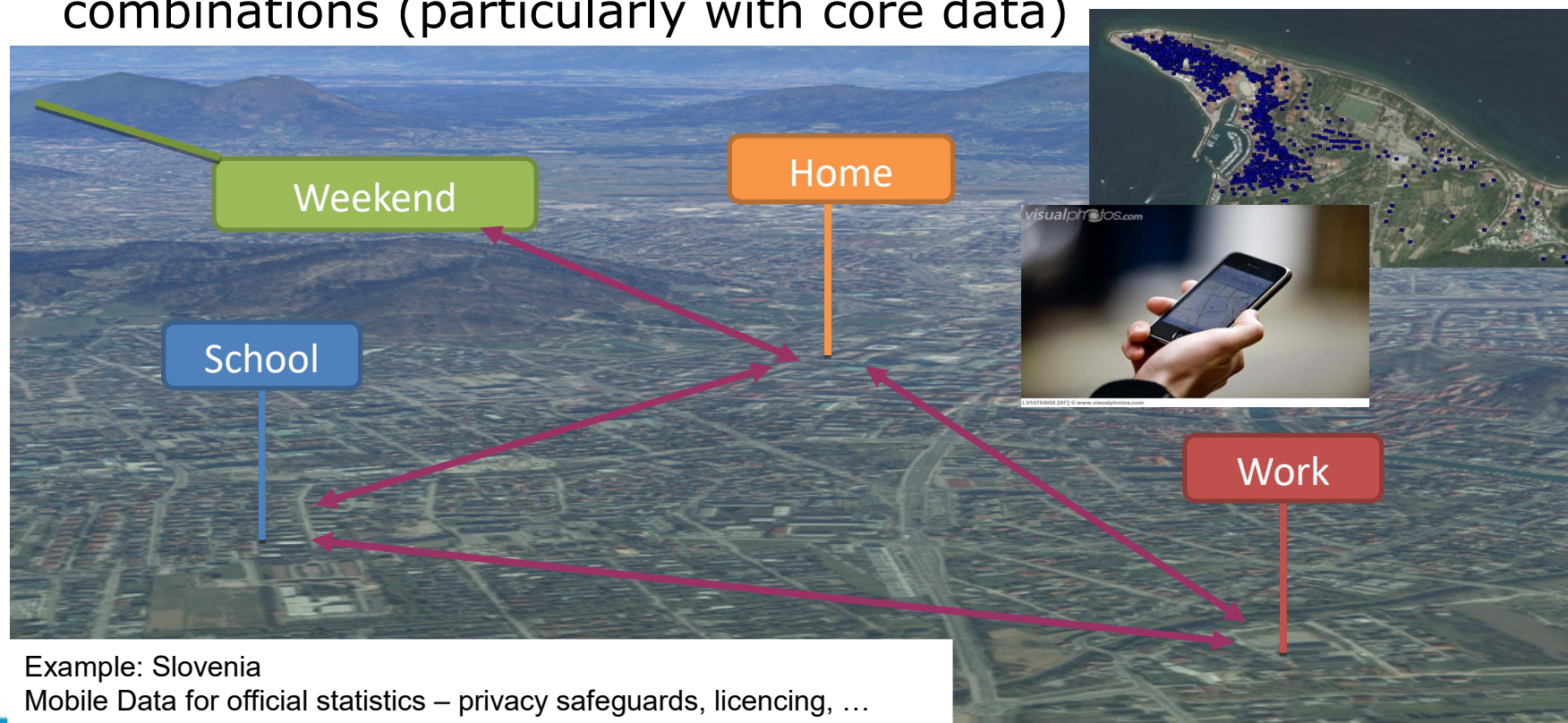Figure 2 - Interaction between NMCAs and NSIs

→ Recommendations for improving the interaction

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)

Example: Slovenia
Mobile Data for official statistics – privacy safeguards, licencing, …

Report B3: "side-effects" – obstacles accomplished in October 2016

- 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?

→Comprises contributions from SE, DE, FI, PL, RS, ES

Report B3: "side-effects" – examples

a) Matching statistics with administrative boundaries

Mecklenburg-Western Pomerania:

Administrative reform

12 Administrative districts
6 Towns not attached to an administrative district

6 Administrative districts
2 Towns not attached to an administrative district

04.09.2011

Employment rate 2011

31.12.2010

30.06.2011

Population aged 15 – 64 years

Employees subject to social insurance contribution
(Place of residence)

Employment rate 2011
(Reference date: 30.06.)

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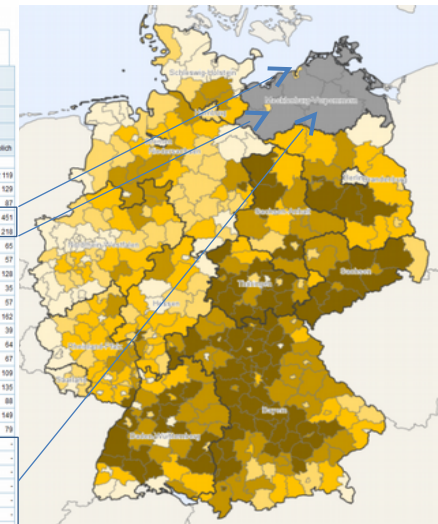

http://un-ggim-europe.org/content/wg-b-data-integration

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→ **Follow-up work plan 2017 – 2020:** *"As a European contribution to the global process on developing a framework for monitoring UN SDG indicators, UN-GGIM: Europe will through the WG on "Data Integration", ensure a two-way interaction with the IAEG-SDG Working Group on Geospatial Information."*

Support of „Task Team UN-GGIM" for IAEG SDG (led by DK) 2016

Using INSPIRE framework and structures…

2030 Agenda - Sust... Geospatial con...	Target	Indicator	Addresses	Administrative units	Built-up area polygons	Cadastral parcels	Geographical names	Habitats and biotopes	Transport networks	….	Additional geometry
Goal: **Target:** **Indicator:** **Definition of the indicator:** (State the definition of...											
	Goal 1 End poverty in all its forms everywhere										
Indicator disaggregation: (List the indicator disag... disability, geographic location and other characteristic... implementation of the SDGs). **Current suggested use of geospatial data for th...** by the existing metadata – the "as-is" situation).	1.1 By 2030, eradicate extreme poverty for all people everywhere, currently measured as people living on less than $1.25 a day	1.1.1 Proportion of population below the international poverty line, by sex, age , employment status and geographical location (urban/rural)	X								
Suggested geospatial data integration	**Goal 9. Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation**										
GAP analysis: (Describe what changes in use of da... suggested/current procedure for monitoring the indic... requirements - going from the "as-is" situation in the p... **List required geospatial data:** (Develop a list from... themes which are required to support the to-be situat... **Data quality requirements:** (List in general terms... relevant parameters: Resolution, completeness, logic... certain international standards should be followed. Da... resolution and disaggregation).	9.1 Develop quality, reliable, sustainable and resilient infrastructure, including regional and transborder infrastructure, to support economic development and human well-being, with a focus on affordable and equitable access for all	9.1.1 Proportion of the rural population who live within 2 km of an all-season road		X					X		
	Goal 11. Make cities and human settlements inclusive, safe, resilient and sustainable										
Data availability: (List the data availability: 1) geog... countries), 2) Source: Accessible through services or... or are there restriction on use). **Data collection:** (Describe how the geospatial data... overcome – are there many sources to collect from, d...	11.7 By 2030, provide universal access to safe, inclusive and accessible, green and public spaces, in particular for women and children, older persons and persons with disabilities	11.7.1 Average share of the built-up area of cities that is open space for public use for all, by sex, age and persons with disabilities		X	X						"Open space" polygons
Data interpretation: (Describe which analysis, procedures and computations are needed to provide the results needed to support the reporting requirements ("to-be" situation)).											
Method of integration: (Describe how the geospatial data are envisaged to be integrated in the monitoring cycles).											

…OF EXPERTS ON
…N MANAGEMENT

Tasks assigned to IAEG SDG WG GI supported by the UN-GGIM:Europe WG Data Integration 2016-2017

- Review the agreed global indicators through a 'geographic location' lens;
- Review the "metadata" compiled for the global indicators through a 'geographic location' lens;
- Consider and review the tier classifications for the agreed global indicator, their level of "maturity" and appropriateness from a 'geographic location' lens;
- Identify existing geospatial data gaps, geospatial methodological and measurement issues;
- Consider how geospatial information can contribute to the indicators and metadata;
- Propose means of addressing data gaps and issues

Tasks assigned to IAEG SDG WG GI supported by the UN-GGIM:Europe WG Data Integration beyond 2017

- Propose strategies for undertaking methodological work on specific areas for improving disaggregation by geographic location and in particular for national and sub-national reporting
  - And in this regard, to report to the High-Level Group, Statistical Commission and Committee of Experts on Global Geospatial Information Management; and
- Review options and provides guidance to IAEG-SDGs on the role of National Statistical Offices in considering and applying Earth observations and geospatial information primarily as a means to contribute to and validate data as part of official statistics.

SUSTAINABLE DEVELOPMENT G⊙ALS

1 NO POVERTY

2 ZERO HUNGER

3 GOOD HEALTH AND WELL-BEING

4 QUALITY EDUCATION

5 GENDER EQUALITY

6 CLEAN WATER AND SANITATION

7 AFFORDABLE AND CLEAN ENERGY

8 DECENT WORK AND ECONOMIC GROWTH

9 INDUSTRY, INNOVATION AND INFRASTRUCTURE

10 REDUCED INEQUALITIES

11 SUSTAINABLE CITIES AND COMMUNITIES

12 RESPONSIBLE CONSUMPTION AND PRODUCTION

13 CLIMATE ACTION

14 LIFE BELOW WATER

15 LIFE ON LAND

16 PEACE, JUSTICE AND STRONG INSTITUTIONS

17 PARTNERSHIPS FOR THE GOALS

SUSTAINABLE DEVELOPMENT G⊙ALS

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![Sustainable Development Goals logo]

17 goals and 169 targets

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	

Legend: 1/3 geospatial (Eurostat) — 2/3 no geospatial relation
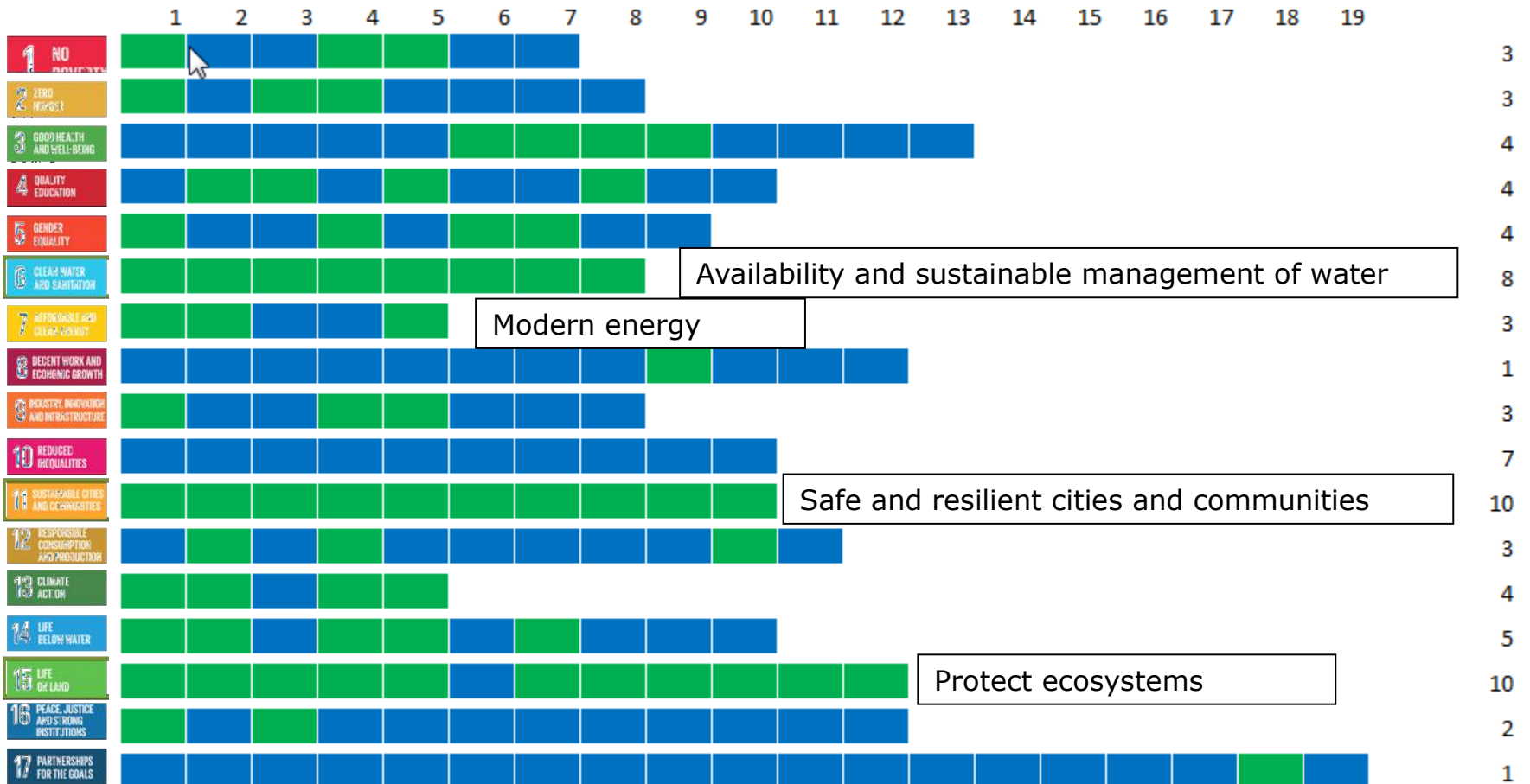
- 1 NO POVERTY — 3
- 2 ZERO HUNGER — 3
- 3 GOOD HEALTH AND WELL-BEING — 4
- 4 QUALITY EDUCATION — 4
- 5 GENDER EQUALITY — 4
- 6 CLEAN WATER AND SANITATION — 8 — Availability and sustainable management of water
- 7 AFFORDABLE AND CLEAN ENERGY — 3 — Modern energy
- 8 DECENT WORK AND ECONOMIC GROWTH — 1
- 9 INDUSTRY, INNOVATION AND INFRASTRUCTURE — 3
- 10 REDUCED INEQUALITIES — 7
- 11 SUSTAINABLE CITIES AND COMMUNITIES — 10 — Safe and resilient cities and communities
- 12 RESPONSIBLE CONSUMPTION AND PRODUCTION — 3
- 13 CLIMATE ACTION — 4
- 14 LIFE BELOW WATER — 5
- 15 LIFE ON LAND — 10 — Protect ecosystems
- 16 PEACE, JUSTICE AND STRONG INSTITUTIONS — 2
- 17 PARTNERSHIPS FOR THE GOALS — 1

Source: Eurostat
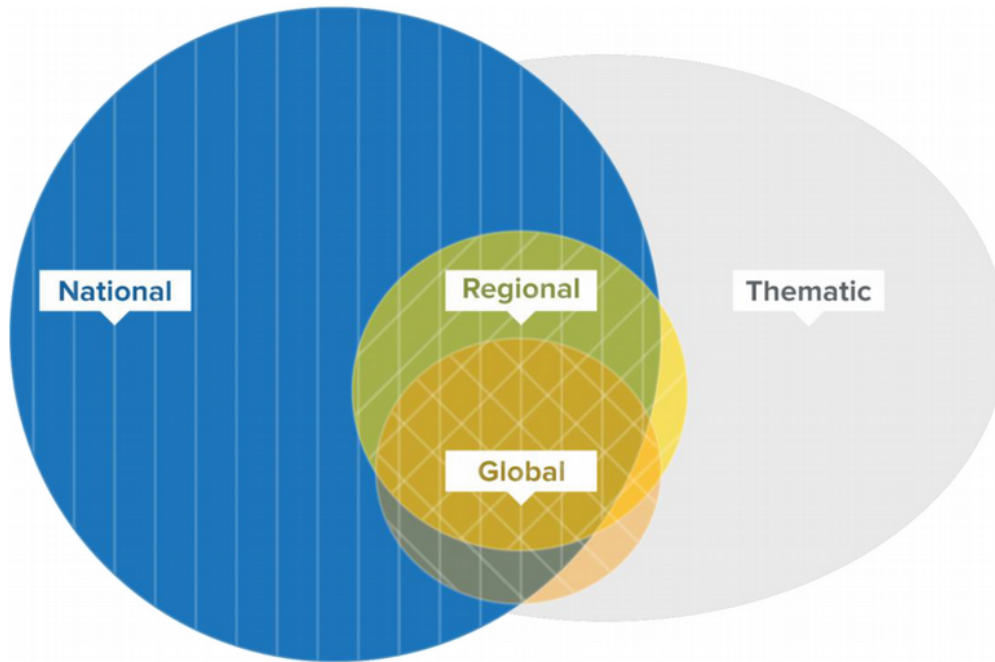
Global monitoring:

- 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

SUSTAINABLE DEVELOPMENT GOALS

Examples: geospatial data can support the indicator measurement

2 ZERO HUNGER

Indicator 2.4.1: Percentage of agricultural area under sustainable agricultural practices

Denominator: Agricultural Area = sum of arable land + permanent crops + permanent meadows and pastures (FAOSTAT)

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

6 CLEAN WATER AND SANITATION

Indicator 6.5.2: Proportion of transboundary basin area with an operational arrangement for water cooperation

Indicator 6.6.1: Change in the extent of water-related ecosystems over time

15 LIFE ON LAND

Indicator 15.1.1: Forest area as a proportion of total land area

Indicator 15.3.1: Proportion of land that is degraded over total land area

Indicator 15.4.2: Mountain Green Cover Index

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Copernicus
Europe's eyes on Earth

![Sustainable Development Goals logo]

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)

Lessons learned from the INSPIRE framework and implementation…

There are still some questions to be answered…

- 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 national organisation validates the information compiled for the UN?
- What about regional analysis for Europe?
- What cooperation efforts between NSIs and NMCAs are envisaged?

Roles and tasks for the NMCAs, NSIs,…

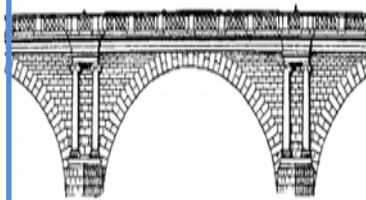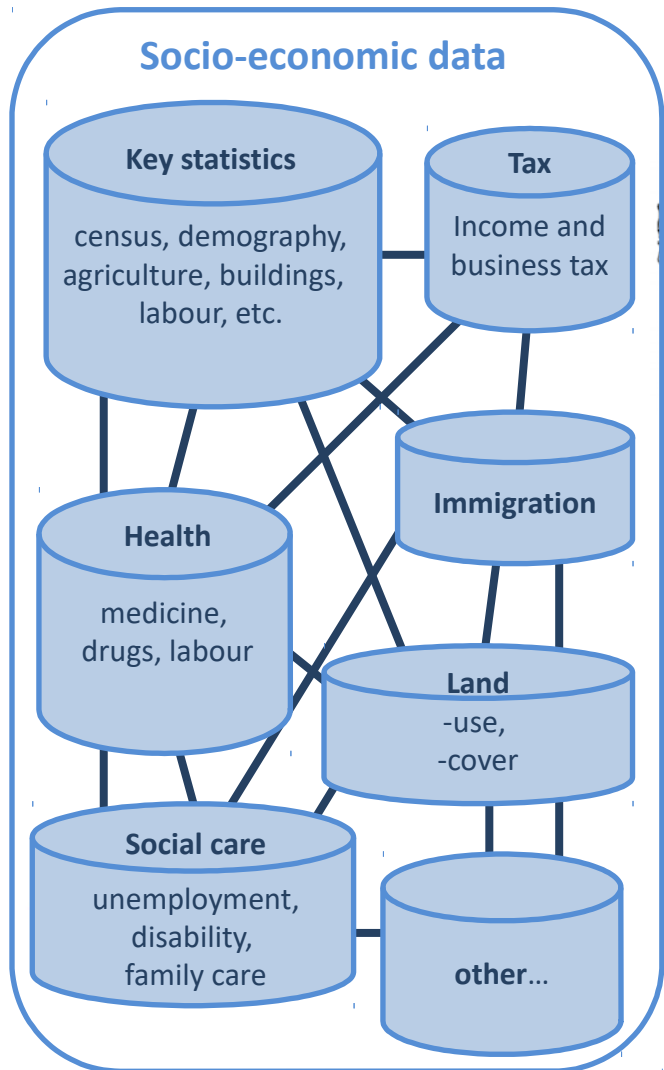INSPIRE (and Copernicus) for European analysis and reports

Specific tasks for the UN-GGIM:Europe WG Data Integration

- Develop practical examples (best practice) on specific national implementations on how Geospatial Information can support in processes in achieving the SDGs and where the need shows to measure, monitor and mitigate challenges
- suggest links between communities: demographic, statistical and environmental data together with the Geospatial Location – ranging from the conceptual level to specific indicators.

Connecting geospatial and statistical communities

Statistical Community

Geo Community

Source:
Martin Brady,
Australian Bureau
of Statistics

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
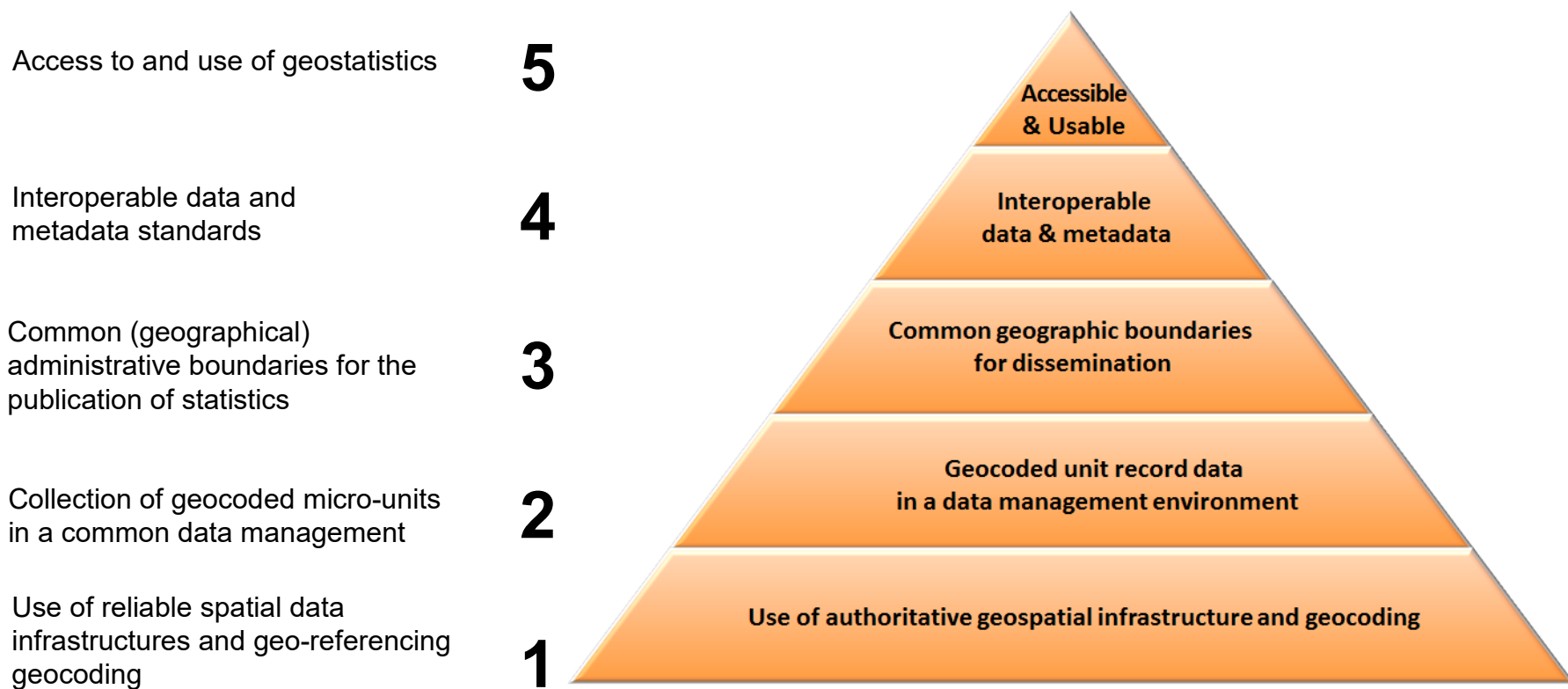Statistical Commission

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)

Access to and use of geostatistics   **5**

Interoperable data and metadata standards   **4**

Common (geographical) administrative boundaries for the publication of statistics   **3**

Collection of geocoded micro-units in a common data management   **2**

Use of reliable spatial data infrastructures and geo-referencing geocoding   **1**

Accessible & Usable

Interoperable data & metadata

Common geographic boundaries for dissemination

Geocoded unit record data in a data management environment

Use of authoritative geospatial infrastructure and geocoding

Thank you for your kind attention!

It remains exciting...

Chair: Prof. Hansjörg Kutterer
Contact: UN-GGIM: Europe, WG B „Data Integration":
Pier-Giorgio Zaccheddu, „Technical Leader"

Markus Jobst, Chair of WG-B3
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