

Setting the stage

Measuring Human Mobility

using new and traditional data sources

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Setting the stage

1. The UN Global Working Group on Big Data for Official Statistics
2. Use of Mobile Phone Data
3. Statistical Data Infrastructure
4. Big Data Quality Framework

1. Global Working Group

UN Global Working Group (GWG) on Big Data for Official Statistics

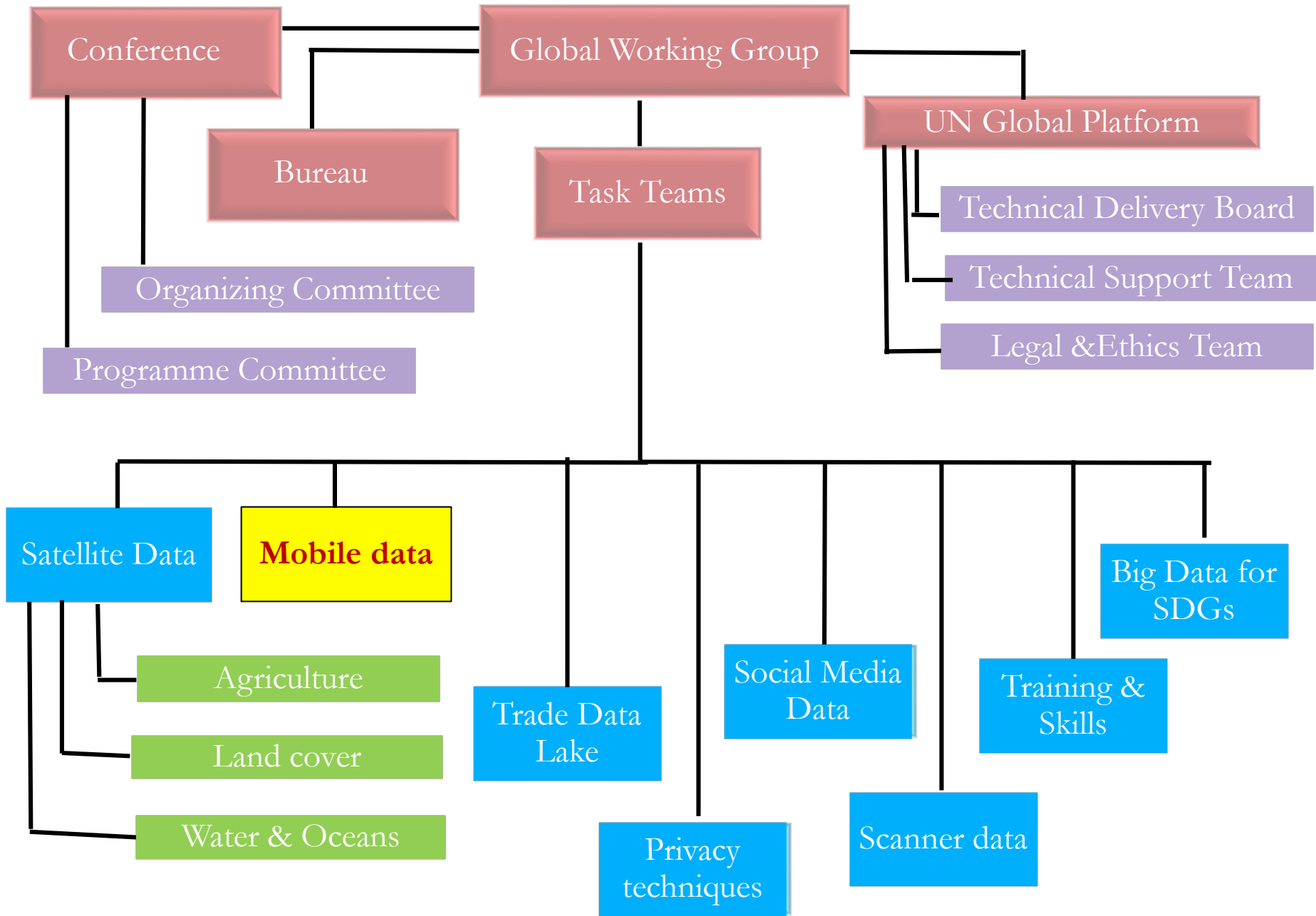
- **Created in March 2014 by the UN Statistical Commission**
- **Mandated to give direction to the use of Big Data for Official Statistics**
- **Consisting of 28 countries and 16 international organizations**



Why are Big Data important?

- Big Data can keep statistics **relevant – timelier, more frequent and more granular**
- Official statistics needs to develop faster
- Big Data can help meeting the **data demand of the 2030 agenda** – monitoring policies – “leave no one behind”





Annual Meeting of the GWG on Big Data for Official Statistics

1 May 2019, Kigali, Rwanda

Provisional Agenda

Wednesday, 1 May 2019

8:15 *Registration and welcome with coffee*

9:00 *Opening by Niels Ploug*

9:15 Item 1. **Overview of the work of the GWG** – Niels Ploug

10:00 Item 2. **Report to and Side-event at the Statistical Commission 2019** – Ronald Jansen

10:45 *Coffee Break*

11:00 Item 3. **Progress report, Workshop and Conference session of the Task Teams**

(i) Satellite data – Statistics Canada

(ii) Scanner data – Statistics Canada, UNSD

(iii) Mobile Phone data – UNSD, ITU

(iv) Social Media data – INEGI, UNSD

(v) Privacy Preserving Techniques – ONS, UK

2. Mobile Phone Data



1st International Conference on Big Data for Official Statistics Beijing, China, 28 - 30 Oct 2014

Feasibility Study on the Use of Mobile Positioning Data for Tourism Statistics

Eurostat



- Consolidated Report
- Task 1. Stock-taking
- Report 2. Feasibility of Access
- Report 3a. Feasibility of Use: Methodological Issues
- Report 3b. Feasibility of Use: Coherence
- Report 4. Opportunities and Benefits

UN Global Pulse

- About
- Mining Indonesian Tweets to Understand Food Price Crises - Methodology
- Big Data for Development: Challenges & Opportunities
- Rapid Impact and Vulnerability Analysis Fund (RIVAF)



Documents

-  Draft Agenda
-  Concept Note
-  Overview of the Sources and Challenges of Mobile Positioning Data for Statistics - Margus Tiru

Mobile Phone Data

Home > UN Big Data GWG Task Teams



Introduction

The statistical community has the obligation of exploring the use of new data sources, such as Big Data, to meet the expectation of the society for enhanced products and improved and more efficient ways of working. Big Data could also support the monitoring of the Post-2015 development goals by improving timeliness and relevance of indicators without compromising their impartiality and methodological soundness. The report of the Global Working Group (GWG) to the Statistical Commission (E/CN.3/2015/4) provides additional background to the work of the task team, where the Terms of Reference of the GWG serves as general reference, but each task team also has its own specific terms.

The task team on Mobile Phone Data is created as a separate team, since Mobile Phone Data has surfaced in recent years as one of the Big Data sources with a lot of promise. It is expected that Mobile Phone data could fill data gaps especially for developing countries given their high penetration rates. In its 2014 "Measuring the Information Society Report", ITU shows that the average mobile subscription rate is 96.4 per 100 inhabitants world-wide, with some lower averages in Asia (89.2) and Africa (69.3). Nevertheless, these numbers show how pervasive mobile phone use is. ITU elaborates that rural areas are still lacking behind urban areas, and this should be considered in studies using Mobile Phone data, but it is clear that the coverage of these data is global. Almost every person in the world lives within reach of a mobile cellular signal.

Events

International Meeting on Measuring Human Mobility

 Tbilisi, Georgia  27 - 29 March 2019

Mobile Phone data Handbook

 [Download the Handbook on the use of Mobile Phone data for Official Statistics \[Draft\]](#)

Workshop and Training Materials

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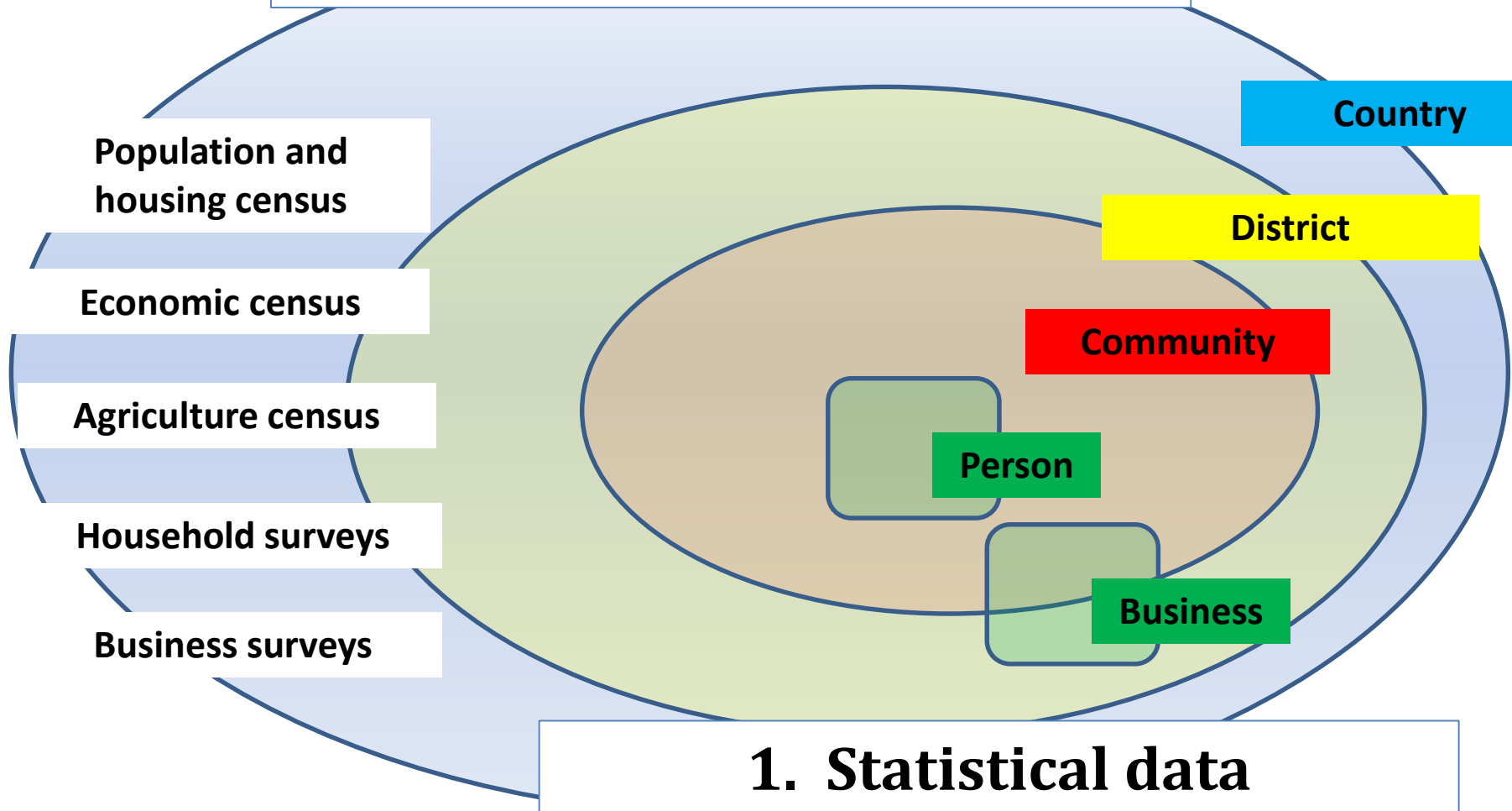
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Within the next 18 months, this task team would like to achieve the following:

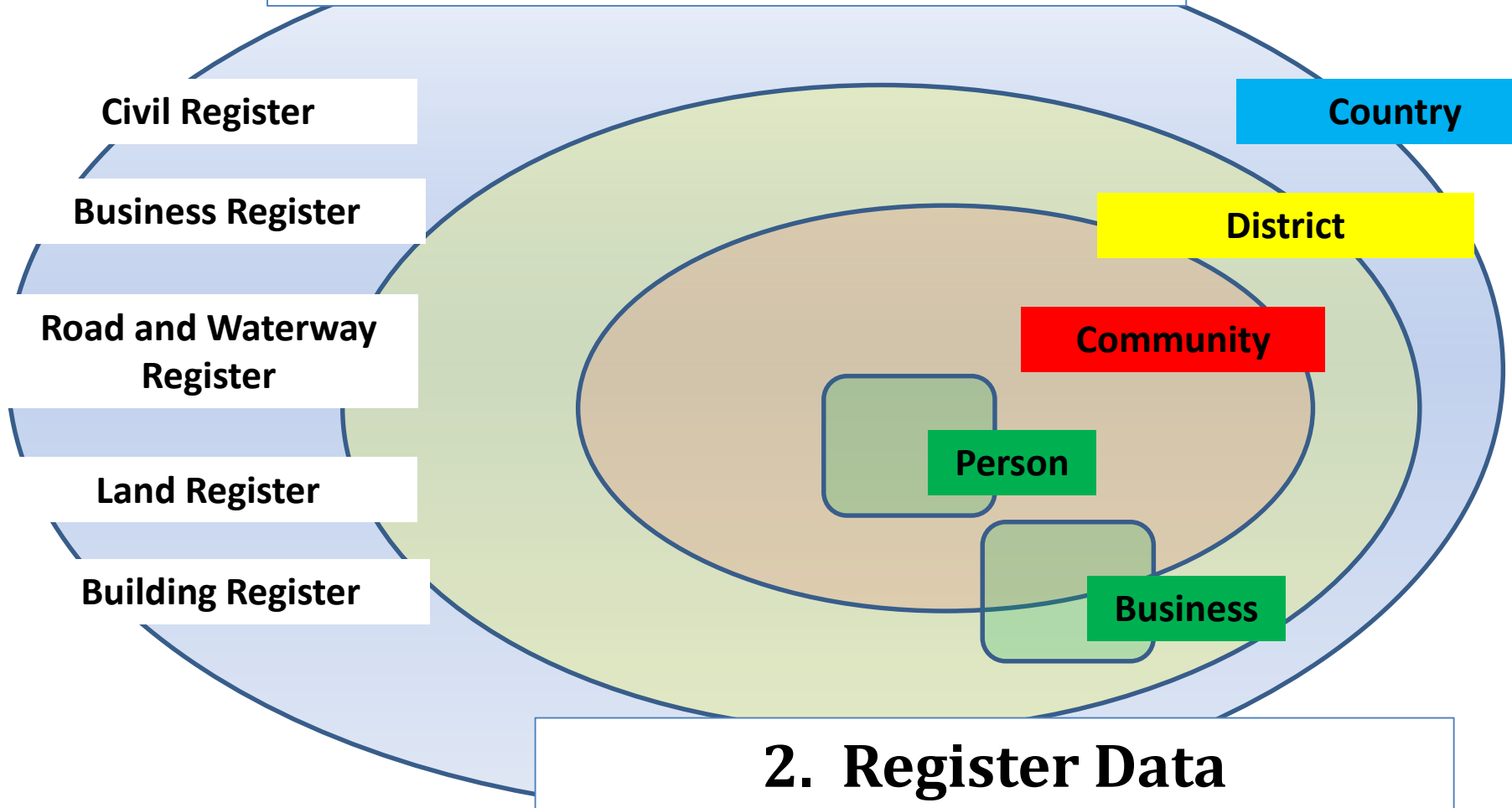
- **Develop handbook, training materials, e-learning course and update guidelines on using mobile phone data for official statistics**
- **Document and further develop methodologies and algorithms on using mobile phone data for statistical applications (Tourism statistics, Migration statistics, Population density statistics)**
- **Develop methodologies on using mobile phone data for quality checks and getting complementary information on SDG indicators**
- **Organize project meeting on the use of mobile phone data to measure human mobility, Tbilisi, Georgia, March 2018**
- **Organize regional workshop in Indonesia, June 2019**

3. Statistical data infrastructure

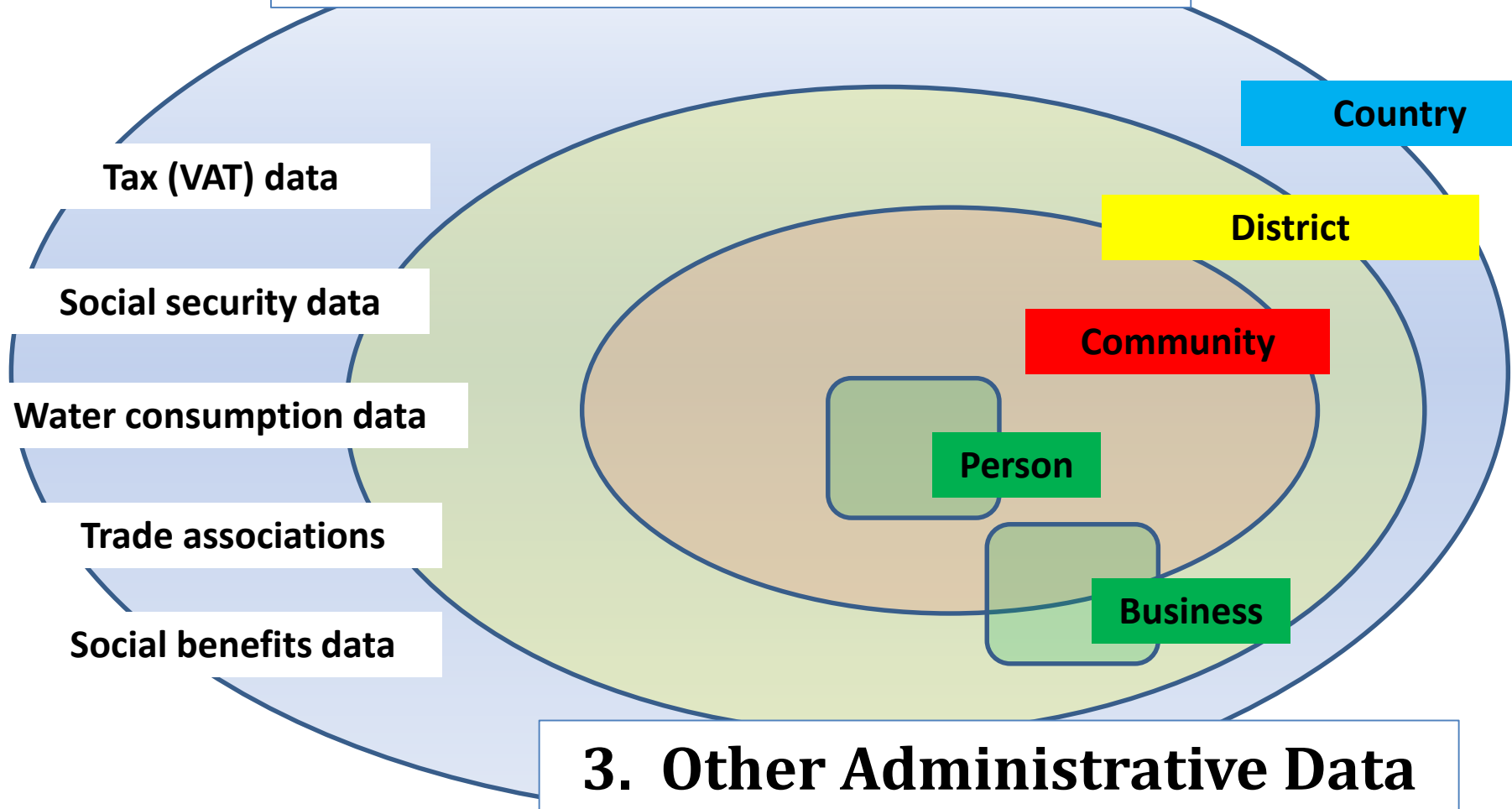
Statistical Data Infrastructure



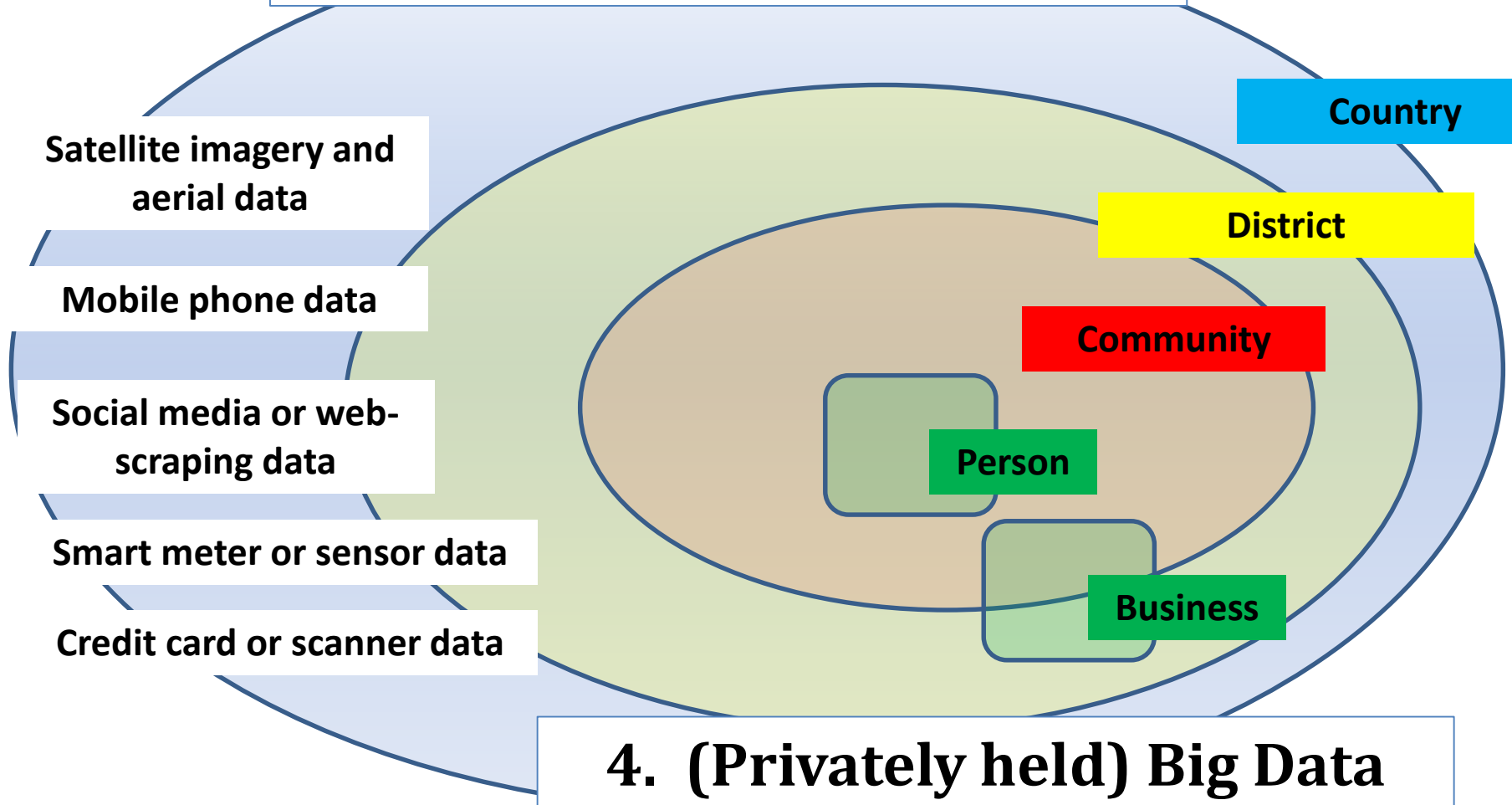
Statistical Data Infrastructure



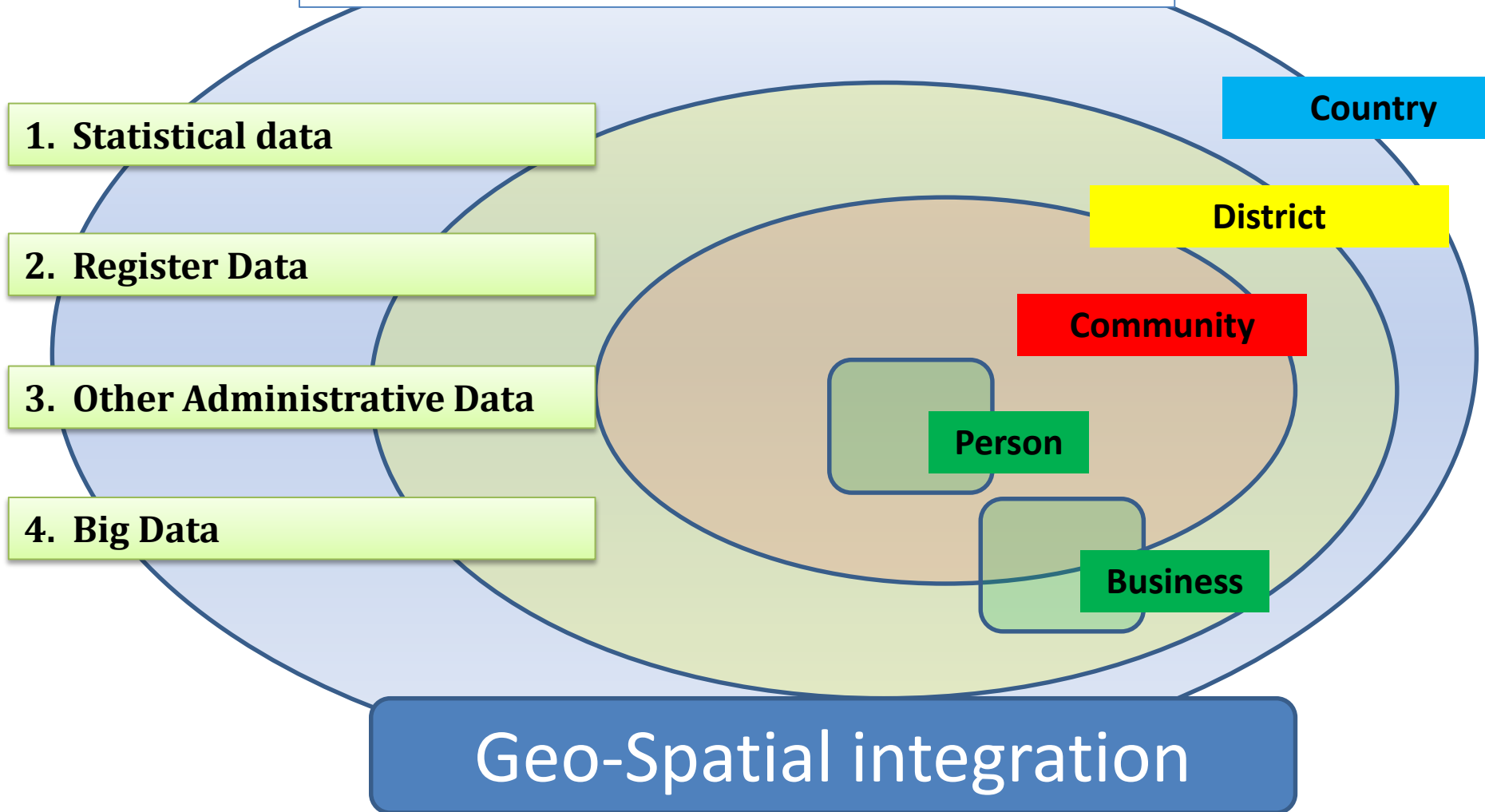
Statistical Data Infrastructure



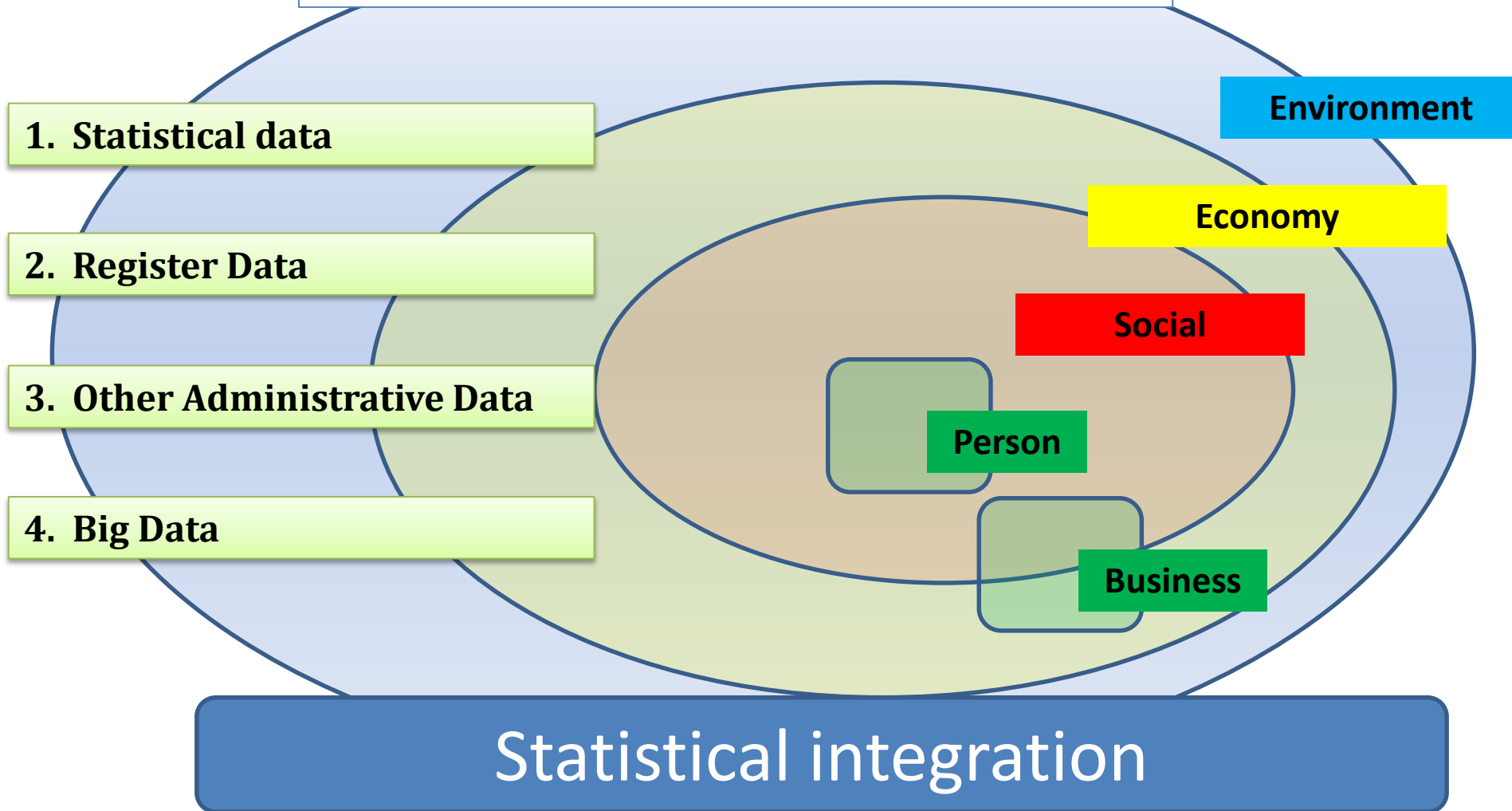
Statistical Data Infrastructure



Statistical Data Infrastructure



Statistical Data Infrastructure



Statistical Integration

System of National Accounts:

- System of Environmental Economic Accounting
- Tourism Satellite Account
- Framework for Sustainable Tourism

- **Framework for Migration Statistics**

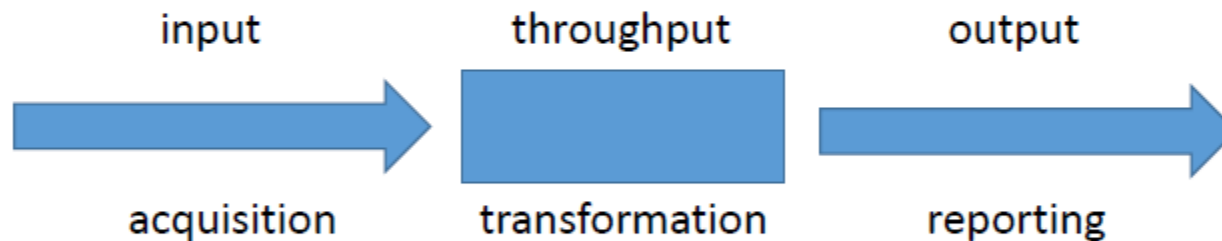
4. Big Data Quality Framework



General Approach

Quality: *To be evaluated in light of intended use ('fitness for use')*

Generic Statistical Business Process Model:



Framework: *For each phase, define appropriate quality dimensions and quality indicators*



Hyperdimensions

The concept of **hyperdimension** was taken from the Netherlands administrative data quality framework.

- **Source:** *Related to the type of data, the entity from which the data is obtained, and how it is administered and regulated.*
- **Metadata:** *Description of concepts, file contents, and processes.*
- **Data:** *Relates to quality of the data itself.*



Quality Dimensions

- Institutional/Business Environment
- Privacy and Security , Complexity
- Completeness, Usability, Time Factors,
- Accuracy
 - Selectivity
- Coherence
 - Linkability
- Validity,
- Accessibility, Clarity, Relevance

Hyperdimension	Quality Dimension	Factors to consider
Source	Institutional Environment	Sustainability of the entity-data provider Reliability status, transparency, interpretability
	Privacy and Security	Legislation, Data Keeper vs. Data provider Restrictions, Perception
Metadata	Complexity	Technical constraints, Structured or Unstructured Readability, Presence of hierarchies and nesting
	Completeness	Metadata is available, interpretable and complete
	Usability	Resources required to import and analyse Risk analysis
	Time-related	Timeliness, Periodicity, Changes through time
	Linkability	Presence and quality of linking variables
	Coherence	Use of standards
	Validity	Transparency of methods and processes Soundness of methods and processes

Thank you