

Fundamental Global Geospatial Data Themes

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UN-GGIM
EUROPE

UNITED NATIONS
COMMITTEE OF EXPERTS ON
GLOBAL GEOSPATIAL
INFORMATION MANAGEMENT

World Geospatial Information Congress 2018



The Road to here

- Why Fundamental?
- Why Themes?
- What are they?
- How can we operationalise them?

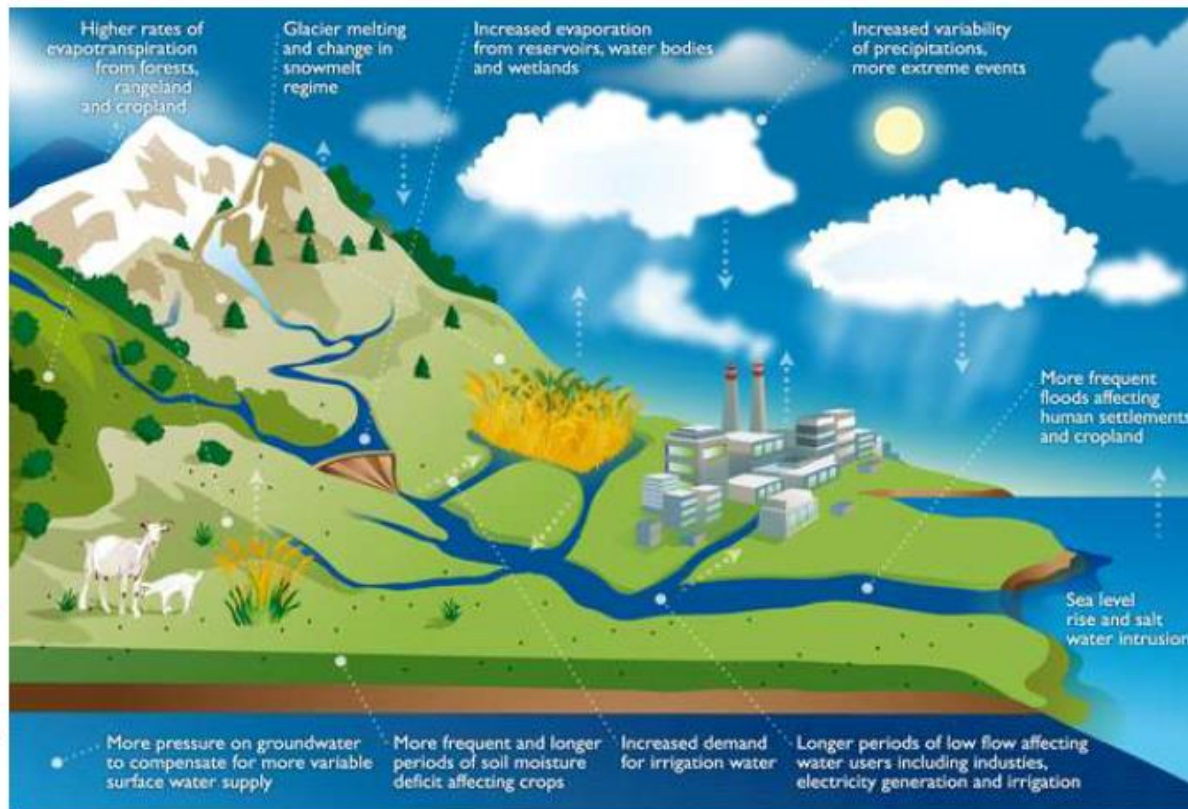
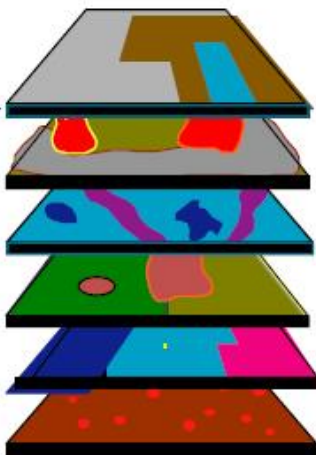


National Spatial Data Infrastructure



High quality, timely and reliable data

- Geodetic
- Elevation
- Water/Ocean
- Land use/cover
- Transport
- Cadastral
- Population
- Infrastructure
- Settlements
- Admin. Bdys.
- Imagery
- Geology/soils
- Observations
- etc.



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United Nations Secretariat
Global Geospatial Information Management

Positioning geospatial information to address global challenges

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as a starting-point
which must be lea

Why Fundamental?



We all use different words ...

- Fundamental?
- Foundation?
- Basic?
- Reference?
- Core?
- Base level?
- Referential?
- Critical?



Possible Characteristics

Common link
between
applications

Required across
many sectors

Uses global
standards

Will form a
common
information
framework

Maintained

Custodian or
Trusted source

Enables linking
of spatial and
non-spatial data

Not domain
specific

Data others use
to reference
their own data

Required for
many
applications

Not very
volatile

Adds value to
other data

Defined,
endorsed and
used by all or
many data users

Applies to all or
most regions

Underpins other
information

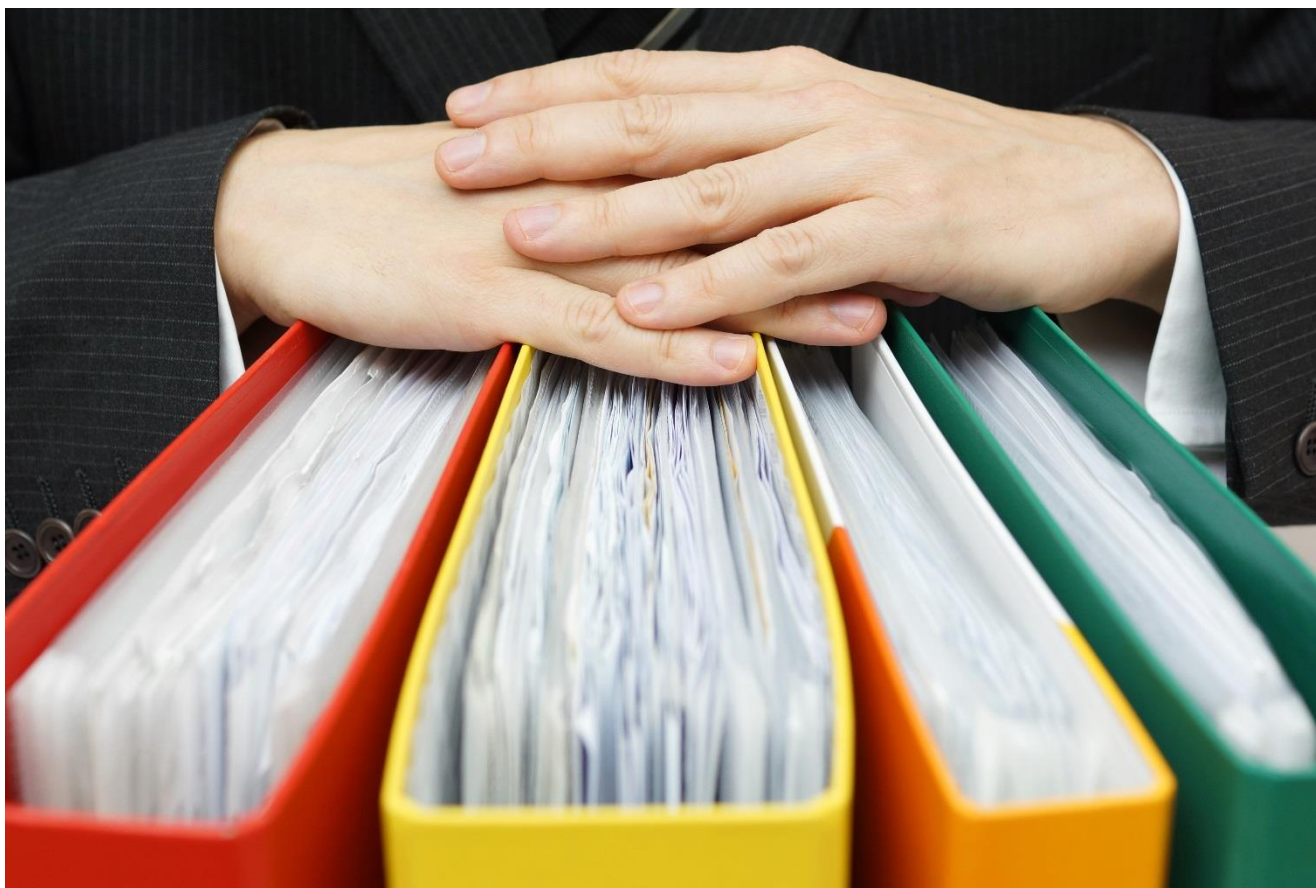


Fundamental for what?

SDG requirements:

- ✓ Baseline measurement
- ✓ Evidence-based policy making
- ✓ Implementation of actions
- ✓ Monitoring and reporting





Why Themes?



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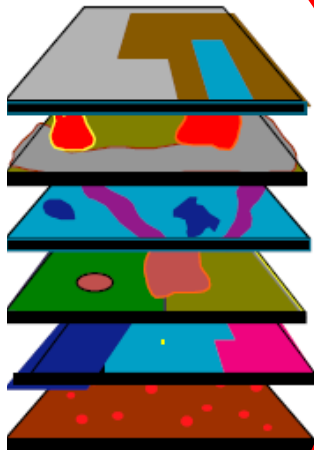
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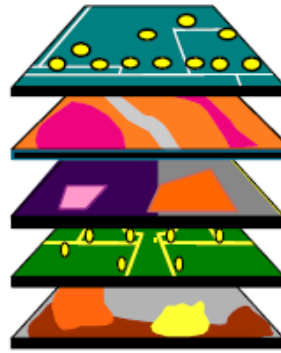
High quality, timely and reliable data

- Geog Names
- Addresses
- Functional Areas
- Settlements
- Land parcels
- Transport Networks
- Elevation/Depth
- Popn distribution
- Land Cover/Use
- Geology/Soils
- Physical infrastructure
- Imagery
- Water



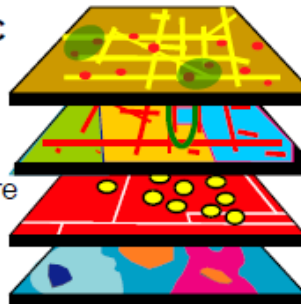
SOCIAL

- Society
- Poverty
- Education
- Health
- Population
- Employment
- Water
- Sanitation
- Equality
- Gender
- Governance



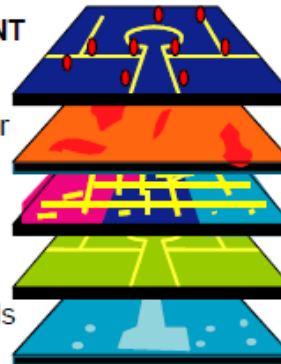
ECONOMIC

- Well-being
- Cities
- Water
- Energy
- Infrastructure
- Industry
- Sanitation
- Economy



ENVIRONMENT

- Water
- Seas/oceans
- Land use/cover
- Ecosystems
- Forests
- Agriculture
- Climate
- Biodiversity
- Natural hazards
- Pollution



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We need fundamental geospatial data about:

People

Built Environment

Natural Environment

To locate this subject matter we need data which:

- can be about the actual subjects, and/or
- use proxies for them e.g. an address as a proxy for a person or a phone track as a proxy for a road



Themes – or datasets?

Subject matter	something about which data can be collected
Theme	a high level categorisation of subject matter which can be further broken down into sub-themes
Dataset	a collection of data about specific features



UN GGIM: Europe asked to take lead to:



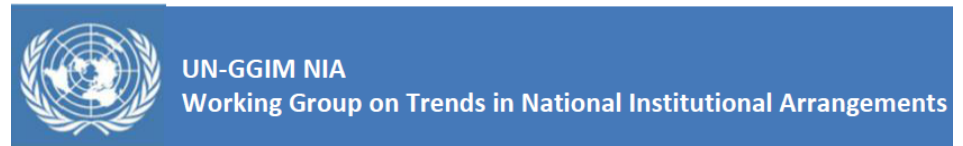
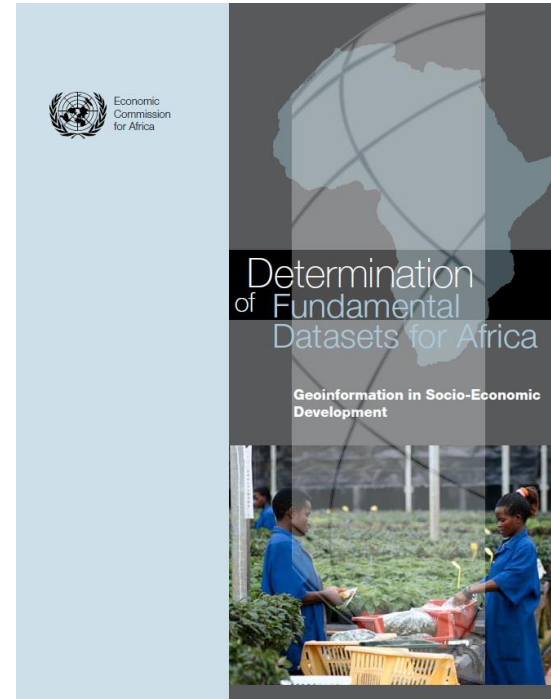
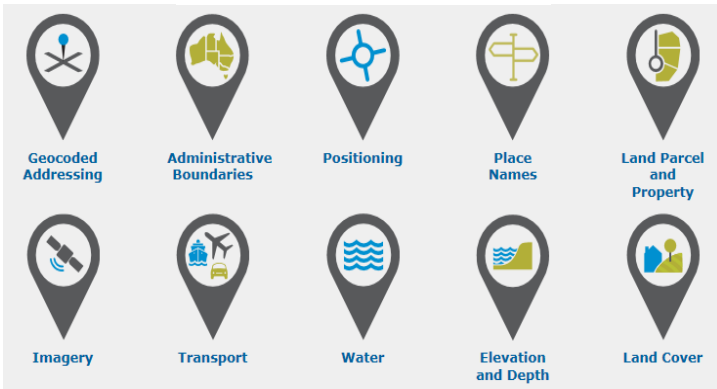
- Produce a recommendation for a minimum list of **global fundamental geospatial data themes**. Each data theme should be supported by a description and guidelines.
- Take account of **existing activity** being undertaken by UN-GGIM regional committees, ensuring that where possible **existing resources** are used.
- Consider the prioritisation of the data themes and how they **link to other data needs** within the UN-GGIM programme of work.
- Consider the specific needs and vulnerabilities of small island developing States.
- Ensure that the data themes should be technical in nature so as not to raise political concerns.



It's not difficult to find existing work ...



Fundamental Geospatial Data



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Data Themes and Reference Frame

- Addresses
- Buildings and Settlements
- Elevation and depth
- Functional Areas
- Geographical Names
- Geology and Soils
- Land Cover and Land Use
- Land Parcels
- Orthoimagery
- Physical infrastructure
- Population distribution
- Transport Networks
- Water
- Reference Frame: Global Geodetic Reference Framework



Theme Description – One side A4 only

Theme title
Description
Why this theme fundamental?
Which sustainable development goals (SDGs) will it help to meet?
Geospatial data features in more detail
Possible sources of geospatial data
Existing geospatial data standards



Example - Addresses

Theme title:

Addresses

Description

An address is a structured label, usually containing a property number, a street name and a locality name. It's used to identify a plot of land, a building or part of a building, or some other construction, together with coordinates indicating their geographic position. Addresses are often used as a proxy for other data themes such as Land Parcels.

Why is this theme fundamental?

Addresses underpin government administration at all levels; and good administration is a prerequisite for achieving sustainable development goals. An address is often the unit to which a public service, such as water, is provided. Addresses also enable effective communication with citizens; informing them of policies applying to them, and notifying them of relevant incidents. The theme also helps in managing buildings and properties, and supports social surveys. Datasets relating to individuals or households are often linked to addresses, which can therefore play a role in connecting otherwise-unrelated information. Geocoding addresses relates such information to geographic location. This allows for location-based data analytics and data mining.

Which sustainable development goals (SDGs) will it help to meet?

Addresses have been identified as playing a key role in the achievement of SDGs 4,6,7, 9 and 11.

Geospatial data features in more detail

The addresses theme comprises a single feature type, address, to which a variable number of attributes may be attached. Typically, in urban areas these comprise at least one locator (building, floor or apartment number and/or name), a two-dimensional geographic position and a number of address components which place the address within other features such as a road, a locality, an administrative unit or postal code. In rural areas the locator may be less precise.

Possible sources of geospatial data

Address datasets are usually maintained by public authorities. While data may be created and maintained at local level, it should ideally be compiled into a single national register.

Existing geospatial data standards

Note: This is indicative. Other lists of standards exist and UN-GGIM will seek to work with thematic experts to develop a list of relevant data standards.

- INSPIRE Data Specification on Addresses – Technical Guidelines 3.1
- ISO 19160-1:2015 Addressing -- Part 1: Conceptual model
- ISA Programme Location Core Vocabulary
- ISO 19160-4(UPU, Universal Postal Union) Addressing--Part4: International postal address components and template language



Themes most relevant to SDGs

	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
Addresses				*		*	*		*		*						
Bldgs and Settlements	*		*	*		*	*		*		*	*	*				
Elevation and depth	*	*	*			*	*				*		*	*	*		
Functional Areas	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Geographical Names	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	
Geology and Soils		*	*			*	*	*	*		*	*	*	*	*		
Land Cover/Land Use	*	*	*		*	*	*	*	*		*	*	*	*	*		
Land Parcels	*	*		*				*			*						
Orthoimagery		*				*			*		*			*	*		
Physical infrastructure			*	*		*	*		*		*						
Population distribution	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Transport Networks		*	*					*	*		*						
Water		*	*			*	*		*		*	*	*	*	*		
Global Geodetic Reference Framework		*				*	*	*	*	*	*	*	*	*	*	*	





What happens next?



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Where does the road go now?

- Promotion and awareness raising



Icons



Global Geodetic Reference Frame



Geographical Names



Addresses



Functional Areas



Buildings and Settlements



Land Parcels



Transport Networks



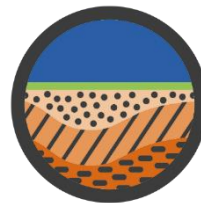
Elevation and Depth



Population Distribution



Land Cover and Land Use



Geology and Soils



Physical Infrastructure



Water

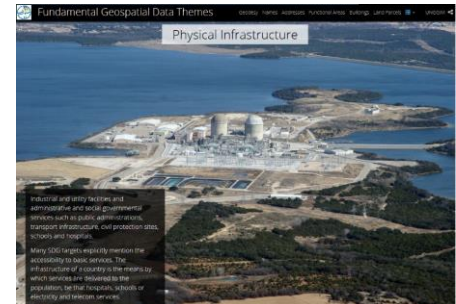
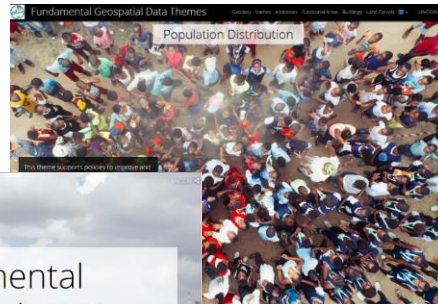


Orthoimagery

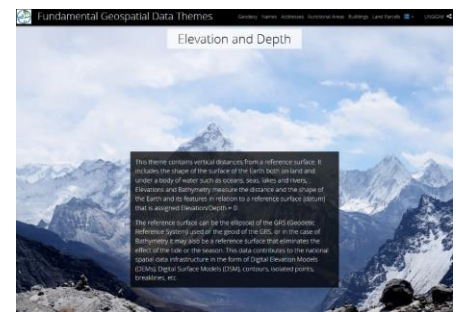
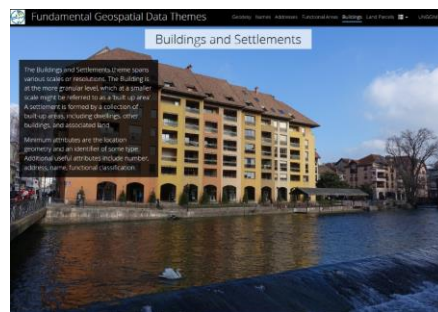
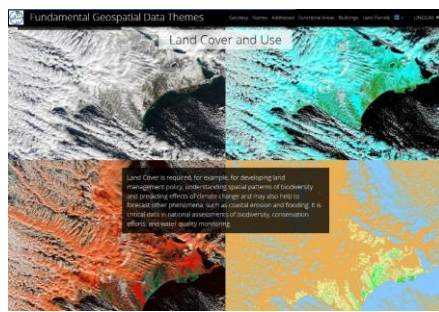
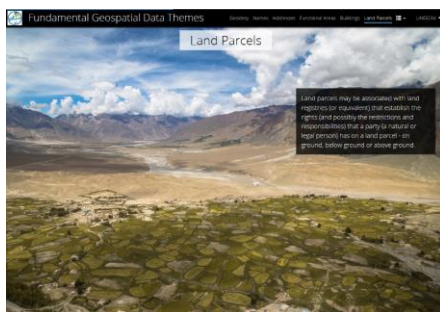
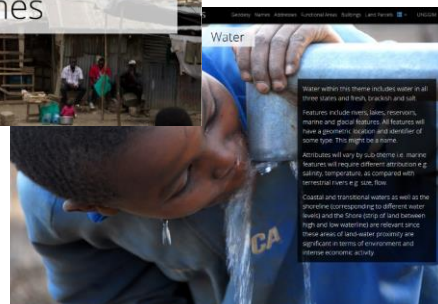


Data Themes Storyboard

Created by the GGIM Secretariat:



Fundamental Geospatial Data Themes



Story Map Cascade



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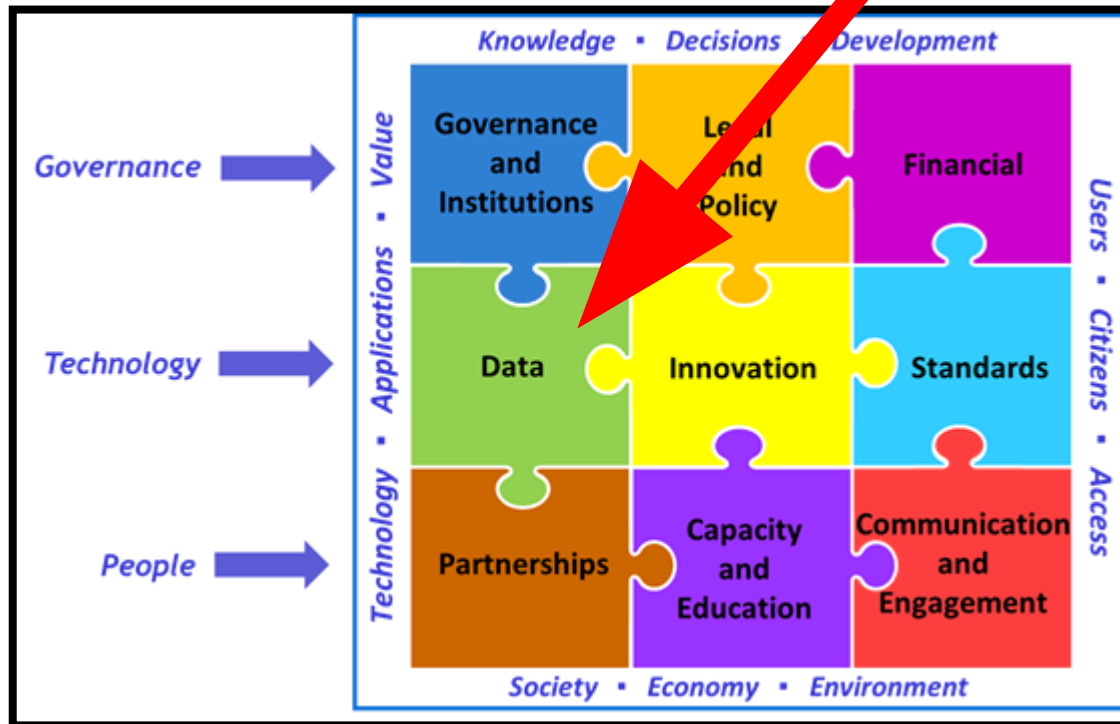


Where does the road go now?

- Promotion and awareness raising
- Inclusion in the Integrated Geospatial Information Framework



Integrated Geospatial Information Framework



Where does the road go now?

- Promotion and awareness raising
- Inclusion in the Geospatial Framework
- Regional and national implementation ...



Regional and national implementation

Workshops on Fundamental Data



Dedicated three-day workshop organised at UNECA Addis Ababa in April 2018

Workshop organised as part of the UN-GGIM: Europe Plenary, May 2018



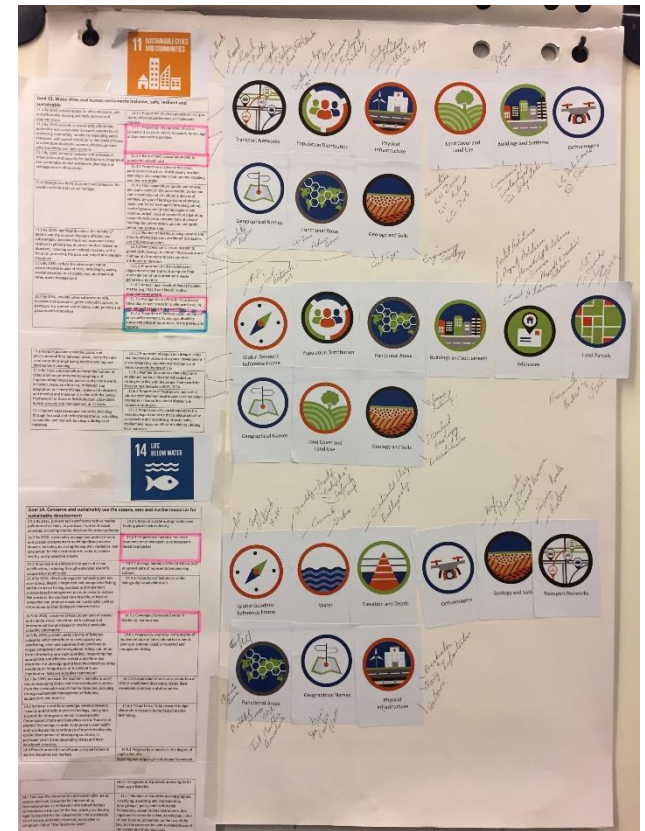
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Audit and Gap Analysis

- ⬇️ What data is required?
- ⬇️ What data do we have?
- ⬇️ Is it the right quality/coverage/currency/ interoperable?
- ⬇️ How can we improve it?
- ⬇️ Where can we get other fundamental data?
- ➡️ Action Plan



Thank you!



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