JOINT UN-GGIM: EUROPE – ESS - UNECE MEETING ON THE INTEGRATION OF STATISTICAL AND GEOSPATIAL INFORMATION
LUXEMBOURG, 29 MARCH 2019

# UN-GGIM: Europe Working Group on Core Data
# Report and update

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# General State of Play

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# Reminder

## Selected Core Data Themes

**Annex I**

Coordinate Reference Systems

Geographical Grid Systems

Geographical Names

Administrative Units

Addresses

Cadastral Parcels

Transport Networks

Hydrography

Protected Sites

**Annex II**

Elevation

Land Cover

OrthoImagery

Geology

**Annex III**

Statistical units

Buildings

Soil

Land use

Human health and safety

Utility and governmental services

Environmental monitoring facilities

Production and industrial facilities

Agricultural and aquaculture facilities

Population distribution - demography

Area management/restriction/regulation

Natural risk zones

Atmospheric conditions

Meteorological geographical features

Oceanographic geographical features

Sea regions

Bio-geographical regions

Habitats and biotopes

Species distribution

Energy resources

Mineral resources

# Overview

- Recommendations for Content:

  Status on previous meeting (April 2018)

  - Finalised: theme Cadastral Parcels
  - Draft available: themes
    - Addresses
    - Geographical Names
    - Administrative Units
    - Buildings
    - Basic Services
    - Statistical units

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# Overview

- Progress since previous meeting (April 2018)
  - Focus on "new" themes
    - **Initial draft ready for themes**
      - **Area Management**
      - **Elevation**
      - **Hydrography (coming soon)**
      - **- Ortho-imagery**
      - **- Transport Network**

→ review soon open to the geostatistical community

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# Overview

- Progress since last meeting (April 2018)
  - Difficulties for themes Land Cover and Land Use
    - Many modelling options, various existing practices

    → hard to find minimum **common** content
  - Progress in comment resolution but final deliverable still to be written for themes
    - Addresses
    - Geographical Names
    - Administrative Units
    - Buildings
    - Basic Services
    - Statistical units

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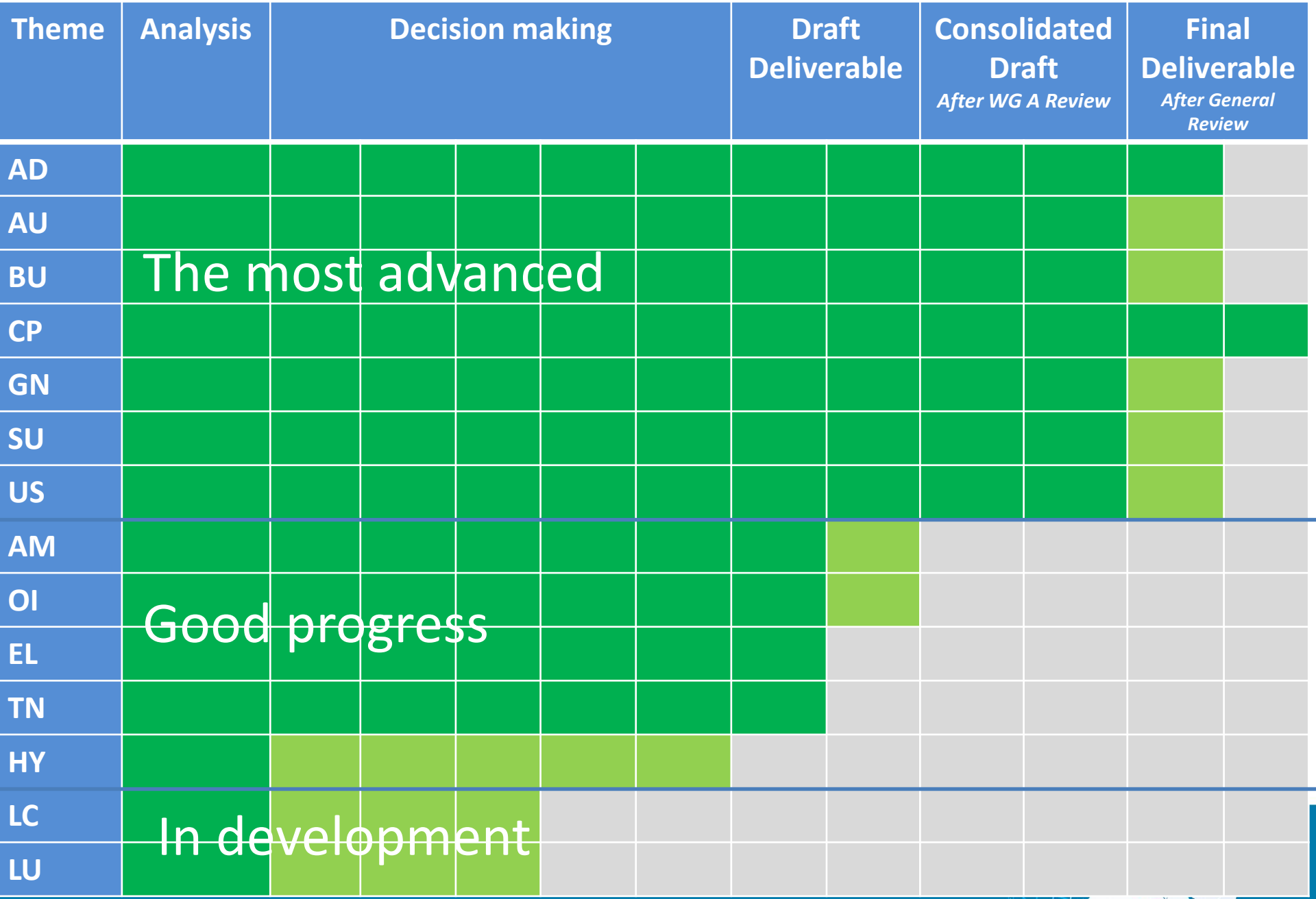
# Global State of Progress



# Recommendation for Content Core Theme ‘Elevation’

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# Core Theme 'Elevation'

## Why is it required?

- It is source data for orthoimage
- It influences
  - physical phenomena : propagation of air, water, light, waves, ….
  - biological phenomena
  - human activities (agriculture, forestry, construction, …)


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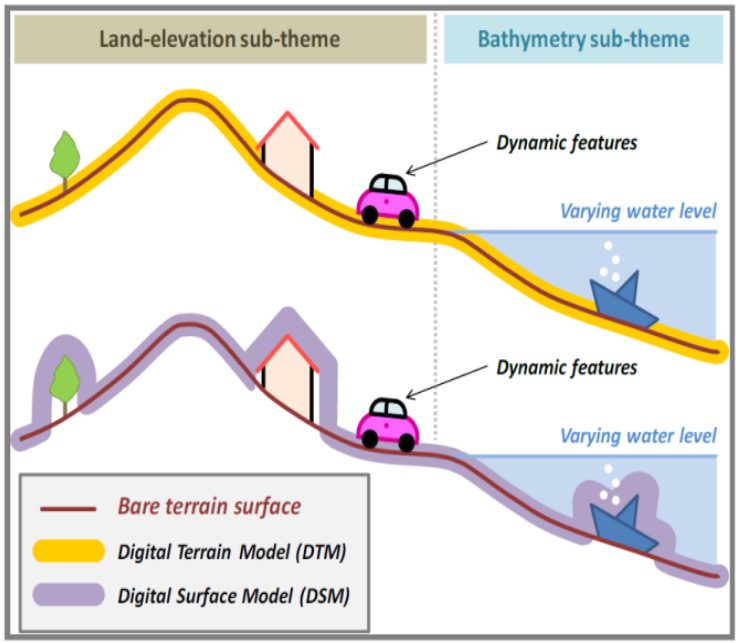
# Core theme 'Elevation '

- A multi-scale approach
- For the land part, interest for both
  - Digital Terrain Model
  - Digital Surface Model

DSM – DTM may be used for forestry applications (biomass)

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# Core theme 'Elevation '

| Level of detail | Geographic Extent | DTM | DSM |
|---|---|---|---|
| Master level 0 (very large resolution) | Hot spots (urban areas, areas prone to floods) | V | V (on land part) |
| Master level 1 (high resolution) | Whole land territory | √ | √ |
| Master level 2 (medium resolution) | Whole land territory | V | V |
| | Coastal sea | V | |

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# Recommendation for Content Core Theme ‘Orthoimagery’

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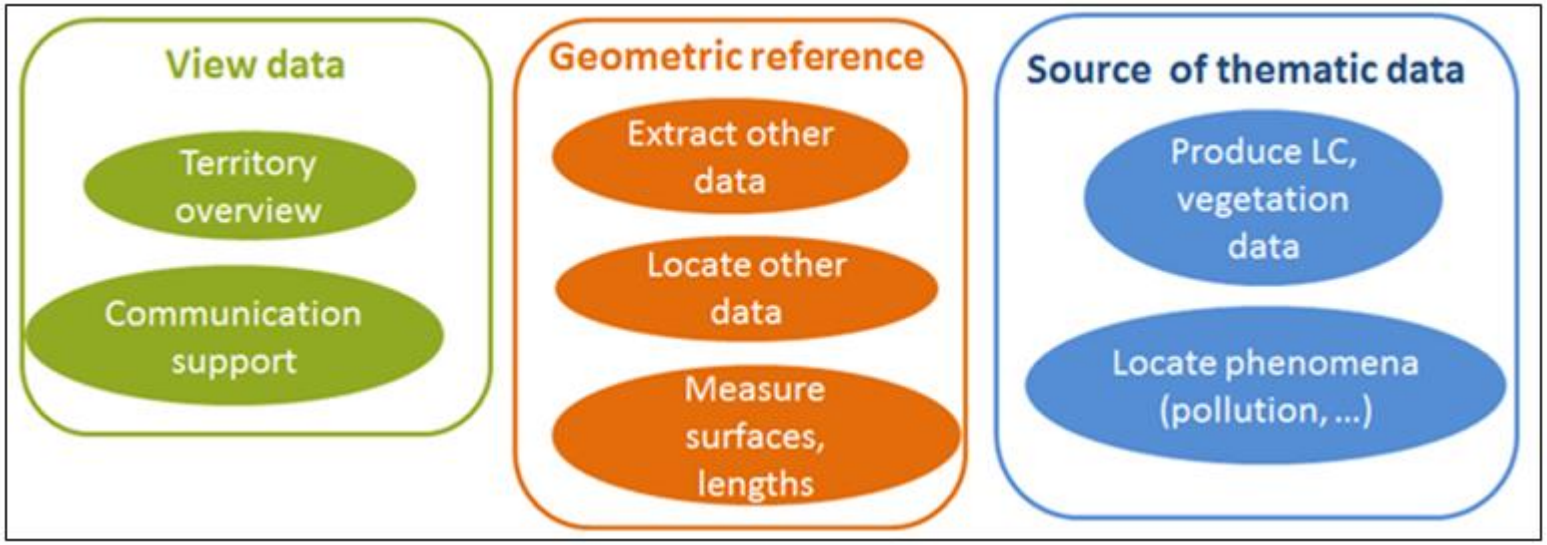
# Core Theme 'Orthoimage'

# Why is it required?

- Ortho-images have:
  - information richness of an image
  - geo-referencing

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# Core Theme 'Orthoimage'

- An ideal ortho-image should have:
  - Good geometric resolution (pixel size)
  - Good spectral resolution (number of bands)
  - High frequency

**Impossible to achieve at reasonable price**

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A multi-scale, multi-product approach

# Core Theme 'Orthoimage'

| Type | Status | Geometric resolution | Spectral resolution | Frequency |
|---|---|---|---|---|
| Reference ortho-image (Master level 1) | Core recommendation | **Good** (< 1m) | **Good** (RVB + IR) | Medium (3 years) |
| High frequency ortho-image (Master level 2) | Go | | | d |
| Very high resolution orthoimage (Master level 0) | Good practice (urban areas) | **Very good** (< 10 cm) | Good | Medium |
| Historical orthoimage | Good practice (delivery) Consideration for future (production) | Any | Any | Any |

Might be achieved from Sentinel-2 images

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# Recommendation for Content
# Core Theme 'Regulated or Managed Areas'

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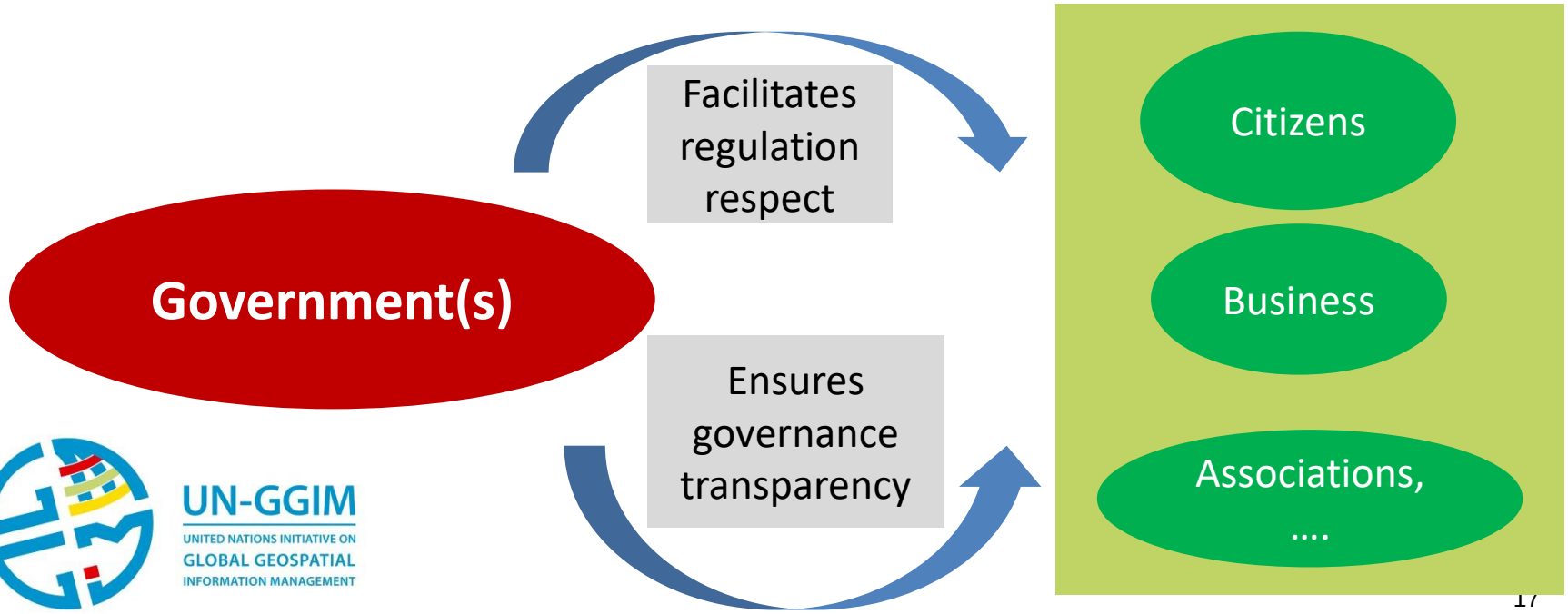
# Core Theme 'Regulated or Managed Areas'

## Why is it required?

- Spatial Regulation and Management are powerful tools to achieve SDG
- Benefits of publishing geographic data:

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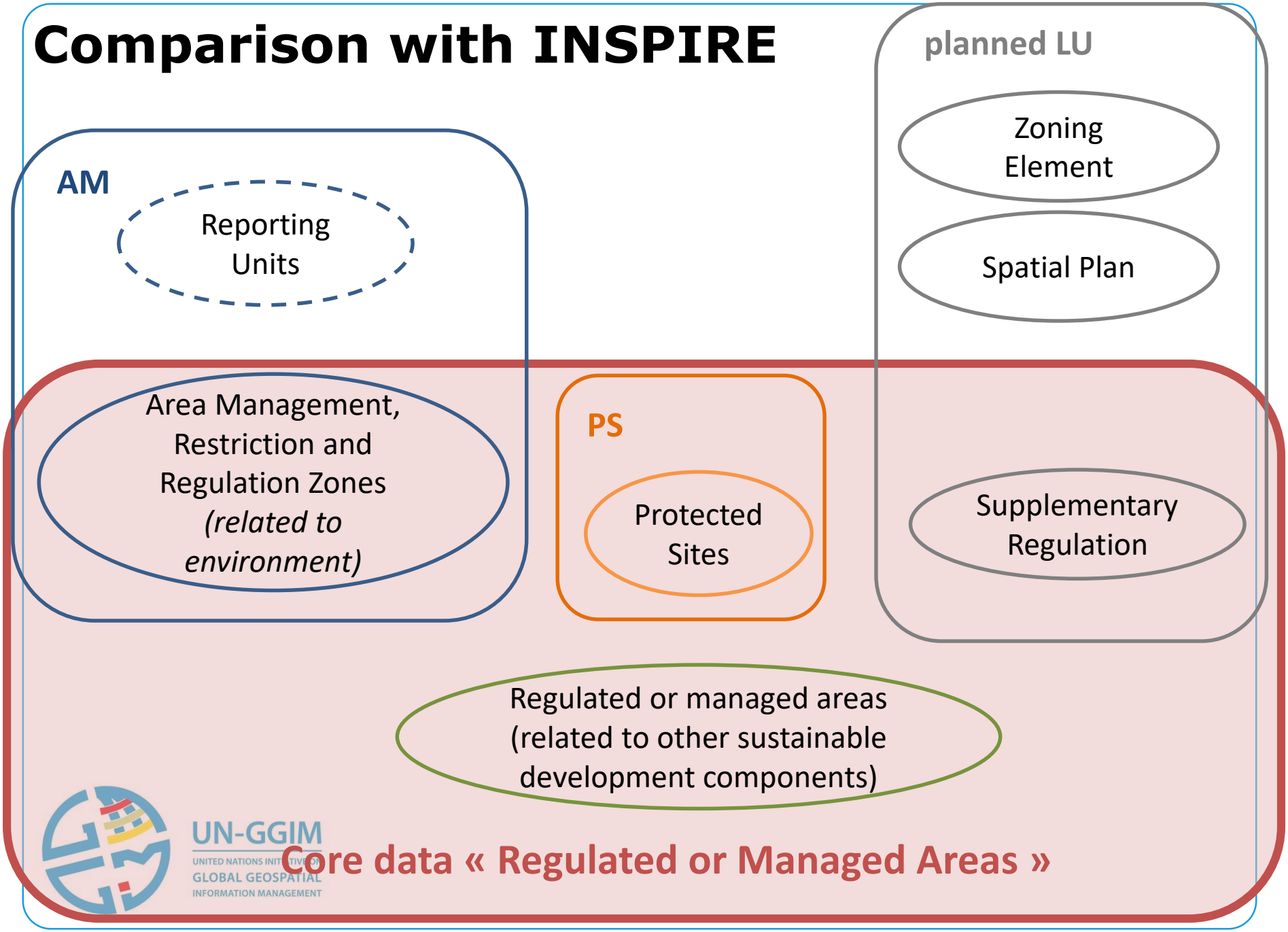
# Comparison with INSPIRE

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# Core Theme 'Regulated or Managed Areas'

- Core content based on the common elements of INSPIRE data model:
  - Geometry
  - Identifier
  - Name (if any)
  - Classification
  - Validity period
  - Link to legal text

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# Core Theme 'Regulated or Managed Areas'

- Wide range of regulated or managed areas
  - Main issues
    - Classification
    - Priorities for (spatial) data capture
  - Some general recommendations
  - But most of the standardisation work to be done at national level

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# Core Theme 'Transport Network'

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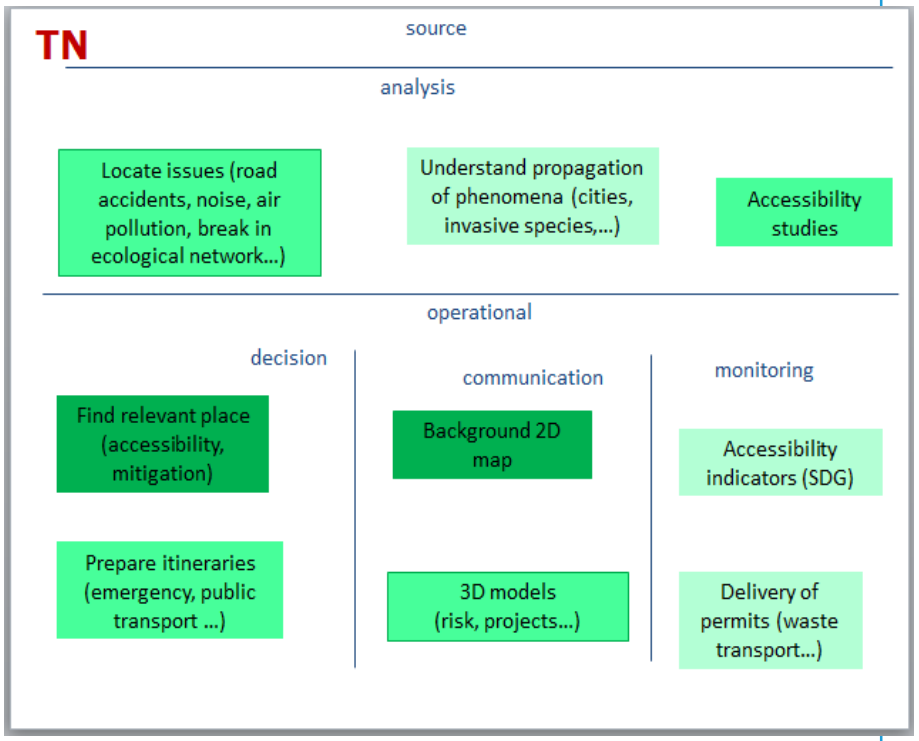
# Core Theme 'Transport Network'

## Why is it required?

- Positive side: mean of **accessibility**
- Negative side: source of pollution, accidents, noise, pressure on environment, energy consumption, soil sealing….

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# Core Theme 'Transport Network' Comparison with INSPIRE

| INSPIRE | Core data geometry | Core data - semantics |
|---|---|---|
| **Road** | Whole **network** | Most INSPIRE attributes |
| **Railway** | Whole **network** | Few INSPIRE attributes |
| Air | Only infrastructures **(airport, runway)** | Most INSPIRE attributes |
| Water | Only **Ports and Ferry Crossings** | Most INSPIRE attributes |
| Cable | | |

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Navigability of watercourses:
considered under theme Hydrography

# Core Theme 'Transport Network'

Close to ERM and EGM

- Multi-scale approach
  - Master Level 1 -Regional -Global
- Main quality requirement: respect the real-world network topology
- Modelling choice:
  - Properties as direct attributes on road or railway objects
  - Mechanisms to facilitate linear referencing offered for road network

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# Core Theme ‘Hydrography’

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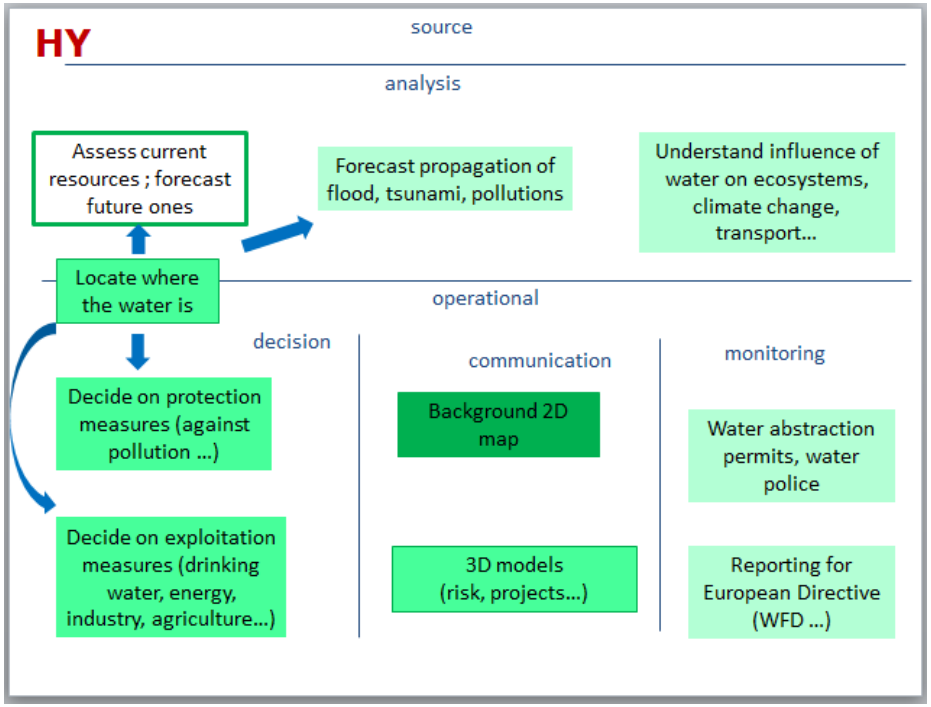
# Core Theme 'Hydrography'

# Why is it required?

- **Water is condition of life**
- Water is source of risks (flood, pollution)

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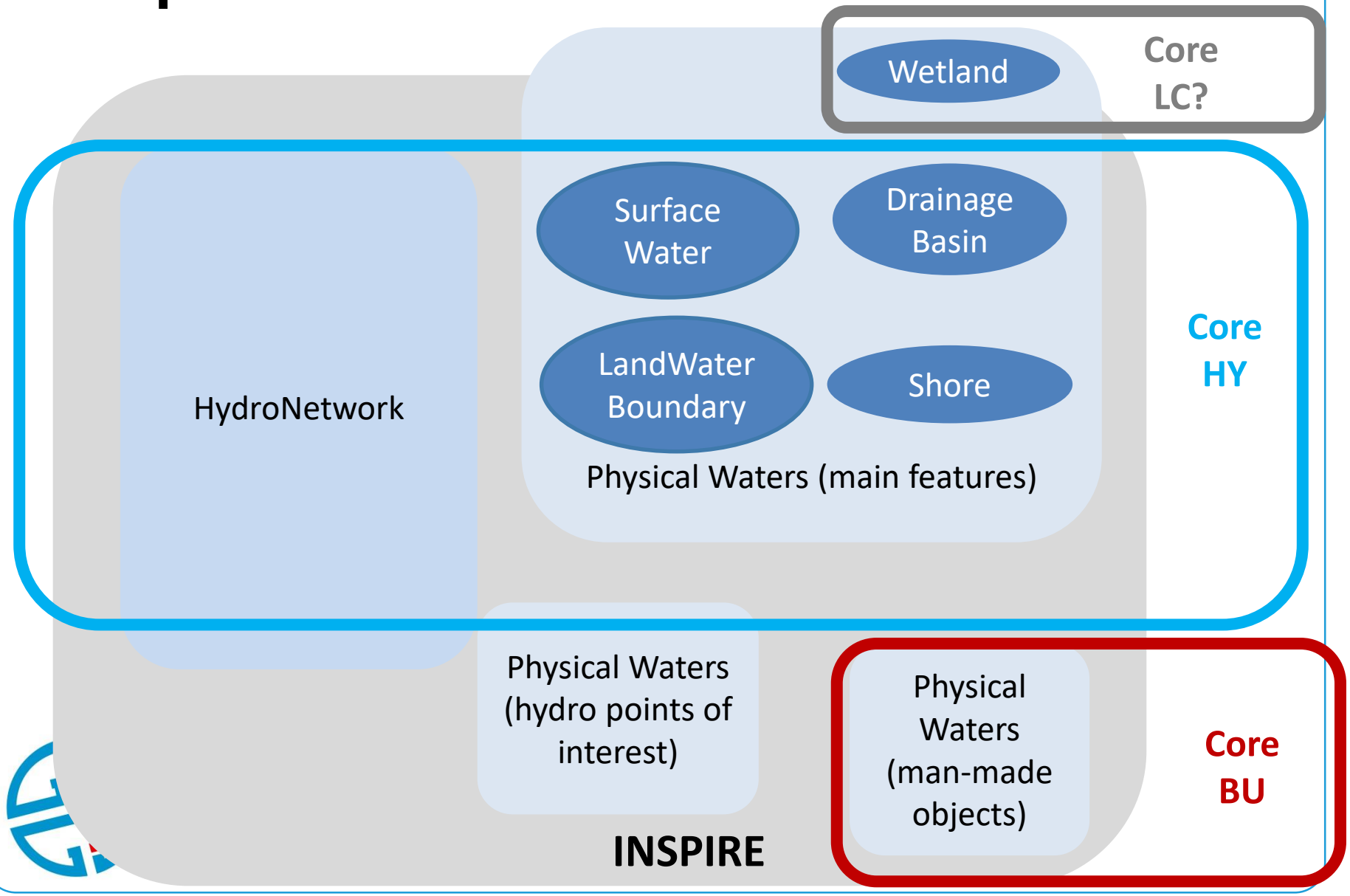
# Core Theme 'Hydrography' Comparison with INSPIRE



# Core Theme 'Hydrography'

Close to ERM and EGM

- Multi-scale approach
  - Master Level 1 -Regional -Global
- Ideally, a single production data base for:
  - HydroNetwork -Physical Waters - Navigability
- Respect of real world topology
- Capture of a reference shoreline is recommended
- Underground water not included in core data …
  - but to be considered in future

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# Core Data Implementation

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# What has been done so far to promote core data implementation

Communication (Opportunities) – WG A

Review by geo-statistical community – WG A

Questionnaire to geo-statistical community – WG B

**Outreach**

UNGGIM recommendations for core & fundamental data

European Commission Interest for core data:
- dedicated sub-website
- INSPIRE-MIG meeting

**Provide Political Framework**

**Facilitate**

European initiatives ensuring pan-European core data for some themes and LoD
e.g. EuroGeographics, EBM, ERM, EGM, CRD

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# What may be envisaged to promote core data implementation

Communication Plan UN-GGIM: Europe

Translation into Russian – UNECE

**Outreach**

Include core data in INSPIRE 2021 revision?

**Provide Legal Framework**

Collect implementation examples – WG A

Report state-of-the-art in Europe: what exists & main gaps

**Facilitate**

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# Expected Benefits of Core Data Implementation

- Usages: sustainable development policies
  - WGA → in-depth analysis of SDG requirements
  - → Prioritisation of the geospatial data the most useful to analyse, monitor and achieve SDGs

- Reasonable ambition level
  - Progress
    - Go to better common minimum content in Europe
  - Feasible
    - Not from scratch
    - Mainly upgrade existing data
  - Ensured by review by geo-statistical community
    - Balance between ambition and feasibility
  - Various priority levels → Flexibility for countries

# Expected Benefits of Core Data Implementation (cont.)

- Integrating national geospatial data into pan-European data

  → Facilitating European usages

  → Better collective efficiency between Member States and European data producers

- Comparability of core data between countries

  → Comparability of policy indicators

# Conclusions

# Conclusion

- Recommendations for content of core data
  - Good progress for most themes

- Core Data Implementation
  - Several avenues to outreach, facilitate, provide legal framework
  - Value to serve sustainable development policies

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