

# INSPIRE

(and Agriculture)

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# What is a spatial information infrastructure?

The INSPIRE initiative intends to trigger the creation of a European spatial information infrastructure that delivers to the users integrated spatial information services. These services should allow the users to identify and access spatial or geographical information from a wide range of sources, from the local level to the global level, in an inter-operable way for a variety of uses. analysis, etc.



# What is a spatial information infrastructure?

The target users of INSPIRE include policy-makers, planners and managers at European, national and local level and the citizens and their organizations. Possible services are the visualization of information layers, overlay of information from different sources, spatial and temporal analysis, etc.



# What is a spatial information infrastructure?

The spatial information infrastructure addresses both technical and non-technical issues, ranging from technical standards and protocols, organizational issues, data policy issues including data access policy and the creation and maintenance of geographical information for a wide range of themes, starting with the environmental sector.



# INSPIRE Principles

The INSPIRE initiative intends to improve the current situation by triggering the creation of a European Spatial Data Infrastructure for the access and use of spatial information built on the basis of the following principles:

- √ Data should be collected once and maintained at the level where this can be done most effectively.
- √ It must be possible to combine seamlessly spatial information from different sources across Europe and share it between many users and applications.
- √ It must be possible for information collected at one level to be shared between all the different levels, e.g.

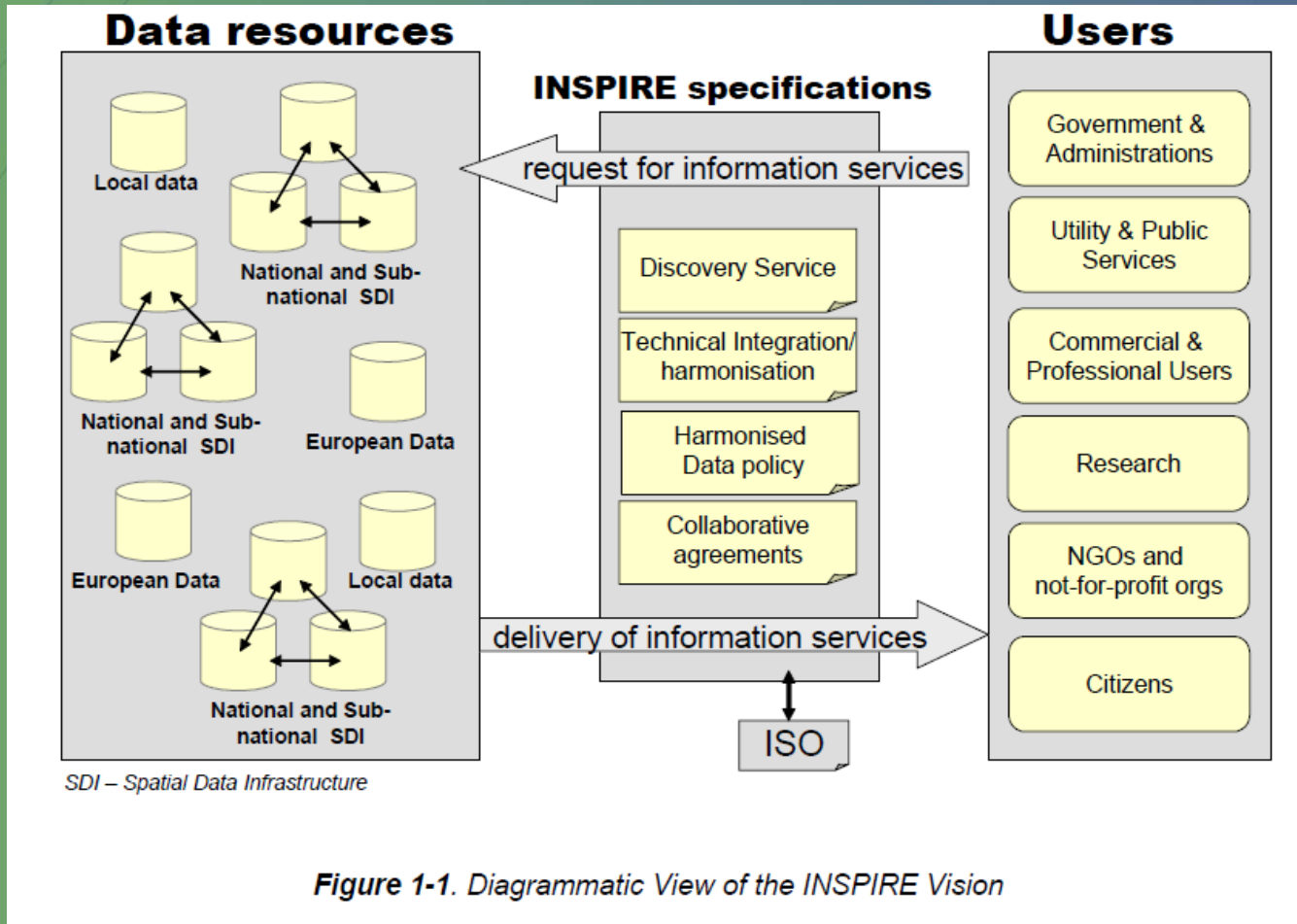


# INSPIRE Principles

- ✓ Geographic information needed for good governance at all levels should be abundant and widely available under conditions that do not restrain its extensive use.
- ✓ It must be easy to discover which geographic information is available, fits the needs for a particular use and under what conditions it can be acquired and used.
- ✓ Geographic data must become easy to understand and interpret because it can be visualised within the appropriate context and selected in a userfriendly way.



# INSPIRE Information Flow



# INSPIRE Directive

- DIRECTIVE 2007/2/EC OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 14 March 2007 establishing an Infrastructure for Spatial Information in the European Community (INSPIRE)



# Metadata

Member States shall ensure that metadata are created for the spatial data sets and services corresponding to the themes listed in Annexes I, II and III, and that those metadata are kept up to date.



# Metadata

Metadata shall include information on the following:

- (a) the conformity of spatial data sets with the implementing rules;
- (b) conditions applying to access to, and use of, spatial data sets and services and, where applicable, corresponding fees;
- (c) the quality and validity of spatial data sets;
- (d) the public authorities responsible for the establishment, management, maintenance and distribution of spatial data sets and services;
- (e) limitations on public access and the reasons for such limitations,



# Metadata

Member States shall create the metadata referred to in accordance with the following timetable:

- (a) not later than two years after the date of adoption of implementing rules in the case of the spatial data sets corresponding to the themes listed in Annexes I and II;
- (b) not later than five years after the date of adoption of implementing rules in the case of the spatial data sets corresponding to the themes listed in Annex III.



# INTEROPERABILITY of Spatial Data Sets and Services

Implementing rules laying down technical arrangements for the interoperability and, where practicable, harmonisation of spatial data sets and services, designed to amend non-essential elements of this Directive by supplementing it, shall be adopted in accordance with the regulatory procedure. Relevant user requirements, existing initiatives and international standards for the harmonisation of spatial data sets, as well as feasibility and cost-benefit considerations shall be taken into account in the development of the implementing rules. Where organisations established under international law have adopted relevant standards to ensure interoperability or harmonisation of spatial data sets and services, these standards shall be integrated, and the existing technical means shall be referred to, if appropriate, in the implementing rules mentioned in this paragraph.



# INTEROPERABILITY of Spatial Data Sets and Services

Member States shall ensure that all newly collected and extensively restructured spatial data sets and the corresponding spatial data services are available in conformity with the implementing rules within two years of their adoption, and that other spatial data sets and services still in use are available in conformity with the implementing rules within seven years of their adoption.



# Network Services

Member States shall establish and operate a network of the following services for the spatial data sets and services for which metadata have:

(a) discovery services making it possible to search for spatial data sets and services on the basis of the content of the corresponding metadata and to display the content of the metadata;

(b) view services making it possible, as a minimum, to display, navigate, zoom in/out, pan, or overlay viewable spatial data sets and to display legend information and any relevant content of metadata;



# Network Services

- (c) download services, enabling copies of spatial data sets, or parts of such sets, to be downloaded and, where practicable, accessed directly;
- (d) transformation services, enabling spatial data sets to be transformed with a view to achieving interoperability;
- (e) services allowing spatial data services to be invoked.



# Data-Sharing

Each Member State shall adopt measures for the sharing of spatial data sets and services between its public authorities. Those measures shall enable those public authorities to gain access to spatial data sets and services, and to exchange and use those sets and services, for the purposes of public tasks that may have an impact on the environment.



# Monitoring

Member States shall monitor the implementation and use of their infrastructures for spatial information. They shall make the results of this monitoring accessible to the Commission and to the public on a permanent basis.



# Annex I

1. Coordinate reference systems - Systems for uniquely referencing spatial information in space as a set of coordinates (x, y, z) and/or latitude and longitude and height, based on a geodetic horizontal and vertical datum.
2. Geographical grid systems - Harmonised multi-resolution grid with a common point of origin and standardised location and size of grid cells.



# Annex I

3. Geographical names - Names of areas, regions, localities, cities, suburbs, towns or settlements, or any geographical or topographical feature of public or historical interest.

4. Administrative units - Units of administration, dividing areas where Member States have and/or exercise jurisdictional rights, for local, regional and national governance, separated by administrative boundaries.



# Annex I

5. Addresses- Location of properties based on address identifiers, usually by road name, house number, postal code.

**6. Cadastral parcels - Areas defined by cadastral registers or equivalent.**

7. Transport network - Road, rail, air and water transport networks and related infrastructure. Includes links between different networks.



# Annex I

8. Hydrography - Hydrographic elements, including marine areas and all other water bodies and items related to them, including river basins and sub-basins.

9. Protected sites - Area designated or managed within a framework of international, Community and Member States' legislation to achieve specific conservation objectives.



# Annex II

1. Elevation - Digital elevation models for land, ice and ocean surface. Includes terrestrial elevation, bathymetry and shoreline.
2. Land cover - Physical and biological cover of the earth's surface including artificial surfaces, agricultural areas, forests, (semi-)natural areas, wetlands, water bodies.



# Annex II

**3. Orthoimagery - Geo-referenced image data of the Earth's surface, from either satellite or airborne sensors.**

4. Geology - Geology characterised according to composition and structure. Includes bedrock, aquifers and geomorphology.



# Annex III

1. Statistical units - Units for dissemination or use of statistical information.
2. Buildings - Geographical location of buildings.
3. Soil - Soils and subsoil characterised according to depth, texture, structure and content of particles and organic material, stoniness, erosion, where appropriate mean slope and anticipated water storage capacity.



# Annex III

**4. Land use - Territory characterised according to its current and future planned functional dimension or socio-economic purpose (e.g. residential, industrial, commercial, agricultural, forestry, recreational).**

5. Human health and safety - Geographical distribution of dominance of pathologies (allergies, cancers, respiratory diseases, etc.), information indicating the effect on health



# Annex III

6. Utility and governmental services - Includes utility facilities such as sewage, waste management, energy supply and water supply, administrative and social governmental services such as public administrations, civil protection sites, schools and hospitals.

7. Environmental monitoring facilities - Location and operation of environmental monitoring facilities includes observation and measurement of emissions, of the state of environmental media and of other ecosystem parameters (biodiversity, ecological conditions of vegetation, etc.) by or on behalf of public authorities.



# Annex III

**9. Agricultural and aquaculture facilities Farming equipment and production facilities (including irrigation systems, greenhouses and stables).**

10. Population distribution — demography Geographical distribution of people, including population characteristics and activity levels, aggregated by grid, region, administrative unit or other analytical unit.



# Annex III

11. Area management/restriction/regulation zones and reporting units - Areas managed, regulated or used for reporting at international, European, national, regional and local levels. Includes dumping sites, restricted areas around drinking water sources, nitrate-vulnerable zones, regulated fairways at sea or large inland waters, areas for the dumping of waste, noise restriction zones, prospecting and mining permit areas, river basin districts, relevant reporting units and coastal zone management areas.



# Annex III

12. Natural risk zones - Vulnerable areas characterised according to natural hazards (all atmospheric, hydrologic, seismic, volcanic and wildfire phenomena that, because of their location, severity, and frequency, have the potential to seriously affect society), e.g. floods, landslides and subsidence, avalanches, forest fires, earthquakes, volcanic eruptions.



# Annex III

13. Atmospheric conditions - Physical conditions in the atmosphere. Includes spatial data based on measurements, on models or on a combination thereof and includes measurement locations.

14. Meteorological geographical features - Weather conditions and their measurements; precipitation, temperature, vapotranspiration, wind speed and direction.



# Annex III

15. Oceanographic geographical features - Physical conditions of oceans (currents, salinity, wave heights, etc.).

16. Sea regions - Physical conditions of seas and saline water bodies divided into regions and sub-regions with common characteristics.

17. Bio-geographical regions - Areas of relatively homogeneous ecological conditions with common characteristics.



# Annex III

18. Habitats and biotopes - Geographical areas characterised by specific ecological conditions, processes, structure, and (life support) functions that physically support the organisms that live there. Includes terrestrial and aquatic areas distinguished by geographical, abiotic and biotic features, whether entirely natural or semi-natural.



# Annex III

19. Species distribution - Geographical distribution of occurrence of animal and plant species aggregated by grid, region, administrative unit or other analytical unit.

20. Energy resources - Energy resources including hydrocarbons, hydropower, bio-energy, solar, wind, etc., where relevant including depth/height information on the extent of the resource.



# Annex III

21. Mineral resources - Mineral resources including metal ores, industrial minerals, etc., where relevant including depth/height information on the extent of the resource.

