



INSPIRE
Infrastructure for Spatial Information in
Europe

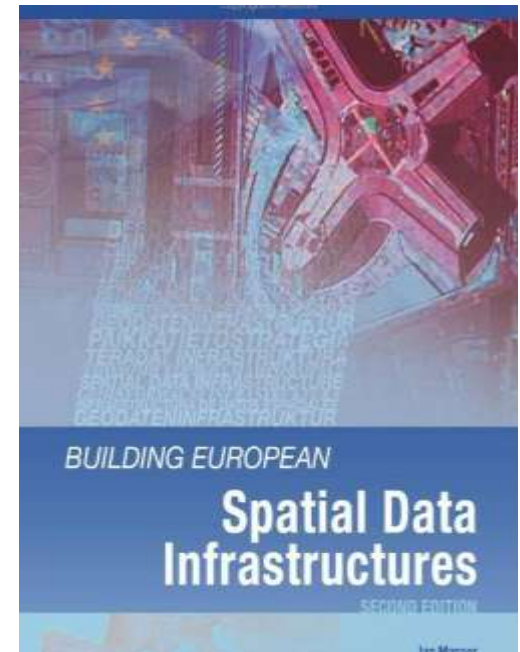
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Presentation

- Four main objectives
 - To consider the origins of the INSPIRE Directive
 - To examine the Directive itself
 - To describe the implementing rules that have been developed to implement the provisions of the Directive
 - To consider the challenges and research opportunities arising from the Directive

Disclaimer

- My position on INSPIRE
 - Member of the UK Association for Geographic Information's INSPIRE Action Working Group
 - Author of a book on Building European Spatial Data Infrastructures which deals with INSPIRE
 - Also involved in several EC funded INSPIRE related initiatives (eg JRC regional SDI workshop, eSDI-NET+ and INSPIRE /NSDI State of Play projects)
- But not formally involved in implementing INSPIRE itself



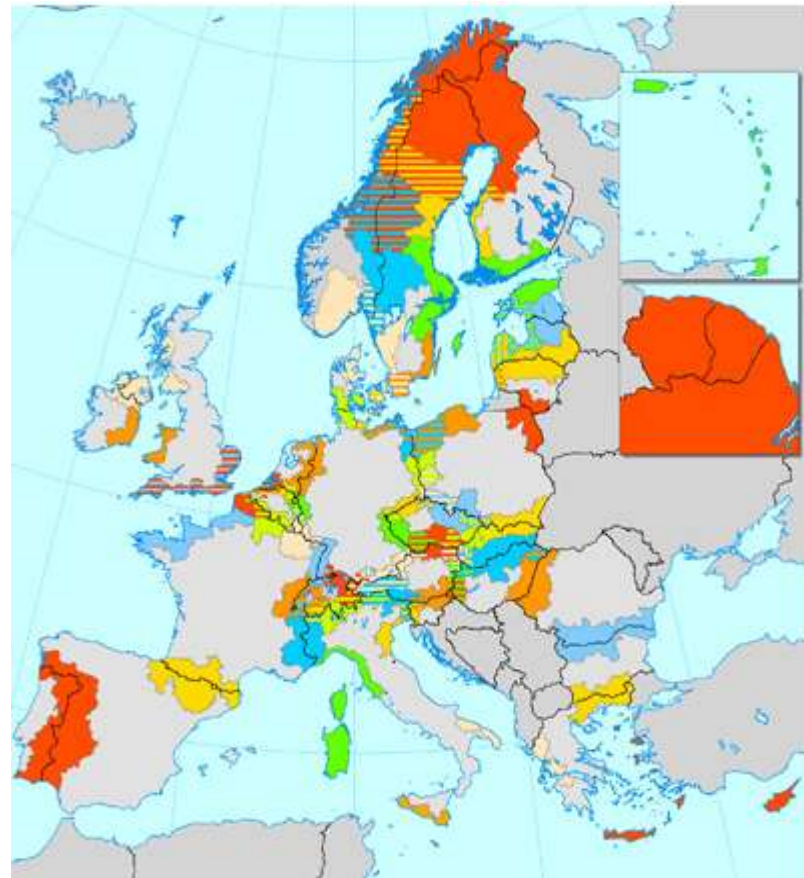
The INSPIRE phenomenon

- INSPIRE = INfrastructure for SPatial Information in Europe
- A very ambitious and exciting opportunity for SDI development
 - Some parallels with Australia, Canada and the US but these are national not multinational
- Creates a legal framework for the whole of Europe
 - Commission of the European Communities (CEC) 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).
 - All 27 national member states required to transpose its provisions into national legislation within two years, ie by May 15th 2009

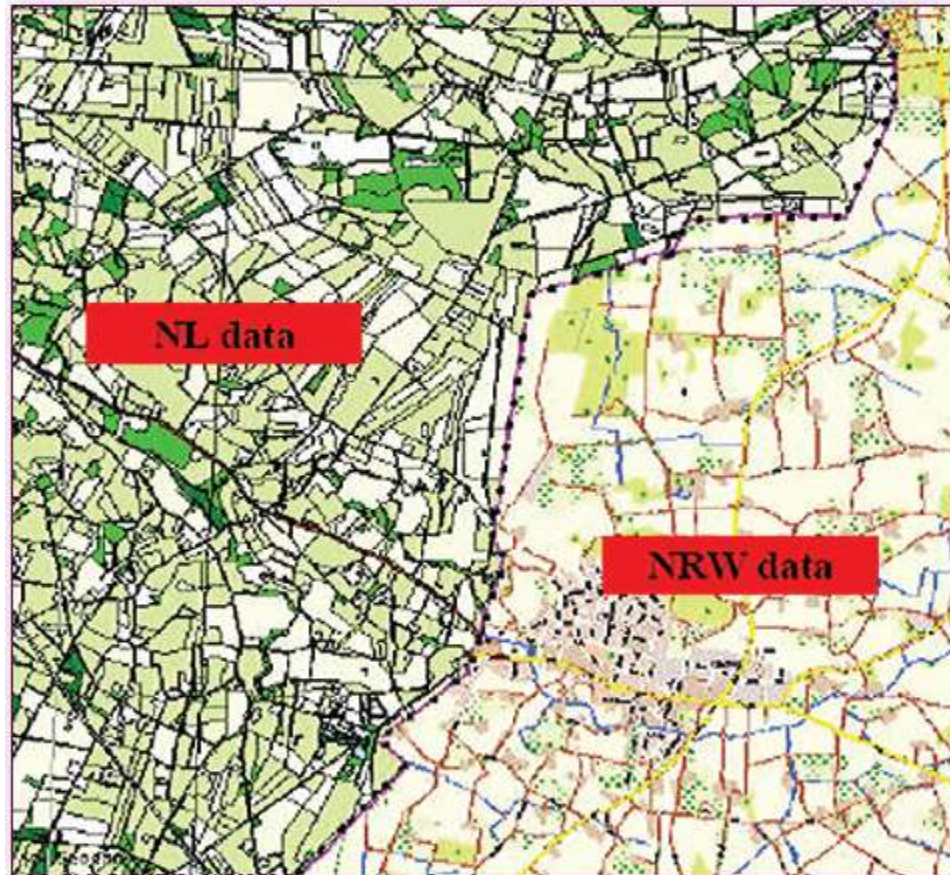
Why INSPIRE?

- Border region strategies
 - Large proportion of European population live in border regions
 - Local policing, emergency services and transport cross national borders
- River basin management
 - Danube and Rhine account for majority of European land area
- Need for greater data harmonisation
- Considerable variations between countries in SDI development

Cross-border programmes under the European Territorial Cooperation Objective



Anomalous cross border data



INSPIRE principles

- Data should be collected only once and kept where it can be maintained most effectively.
- It should be possible to combine seamless spatial information from different sources across Europe and share it with many users and applications.
- It should be possible for information collected at one level/scale to be shared with all levels/scales; detailed for thorough investigations, general for strategic purposes.
- Geographic information needed for good governance at all levels should be readily and transparently available.
- Easy to find what geographic information is available, how it can be used to meet a particular need, and under which conditions it can be acquired and used.

The INSPIRE Directive

- **Basic principles**

- Need for coordination of information required for environmental decision making
- Applies primarily to spatial data held by public authorities
- Does not set requirements for the collection of new data
- Promotes network services to facilitate data sharing

- **Five main themes**

- Metadata
- Interoperability of spatial data sets and services
- Network services
- Data sharing
- Monitoring and reporting

INSPIRE data requirements

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
- Utilities and government service
- Environmental monitoring facilities
- Production and industrial facilities
- Agriculture and aquaculture facilities
- Population distribution - demography
- Area management/restriction/regulation zones and reporting units
- 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

INSPIRE Implementation

- Elements of three Commission Directorates
 - **DG Environment** acts as an overall legislative and policy co-ordinator
 - **Eurostat** acts as the overall implementation co-ordinator
 - The **Joint Research Centre (JRC)** acts as the overall technical co-ordinator
- With the help of
 - 267 **Legally Mandated Organisations (LMOs)** are all the Member States' public authorities, institutions and bodies who already have or will get a legal mandate to set up and run one or some of the components of national and regional SDIs
 - 465 **Spatial Data Interest Communities (SDICs)** bundle the human expertise of users, producers and transformers of spatial information, technical competence, financial resources and policies

INSPIRE implementation process

- Drafting teams prepare implementing rules for
 - Metadata
 - Network services
 - Data and service sharing
 - Monitoring and reporting
- Thematic working groups assist in the drafting of technical specification for the themes covered in the annexes of the INSPIRE directive
- Draft rules submitted to INSPIRE Committee prior to their formal approval by the Commission. Once approved they are binding on member states

INSPIRE adoption road map

- 15 May 2007 **Entry** into force of the INSPIRE Directive
- 3 Dec 2008 **Adoption** of INSPIRE **metadata** regulation 1205/2008
- 5 June 2009 **Adoption** of Committee Decision regarding **monitoring and reporting**
- 19 Oct 2009 **Adoption** of INSPIRE regulation 276/2009 for **network services (discovery and view)**
- 29 Mar 2010 **Adoption** of INSPIRE regulation 268/2010 regarding **access to data sets and services**
- 23 Nov 2010 **Adoption** of amendment to INSPIRE regulation 276/2009 for **download and data transformation services**
- 23 Nov 2010 **Adoption** of INSPIRE regulation 1089/2010 regarding the **interoperability of spatial data sets for Annex I spatial data themes**
- 04 Feb 2011 **Adoption** of amendment to INSPIRE regulation 1089/2010 for the **interoperability of spatial data sets and services for Annex I spatial data themes on code lists**
- October 2012 Submission for opinion of the INSPIRE committee of IRs for the **interoperability of spatial data sets and services for Annex II and III spatial data themes**
- June 2013 Submission for opinion of the INSPIRE committee of IR for the **services allowing spatial data services to be invoked**
- October 2013 Adoption of IRs for the **interoperability of spatial data sets and services for Annex II and III spatial data themes**

INSPIRE implementation road map

- 15 May 2010 **Implementation** of provisions for monitoring and reporting
- 03 Dec 2010 **Metadata available** for spatial data sets and services corresponding to Annex I and II
- 30 Jun 2011 The EC establishes and runs a **geo portal at Community level**
- 19 Oct 2011 Implementation of Regulation as regards the access to spatial data sets and services
- 09 Nov 2011 Discovery and view services **operational**
- 28 Jun 2012 Member States shall provide the **Download Services** with initial operating capability
- 28 Jun 2012 Member States shall provide the **Transformation Services** with initial operating capability
- 23 Nov 2012 Implementation of Commission Regulation (EU) No 1089/2010 of 23 November 2010 as regards **interoperability of spatial data sets and services for newly collected and extensively restructured Annex I spatial data sets available**
- 28 Dec 2012 **Transformation services operational**
- 28 Dec 2012 **Download services operational**
- 19 Apr 2013 Implementation of Regulation as regards the **access to spatial data sets and services** of the Member States by Community institutions and bodies under harmonised conditions for existing arrangements
- 03 Dec 2013 **Metadata available for spatial data corresponding to Annex III**
- October 2015 **Newly collected and extensively restructured Annex II and III spatial data sets available**
- 23 Nov 2017 Implementation of Commission Regulation (EU) No 1089/2010 of 23 November 2010 as regards **interoperability of spatial data sets and services for other Annex I spatial data sets** still in use at the date of adoption
- October 2020 **Other Annex II and III spatial data sets available in accordance with IRs for Annex II and III**

The current state of affairs

- INSPIRE at the crossroads
 - Legislative framework in place
 - At the European Union level
 - At the member state level
 - Implementing rules and regulations agreed apart from Annex II and III data and invoke services
 - Key dates for implementation between now and 2020 agreed

Implementing INSPIRE

- Shift now from Commission to member states
- Varying degrees of readiness
 - Between countries
 - Between central and sub national levels of public authorities in countries
- Consolidation of European GI Community
 - Common vision
 - Shared tasks
- A framework for a broader cross-sectoral tool that can be extended to other policy domains

Challenges

- Need for institutional and professional capacity building
 - Increasing gap between member states
 - Growing importance of sub national agencies
- Need for greater emphasis on data sharing
 - Little guidance for public authorities at present
- Need to encourage development and involvement of user communities

A multi level governance framework?

- INSPIRE requires a combination of governance approaches
 - A top down hierarchical approach to administrative areas
 - A bottom up approach to task specific issues
- Latter particularly important in INSPIRE
 - Environmental strategies straddle conventional boundaries and administrative jurisdictions
- Need to combine approaches in practice

The coordination dilemma

(after Hooghe and Marks)

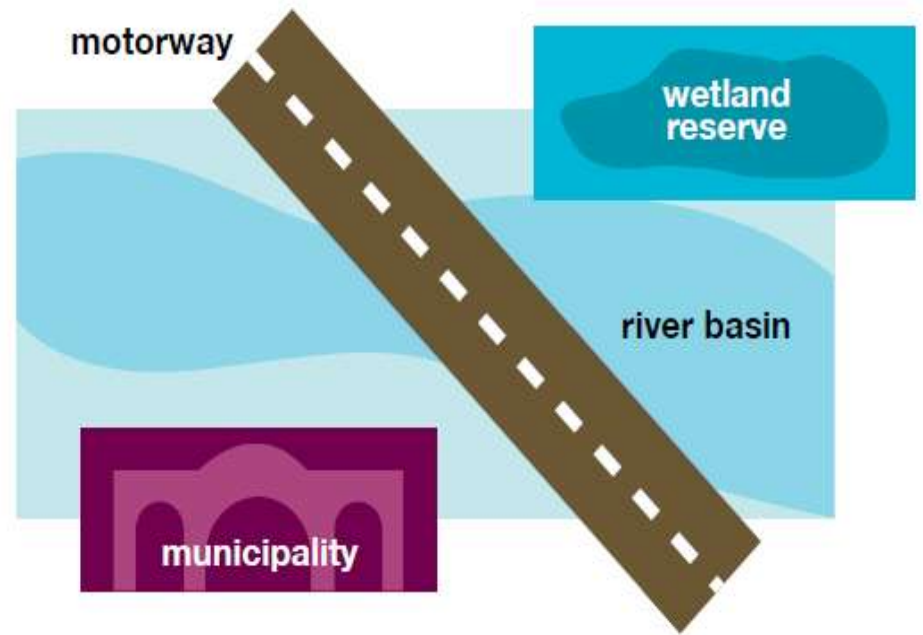
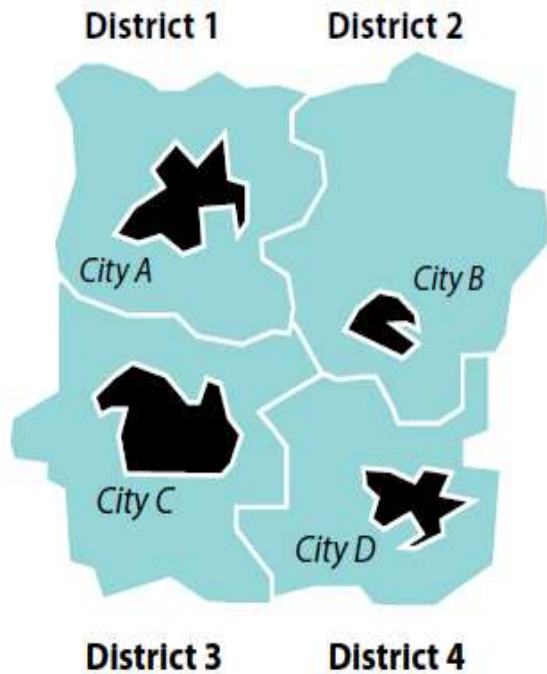
Type 1 governance

- General purpose jurisdictions
- Non intersecting memberships
- Jurisdictions at a limited number of levels
- System wide architecture

Type 2 governance

- Task specific jurisdictions
- Intersecting memberships
- No limit to the number of jurisdictional levels
- Flexible design

Patchwork quilt or collage?



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Opportunities for research

- A massive data resource on SDI evolution
 - National SDI State of Play studies since 2003
 - Annual quantitative monitoring reports since 2009
 - Three yearly qualitative monitoring reports from 2009
- Documentation on key SDI elements
 - Including metadata, network services and data specifications
- Materials on how the Directive has been transposed in all member states

A comparison of the 2009 monitoring reports

Code	Country	Pages	Exec. Summ.	Intro	Coord	Functg	Usage	Sharing	Cost/ Benefit	Concl	Annexes	Info on stats
AT	Austria	18	*	0.3	5.5	1.5	2.0	0.7	1.3	0.5	4.0	
BE	Belgium	42	2.3	0.4	10.0	8.0	5.3	2.5	3.2	2.0	4.0	
BG	Bulgaria	15	*	*	2.5	1.0	*	*	1.0	*	*	
CZ	Czech	32	0.6	1.0	7.0	7.0	3.0	1.5	2.3	0.3	1.3	
DE	Germany	24	*	0.3	3.3	3.0	*	2.5	1.8	0.3	6.0	
DK	Denmark	17	0.5	0.3	3.0	2.0	3.0	1.3	0.5	1.0	*	
EE	Estonia	25	*	1.0	4.6	5.3	3.0	1.6	0.8	1.8	1.3	
EL	Greece	32	1.8	2.5	5.1	2.5	1.4	3.6	2.3	0.5	7.0	
ES	Spain	36	0.6	1.3	6.0	4.3	5.0	3.5	1.5	1.0	5.0	
FI	Finland	31	0.5	0.3	9.3	5.5	3.5	2.3	2.5	1.0	1.0	
FR	France	14	*	*	2.0	*	1.5	0.8	*	*	2.3	5.3
HU	Hungary	26	0.5	1.0	4.0	8.4	1.3	1.2	1.1	0.2	0.6	
IE	Ireland	12	0.5	0.3	2.5	1.5	*	0.5	0.4	0.3	1.3	
IT	Italy	20	0.2	2.1	5.0	3.2	*	*	0.3	0.1	2.0	
LT	Lithuania	26	0.2	1.0	6.0	7.5	3.0	0.5	2.0	0.7	2.0	
LU	Luxembourg	23	*	0.5	4.7	5.3	1.7	0.5	0.5	0.5	2.0	
LV	Latvia	25	0.2	0.8	4.5	5.5	3.0	1.0	1.4	0.5	2.1	
MT	Malta	14	0.3	0.2	2.5	1.5	0.7	0.6	0.2	0.2	0.3	
NL	Netherlands	36	1.0	1.8	4.1	3.7	1.7	1.1	3.0	*	5.0	8.0
PL	Poland	13	*	*	4.0	2.0	2.5	0.3	1.0	*	*	
PT	Portugal	88	0.7	1.6	9.0	13.0	1.3	1.4	1.1	0.8	42.0	
RO	Romania	49	0.2	0.3	11.0	8.5	4.5	2.1	2.0	2.2	7.0	
SE	Sweden	19	0.7	0.5	5.0	2.0	*	0.5	1.5	0.5	2.0	
SI	Slovenia	26	*	0.5	4.5	5.5	4.0	1.0	1.4	0.6	2.0	
SK	Slovakia	16	*	1.5	3.6	2.5	1.3	*	0.5	0.3	1.0	
UK	U. Kingdom	13	0.2	0.4	4.0	3.3	*	0.5	0.3	0.2	1.0	
	Total pages	692	11.0	19.9	132.7	113.5	52.7	31.5	33.9	15.5	102.2	
	Average/doc	27.7	0.4	0.8	5.3	4.5	2.1	1.3	1.4	0.6	4.1	



Summary and conclusions

- The INSPIRE Directive is a very ambitious programme without parallel in the world
- Its implementation is well under way and its main components have largely been agreed
- Its implementation is shifting from the European Commission to the national states
- It presents important challenges to conventional governance styles
- It is creating a massive resource for researchers