6. DATA MODELS, UNDERSTANDING THE UML DIAGRAMS AND OTHER FORMALISED DESCRIPTIONS

Well-known principles of INSPIRE (1/2)

1. The infrastructures for spatial information in the Member States should be designed to ensure that spatial data are stored, made available and maintained at **the most appropriate level**;

2. that it is **possible to combine** spatial data from different sources across the Community in a consistent way and share them between several users and applications;

3. that it is possible for spatial data collected at one level of public authority **to be shared** between other public authorities;

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Well-known principles of INSPIRE (2/2)

4. that spatial data are **made available** under conditions which do not unduly restrict their extensive use;

5. that it is **easy to discover** available spatial data, to evaluate their suitability for the purpose and to know the conditions applicable to their use.

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To not reach the bad feeling from INSPIRE…

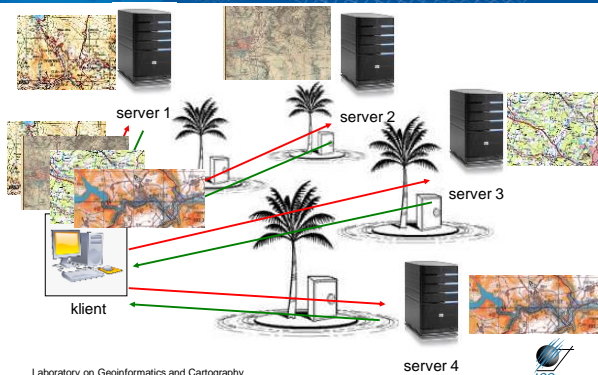| requirements description | promised solution | proposed concept | realisation | what user wants |

Převzato z http://geekfun.pl/pm_build_swing.gif, upravil

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One of the main SDI goals

server 1
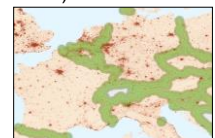server 2
server 3
klient
server 4

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Cross-border concern

• Natural disasters do not stop at national borders
  – 20% of the EU citizens (115 million) live within 50 km from a border

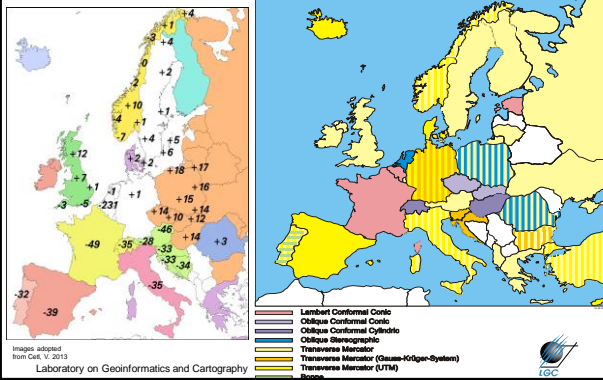• 70% of all fresh water bodies are part of a trans-boundary basin
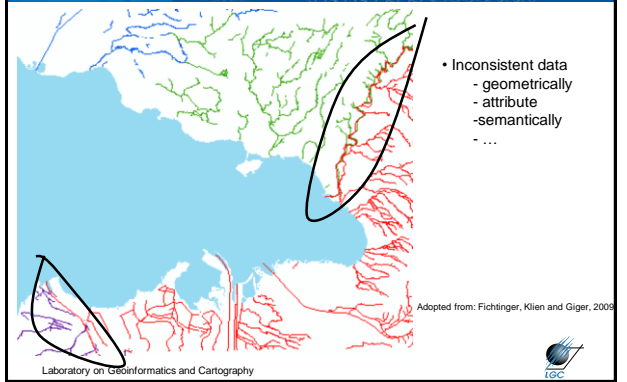
Images adopted from Cetl, V. 2013

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Basins

Vertical and positional coordinate reference systems in Europe

Images adopted from Cell, V. 2013
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Consequences of spatial data islands

- Inconsistent data
  - geometrically
  - attribute
  - semantically
  - …

Adopted from: Fichtinger, Klien and Giger, 2009

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Cartographic consequences

server 1   server 2   server 3

client

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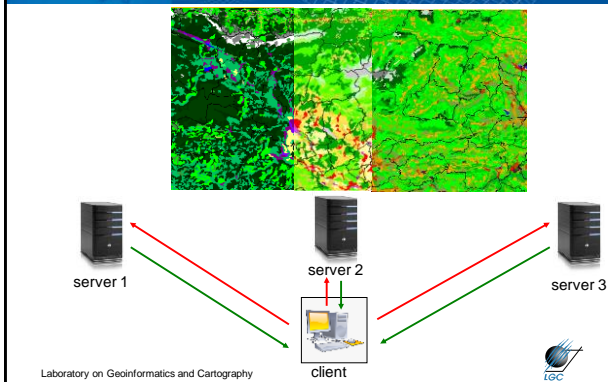
Data models in INSPIRE

- Article 7: *"[…] technical arrangements for the interoperability and, where practicable, harmonisation of spatial data sets and services […]"*
  - What does that mean?

- Based on existing initiatives and international standards for the harmonization of spatial data sets

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Addressing following aspects of spatial data

- A common framework for the unique identification of spatial objects, to which identifiers under national systems can be mapped in order to ensure interoperability between them;
- The relationship between spatial objects;
- The key attributes and the corresponding multilingual thesauri commonly required for policies which may have an impact on the environment;
- Information on the temporal dimension of the data;
- Updates of the data

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Broader view on INSPIRE data models

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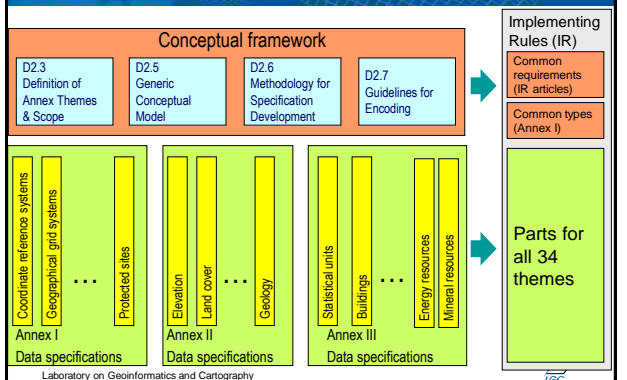
Documents for all INSPIRE data models

- **Implementing rules** (Commission Regulation 1089/2010 and 1253/2013)
  - Legally binding in all EU Member States
  - Defined according to the cost-benefit analyses

- **Technical Guidelines** (Data specifications) for all 34 spatial data themes
  - Technical basis for Implementing rules
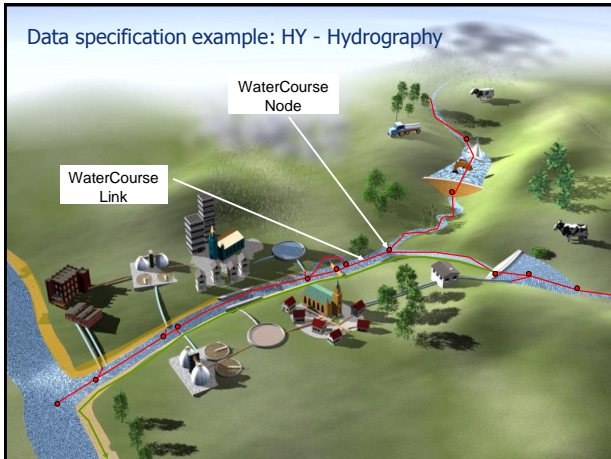 - Explanations and examples to guide you through the implementation process
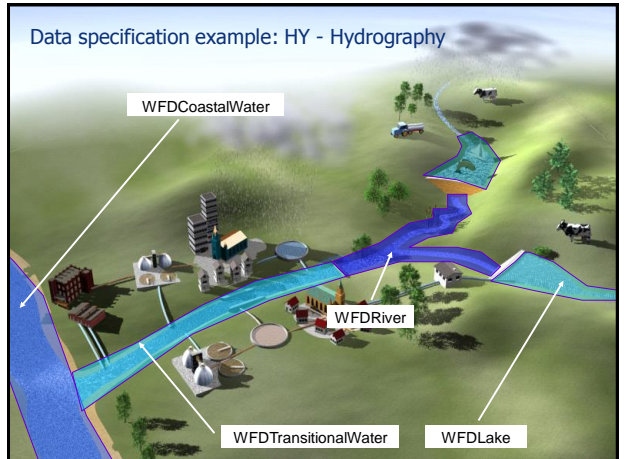
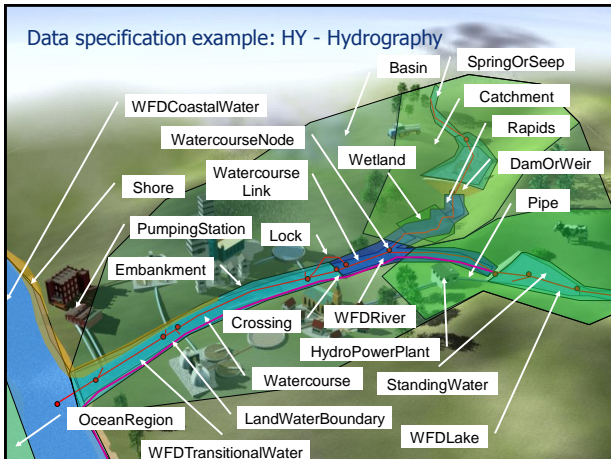Laboratory on Geoinformatics and Cartography

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Data specification example: HY - Hydrography

Data specification example: HY - Hydrography

WaterCourse Node

WaterCourse Link

Data specification example: HY - Hydrography

WFDCoastalWater

WFDRiver

WFDTransitionalWater   WFDLake

Data specification example: HY - Hydrography

Basin   SpringOrSeep
WFDCoastalWater   Catchment
WatercourseNode   Rapids
Wetland
Shore   Watercourse Link   DamOrWeir
PumpingStation   Lock   Pipe
Embankment
Crossing   WFDRiver
HydroPowerPlant
Watercourse   StandingWater
OceanRegion   LandWaterBoundary   WFDLake
WFDTransitionalWater

Data specification example: HY - Hydrography

Basin   SpringOrSeep
WFDCoastalWater   Catchment
Rapids

SurfaceWater	
beginLifeSpanVersion	**DateTime**
endLifeSpanVersion	DateTime
geometry	**GM_Primitive**
inspireID	**Identifier**
levelOfDetail	**MD_Resolution**
localType	LocalisedCharacterString
origin	**OriginValue**
persistence	**HydrologicalPersistenceValue**
tidal	**Boolean**

DamOrWeir
Pipe
Watercourse   StandingWater
OceanRegion   LandWaterBoundary   WFDLake
WFDTransitionalWater

Expression in the UML

Structure of a data specification (1/3)

Structure of a data specification (2/3)

Structure of a data specification (3/3)

Requirements vs. recommendations

Requirement 1   Any dataset claiming conformance with this INSPIRE data specification shall pass the requirements described in the abstract test suite presented in Annex A.

Recommendation 1   The reason for a void value should be provided where possible using a listed value from the VoidReasonValue code list to indicate the reason for the missing value.

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