

Open SDI

Dr. Bastiaan van Loenen

b.vanloenen@tudelft.nl

<http://www.kc.opendata.eu>

Developing geographic information infrastructures

The role of information policies



Bastiaan van Loenen



Bastiaan van Loenen
Glenn Vancauwenberghe
Joep Cromptvoets *Editors*

 Springer

Spatial data infrastructure

Spatial data infrastructure

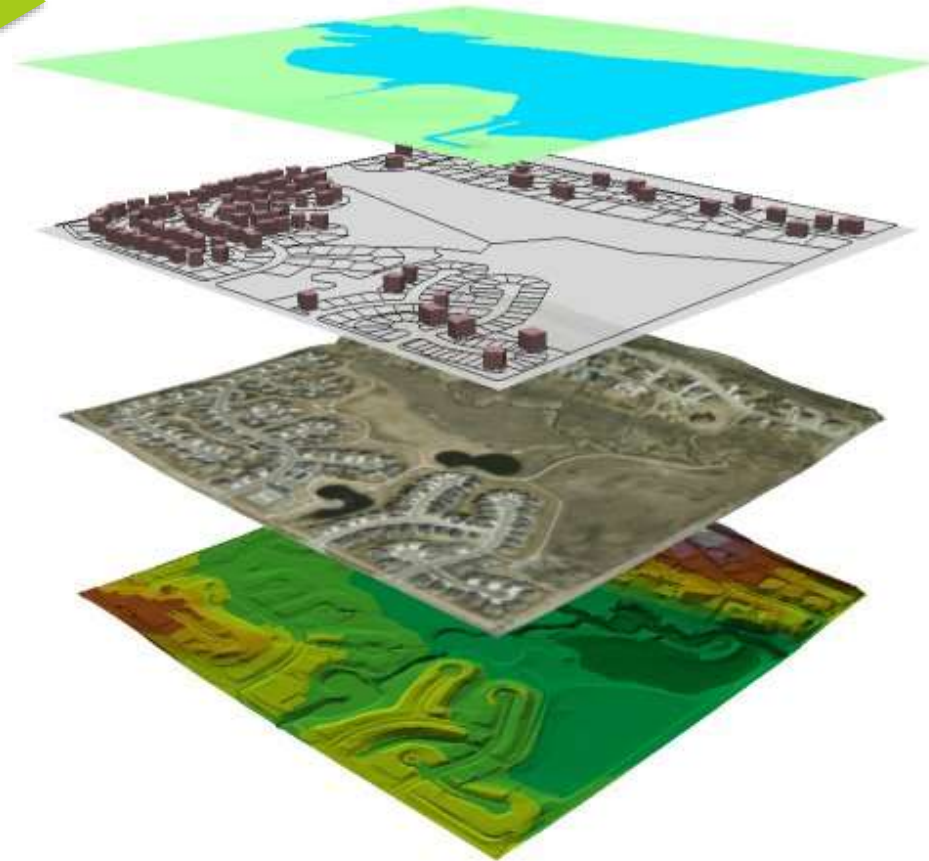
'collect it once, use it many times'



A

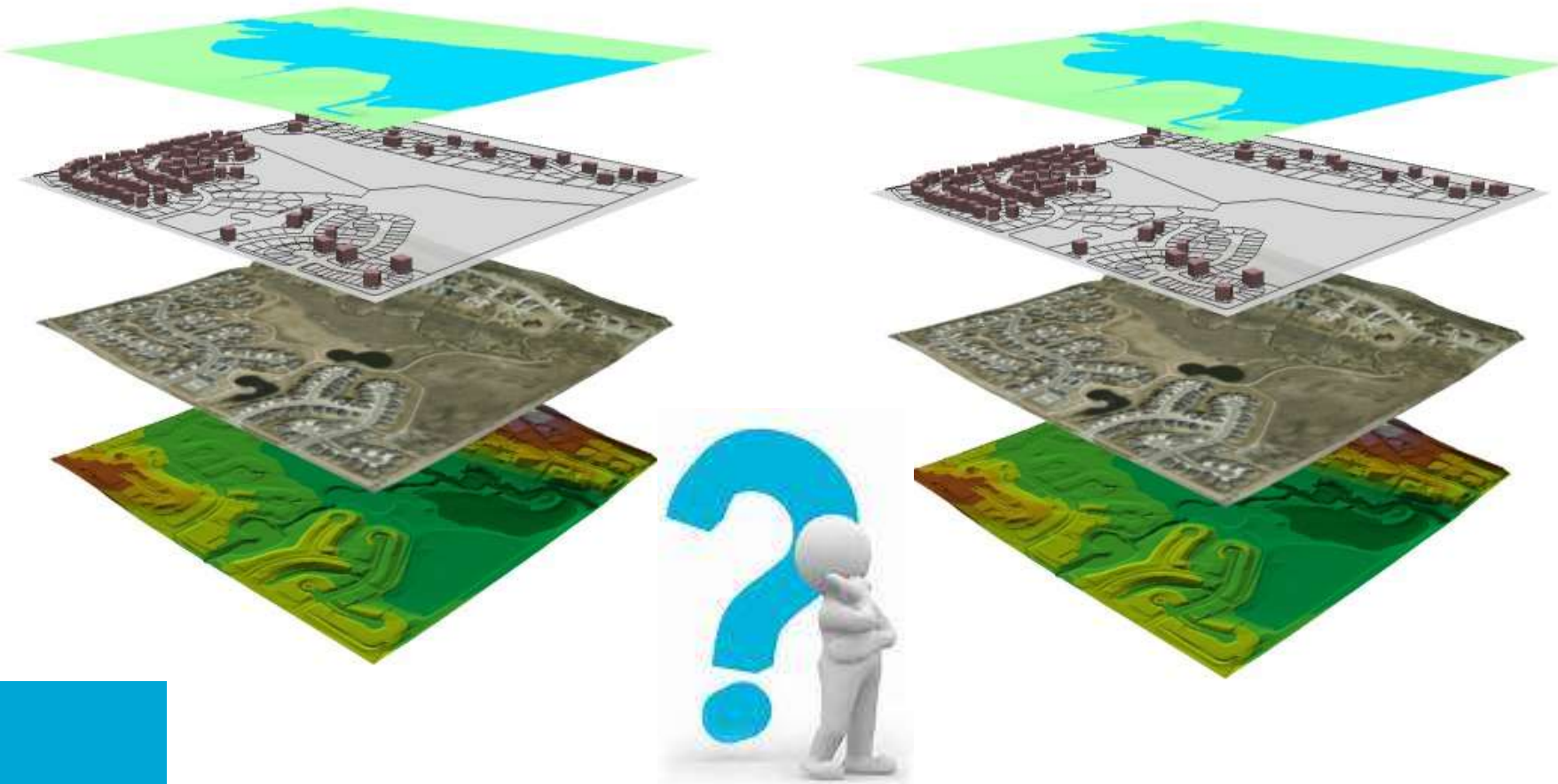
B

C



Spatial data infrastructure

'collect it once, use it many times'



Cooperating partners with compatible visions, aligned priorities, and focused objectives

Political Context

Aligned legislation so that exchanged data is accorded proper legal weight

Legal Interoperability

Legislative Alignment

Coordinated processes in which different organisations achieve a previously agreed and mutually beneficial goal

Organisational Interoperability

Organisation and Process Alignment

Precise meaning of exchanged information which is preserved and understood by all parties

Semantic Interoperability

Semantic Alignment

Planning of technical issues involved in linking computer systems and services

Technical Interoperability

Interaction & Transport

Source: European interoperability framework

SDI in practice

- Users “will probably be the most mentioned group and yet actually the least considered” (McLaughlin and Nichols, 1994).

Private (non-profit) sector data

- Platform economy
- Enormous volumes of data collected
- Data may very well be in the public interest
- Access and re-use problematic

Towards an Open SDI?

Open SDI

A working definition:

“An SDI where all stakeholders commonly ***govern, share and use*** open geodata”

In essence:

Open SDI = Open spatial data (product) + open infrastructure (process)

OpenSDI: Open spatial data

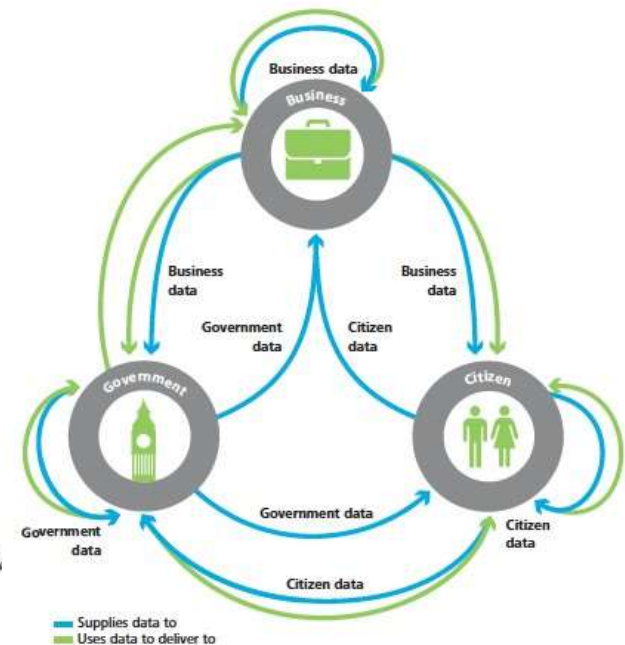
1. Application of principles of open government data to spatial data

Government data shall be considered open if it is made public in a way that complies with the principles below:

- 1. Complete**
All public data is made available. *Public data* is data that is not subject to valid privacy, security or privilege limitations.
- 2. Primary**
Data is as collected at the source, with the highest possible level of granularity, not in aggregate or modified forms.
- 3. Timely**
Data is made available as quickly as necessary to preserve the value of the data.
- 4. Accessible**
Data is available to the widest range of users for the widest range of purposes.
- 5. Machine processable**
Data is reasonably structured to allow automated processing.
- 6. Non-discriminatory**
Data is available to anyone, with no requirement of registration.
- 7. Non-proprietary**
Data is available in a format over which no entity has exclusive control.
- 8. License-free**
Data is not subject to any copyright, patent, trademark or trade secret regulation. Reasonable privacy, security and privacy

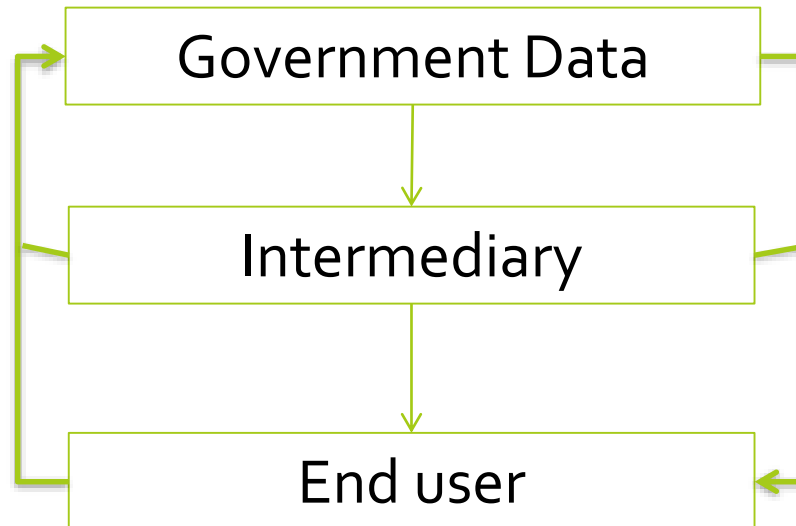
Compliance must be *reusable*.

2. Government data + non-government data



2018: open government data...

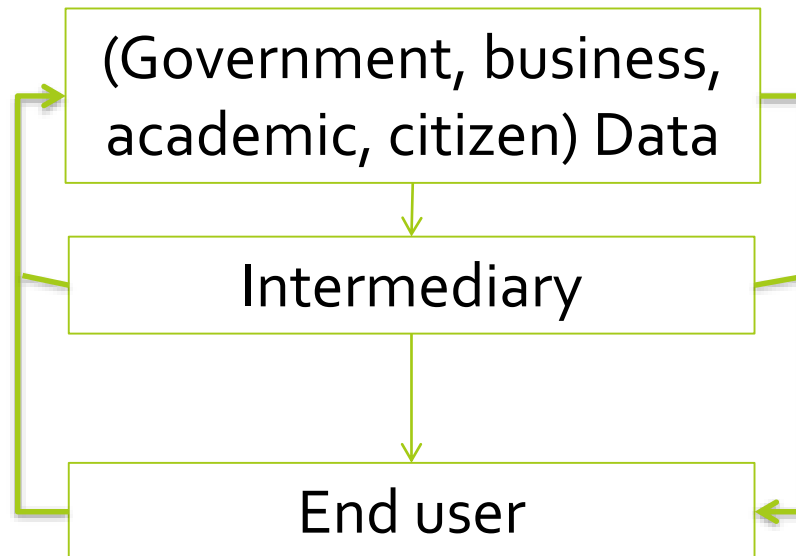
(Voluntary)
Feedback
Advice
Data/products



Right to:
- Access
- Re-use
(open) government
data

... to open [...] data

(Voluntary)
Feedback
Advice
Data/products



Right to:
- Access
- Re-use
(open)
data

Open infrastructure

Simple: open governance + open implementation =
a co-created spatial data infrastructure

'Open government':

- Transparency
- Participation
- Collaboration

Stages of co-creation:

1. co-initiation
2. co-design
3. co-implementation
4. co-evaluation



Open SDI

From open by default to open by preference

The user

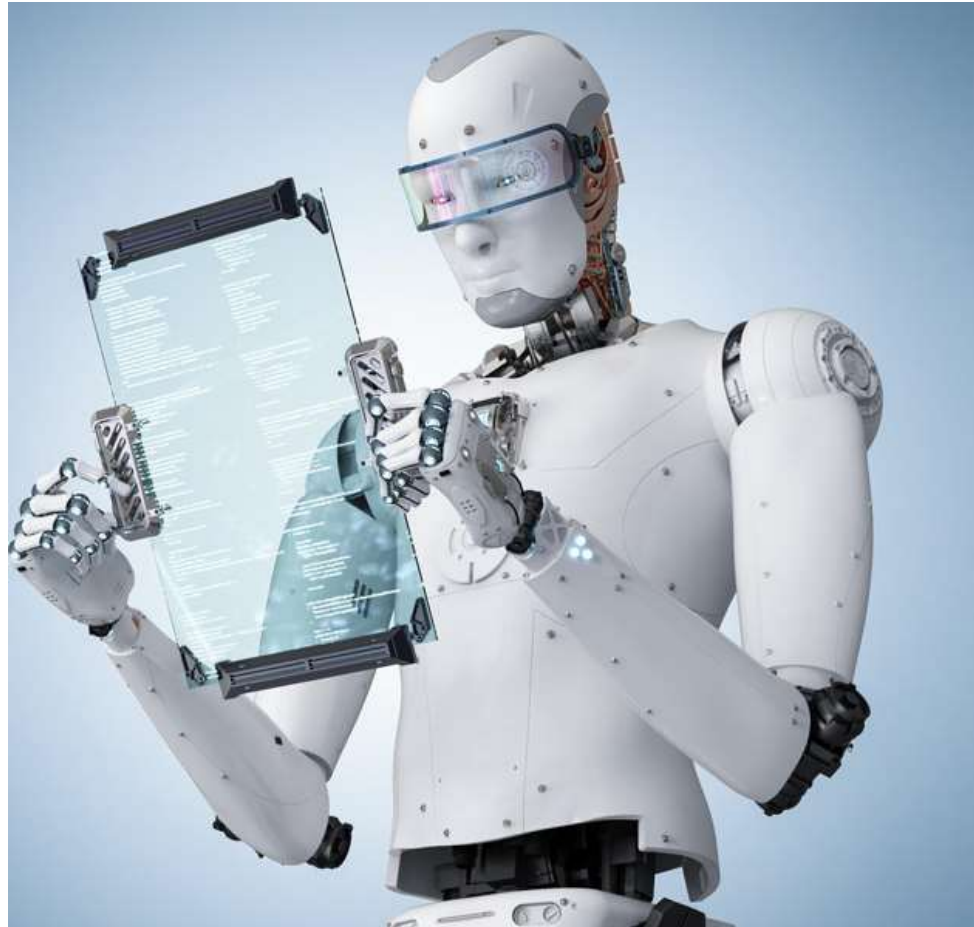
- Open data 2010: “Open by default”
- Open data 2018: “Open by preference”, based on user needs

- But who is **THE** user? and
- Shall we satisfy **all** user needs?

Users vary in:

- purpose of use (explorer, aggregator, enabler, enricher, developer, end user);
- geographic scope of the use (local, national, regional, global)
- nature of the user (commercial, government, scientific, citizen);
- user capabilities: (access to) (technical, creative, domain, business) skills and know-how/ understanding of open data (expert knowledge and skills to laymen knowledge and skills);
- (access to) resources/ funding opportunities;
- (access to) technical connectivity;
- frequency of use (permanent to once off);
- nationality (local or international user);
- understanding of the (business) opportunities;
- etc

New user



General user requirement

- Needed spatial data Content
- Findable
- Accessible
- Interoperable
- Re-usable
- Open data
- Open participation

Open
INSPIRE?

Open INSPIRE: theory

- Content: 34 data themes
- FAIR:
 - F: required publication in portal, metadata
 - A: right to access, access through standard network services, standardised metadata
 - I: harmonised data specifications, standardised metadata
 - R: open standards
- Open: Increasing number of open datasets & PSI recast (2018): high value datasets

Communication on PSI reuse (COM(2018) 234 final)

- High value datasets
 - Available via APIs
 - Free of charge

Suggested high value datasets (2018/0111(COD)) including (...)

- Spatial data subject to Directive 2007/2/EC (INSPIRE), including postcodes, national and local maps (cadastral, topographic, marine, administrative boundaries, at a scale of at least 1:20.000)

Open INSPIRE: theory

- Content: 34 data themes (needed?)
- FAIR:
 - F: required publication in portal, metadata
 - A: access through standard network services, standardised metadata
 - I: harmonised data specifications, standardised metadata
 - R: open standards
- Open: Increasing number of open datasets &
- PSI recast (2018): high value datasets
- Open participation?

Co-creation: INSPIRE and third parties

Article 12 Inspire directive

Member States shall ensure that public authorities are given the technical possibility to link their spatial data sets and services to the network referred to in Article 11(1). **This service shall also be made available upon request to third parties** whose spatial data sets and services comply with implementing rules laying down obligations with regard, in particular, to metadata, network services and interoperability.

Open FAIR needed Content in practice

- User that needs “Transportation network (roads)” data for Poland
- Start in the INSPIRE geoportal:
<http://inspire-geoportal.ec.europa.eu/>



INSPIRE GEOPORTAL

Enhancing access to European spatial data

European Commission > INSPIRE > Geoportal



Home



Priority Data Sets Viewer



INSPIRE Thematic Viewer



Harvesting status



Find out more about

Welcome to the INSPIRE Geoportal

The INSPIRE Geoportal is the central European access point to the data provided by EU Member States and several EFTA countries under the INSPIRE Directive. The Geoportal allows:

- monitoring the availability of INSPIRE data sets;
- discovering suitable data sets based on their descriptions (metadata);
- accessing the selected data sets through their view or download services.


The metadata used in the Geoportal are regularly harvested from the discovery services of EU Member States and EFTA countries. The status of harvesting is available [here](#).

Feedback regarding the functionality as well as data set availability is welcome [here](#).

Priority Data Sets Viewer



Credits: Map data: Google | Map style: snazzymap | Icon: Nick Roach

The application displays the availability and provides access to the selected priority data sets  used for environmental reporting. It allows filtering by environmental domain, environmental legislation and country.

[Browse Priority Data Sets](#)

INSPIRE Thematic Viewer



Credits: Map data: Google | Map style: snazzymap | Icon: INSPIRE

The application displays the availability and provides access to all EU MS data sets falling under the scope of INSPIRE Directive filtered by data themes and countries (i.e. Annex I, II and III).

[Browse INSPIRE Thematic Data Sets](#)



Transport networks Data sets in Poland

27 | 2 | 4

Filters: Downloadable Viewable

Show data with national coverage

Title	Properties
Sieci transportowe (skala 1:10000) dane w modelu INSPIRE	
Sieci transportowe (skala 1:10000) dane w modelu INSPIRE	
Sieci transportowe (skala 1:10000) dane w modelu INSPIRE	
Sieci transportowe (skala 1:10000) dane w modelu ELF/INSPIRE	
Baza Danych Obiektów Topograficznych - województwo świętokrzyskie	
Baza Danych Obiektów Topograficznych - województwo warmińsko-mazurskie	
Baza Danych Obiektów Topograficznych - województwo wielkopolskie	
Baza Danych Obiektów Topograficznych - województwo zachodniopomorskie	
Baza Danych Obiektów Topograficznych - województwo pomorskie	
Baza Danych Obiektów Topograficznych - województwo dolnośląskie	
Title	Properties

Show entries Showing 1 to 10 of 27 entries

Previous [1](#) [2](#) [3](#) Next

■ Sieni transportowe (skala 1:10000) dane w modelu INSPIRE

Download Options ▾

View Options ▾

Data set Metadata ▾

Resource Title

Sieni transportowe (skala 1:10000) dane w modelu INSPIRE

Resource Abstract

Zbiór Sieni transportowe powstał w wyniku harmonizacji i integracji danych Bazy Danych Obiektów Topograficznych. Dane zostały przekształcone zgodnie ze specyfikacją "D2.8.I.7 Data Specification on Transport Networks – Technical Guidelines" do schematu INSPIRE 4.0.

Lineage

Dane źródłowe ZKBDOT TN zostały przekształcone zgodnie z modelem INSPIRE w zakresie tematu Sieni transportowe opisanym w specyfikacji "INSPIRE Data Specification on Transport Networks – Guidelines v3.2"

Unique Resource Identifier**Code:** TN**Namespace:** PL.PZGIK.202.ZKBDOT**Spatial Data Theme****Conditions Applying To Access And Use**

brak warunków

Limitations On Public Access

brak ograniczeń

Geographic Bounding Box**Responsible Party****Organisation name** Centralny Ośrodek Dokumentacji Geodezyjnej i



Translate

English Spanish French Detect language ▾



English Spanish Arabic ▾

Translate

brak ograniczeń|



No restrictions ✓



15/5000



Authentication Required



http://mapy.geoportal.gov.pl is requesting your username and password. The site says: "iMapESB Authentication"

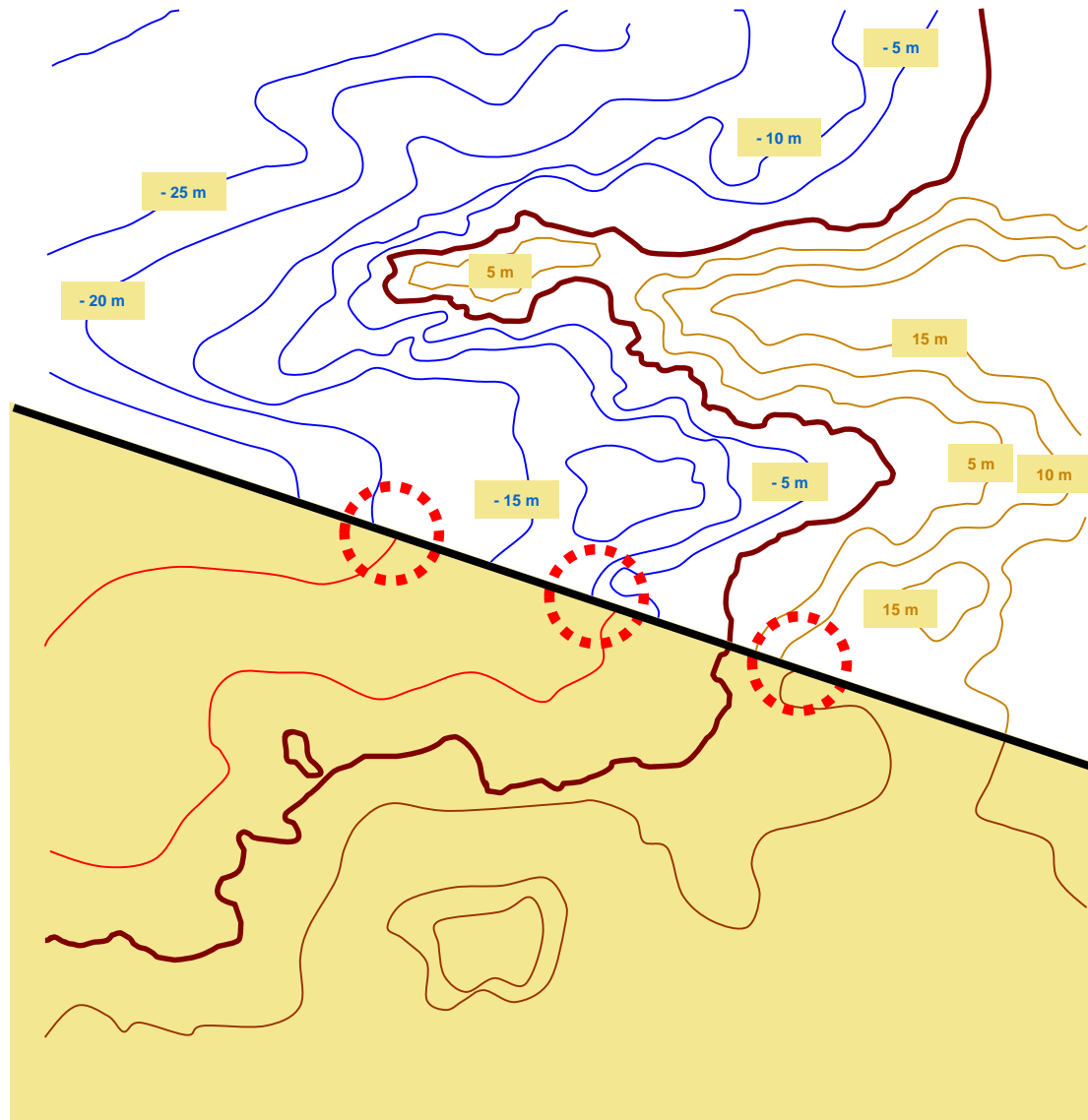
User Name:

Password:

OK

Cancel

“When two do the same thing” by Peter Deak



OpenFAIRContent of INSPIRE in practice

- FAIR:
 - F: +/-
 - A: +/-
 - I: +/-
 - R: ?
- Open: +/-
- Content: ?
- Open participation: ?

Conclusion

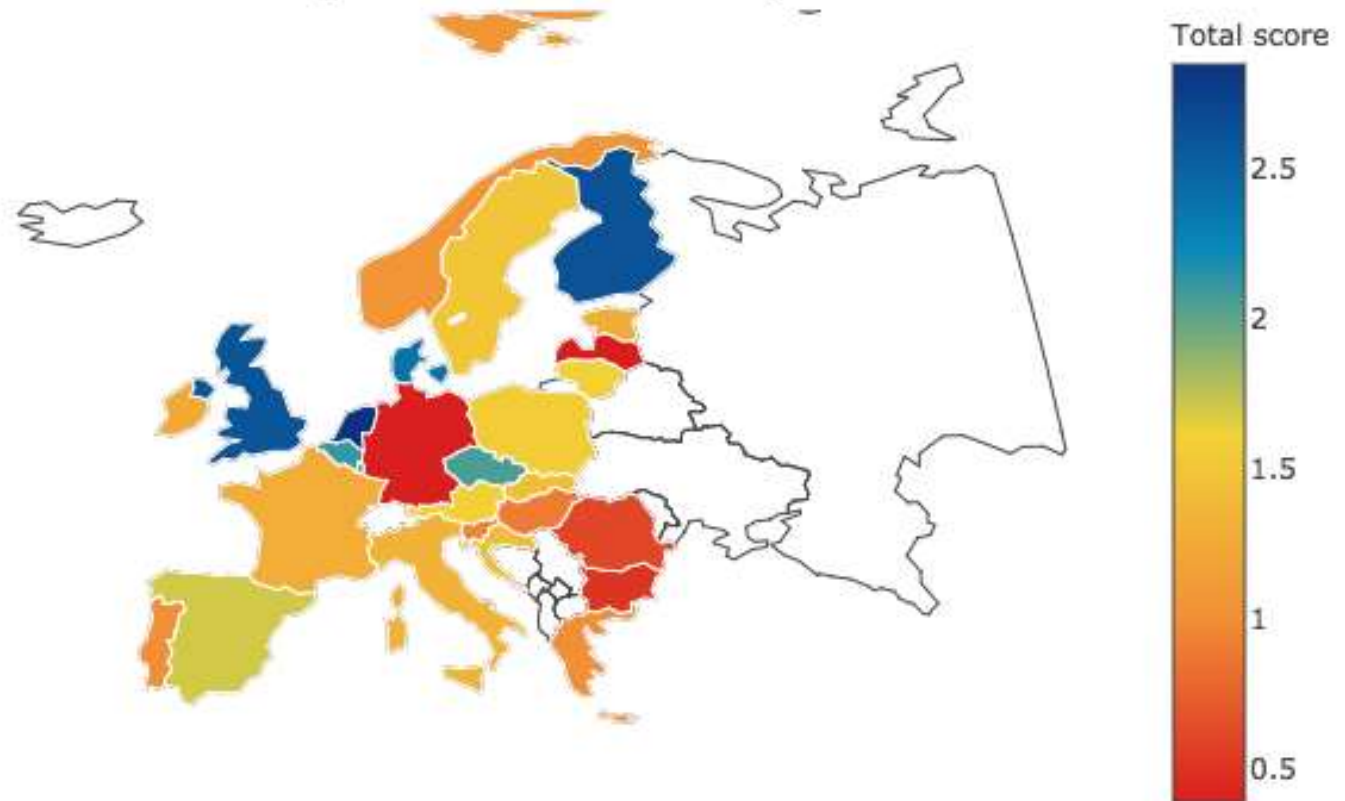
1. Users important stakeholder in SDI
2. Users “will probably be the most mentioned group and yet actually the least considered”
3. Open SDI = Open spatial data + open infrastructure (process)
4. INSPIRE: OpenFAIR(needed)Content
 - INSPIRE in theory: OpenFAIR(needed)Content
 - INSPIRE in practice: ~~Open~~FAIR(needed)Content
5. INSPIRE: Open process:
 - INSPIRE in theory: +/-
 - INSPIRE in practice: ?

Next steps

- Start with the Inspire objectives to determine primary user groups of Inspire
- Inspire not periodically reviewed or updated:
 - Need for an update?
- Build on the recast PSI directive
- Towards a co-created European SDI

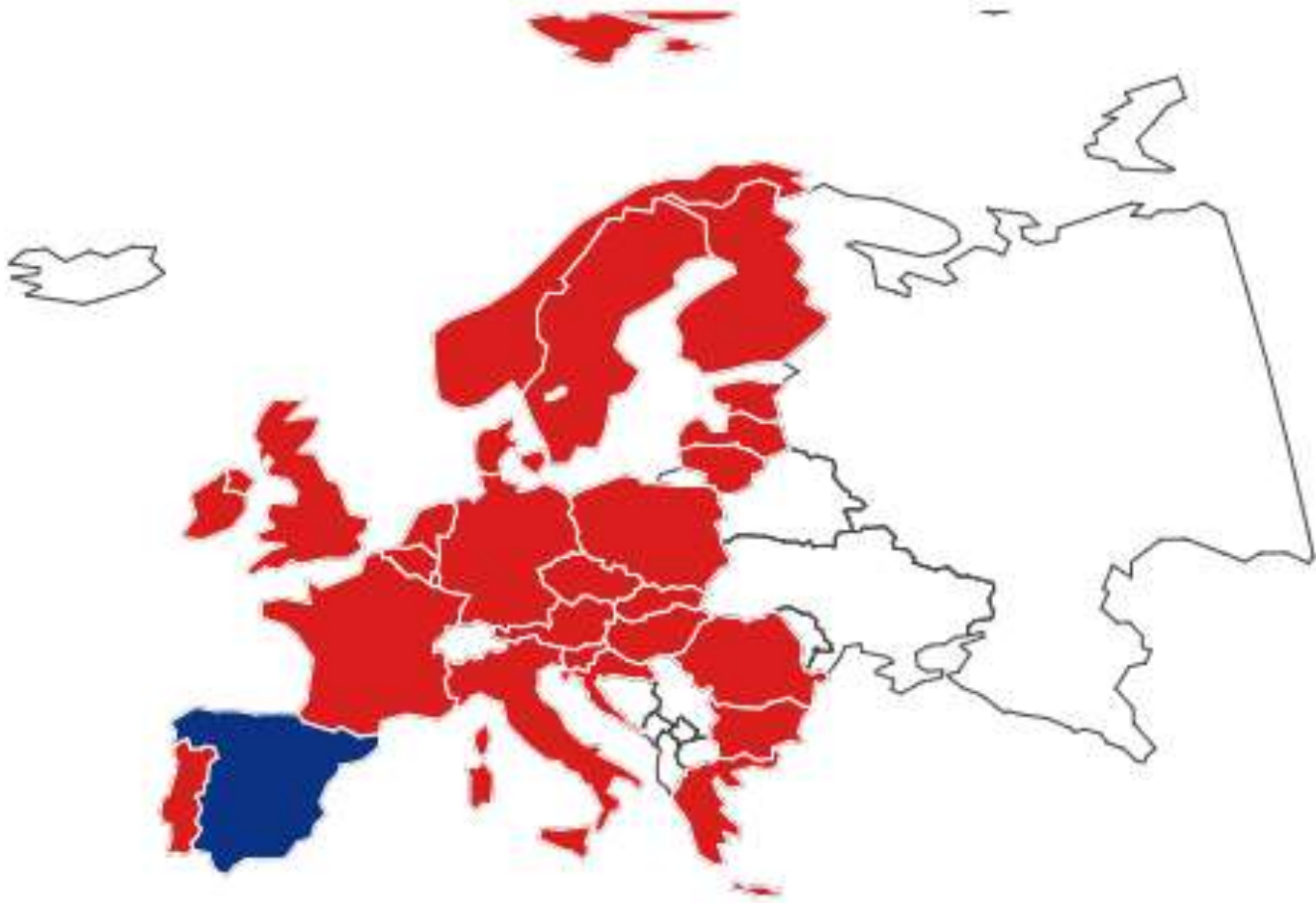
2017 Map of Open SDI

Openness of EU SDIs
(Hover for breakdown)



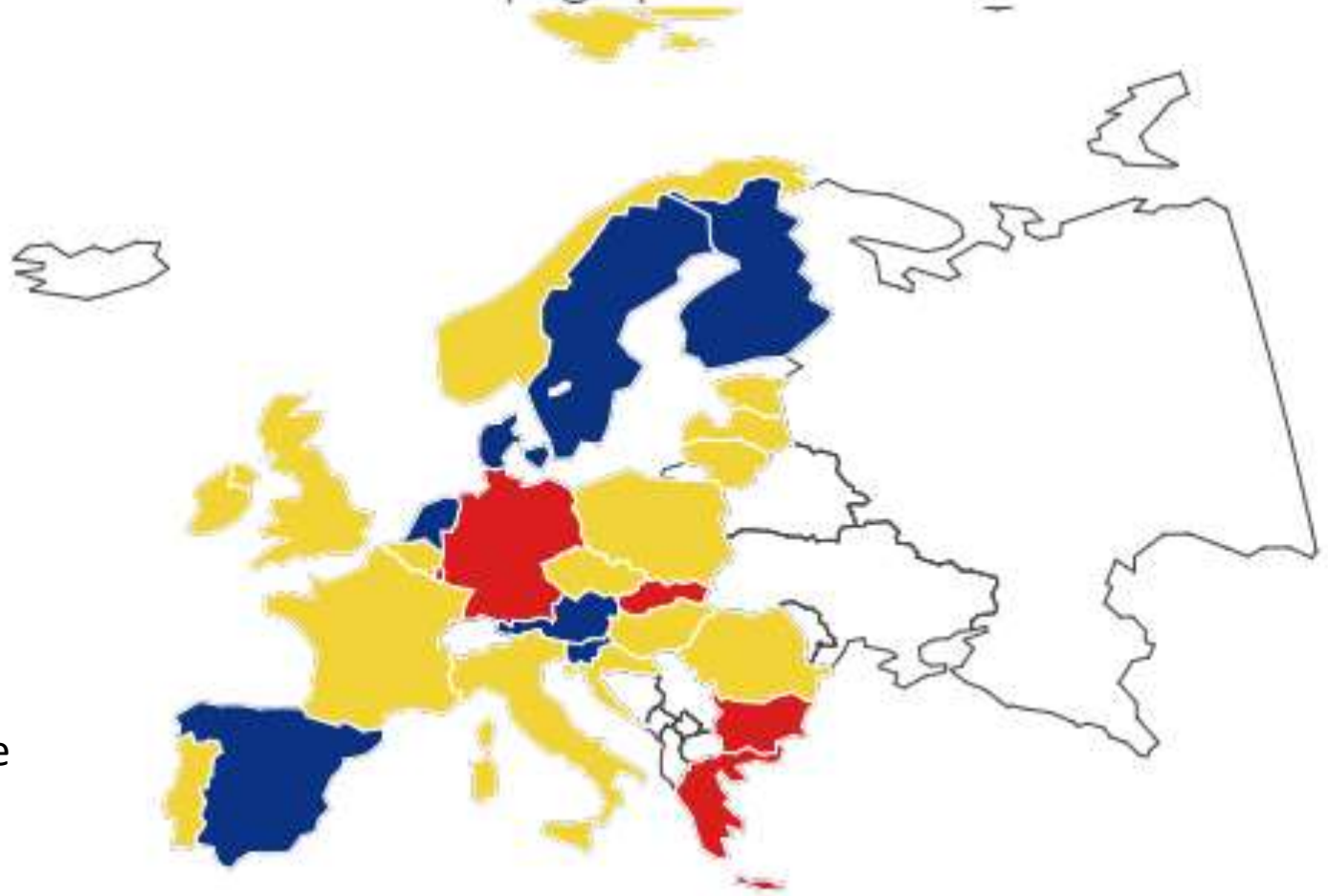
EU Licenses 2011

- Open licence
- No open licence
- No licence or dataset found

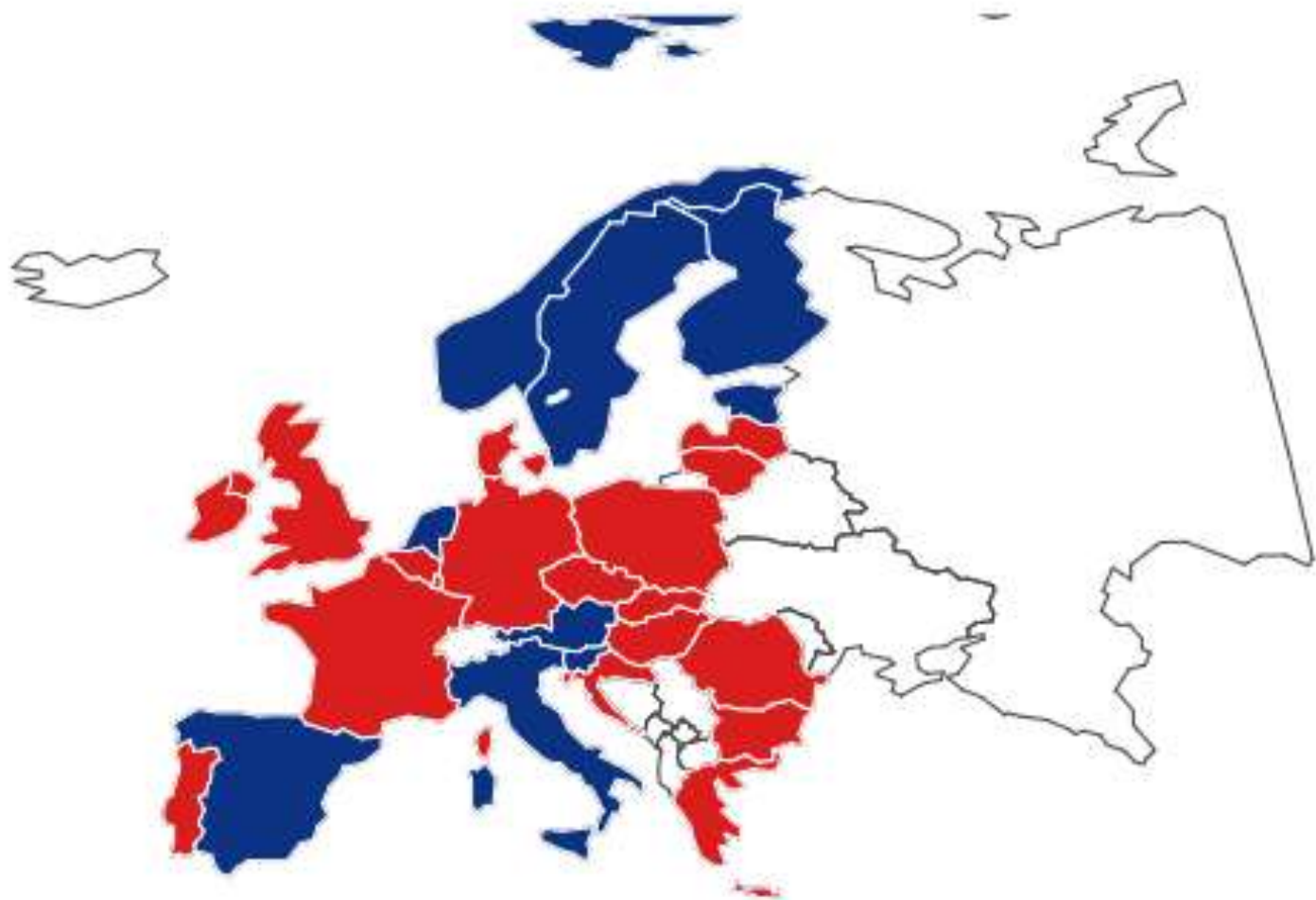


License openness Topographic data

- Open licence
- No open licence
- No licence or dataset found



Creative Commons Licenses



- CC licence
- No CC licence

Thank you for your attention



KNOWLEDGE CENTRE OPEN DATA
Delft University of Technology

Comments? Questions? Interested to contribute?

Let us know!

b.vanloenen@tudelft.nl

Visit our website

<http://kcopendata.eu/openSDI>

Literature

- Rajabifard, A., Feeney, M., and Williamson I.P. 2002, 'Future Directions for the Development of Spatial Data Infrastructure', *International Journal of Applied Earth Observation and Geoinformation*, Vol. 4, Issue 1, pp. 11-22.
- Nama Raj Budhathoki & Bertram (Chip) Bruce, Zorica Nedovic-Budic (2009). *Reconceptualizing the role of the user of spatial data infrastructure*. *GeoJournal* 72(3):149-160
- Van Loenen, B, G. Vancauwenberghe, J. Crompvoets (2018). [Open data exposed](#). Springer
- Vancauwenberghe, G., K. Valeckaite, B. van Loenen & F. Welle Donker (2018). [Assessing the Openness of Spatial Data Infrastructures \(SDI\): Towards a Map of Open SDI](#). *International Journal of Spatial Data Infrastructure Research*, 13, 88-100.
- Vancauwenberghe, G., & B. van Loenen (2018). [Exploring the Emergence of Open Spatial Data Infrastructures: Analysis of Recent Developments and Trends in Europe](#). In S. Saeed, T. Ramayah, T., & Z. Mahmood, Zaigham (Eds.), *User Centric E-government. Challenges and opportunities*. New York: Springer International Publishing.
- Welle Donker, F., & van Loenen, B. (2016). [Sustainable Business Models for Public Sector Open Data Providers](#). *JeDEM eJournal of eDemocracy and Open Government*, 8(1), 28-61.

Involving users: determine your objective(s)

INSPIRE: The purpose of this Directive is to lay down general rules aimed at the *establishment of the Infrastructure for Spatial Information in the European Community* [..], for the **purposes of Community environmental policies** and *policies or activities which may have an impact on the environment.*

=> Which user groups are we targeting here?

Recital 8 Inspire directive

This Directive should be without prejudice to Directive 2003/98/EC of the European Parliament and of the Council of 17 November 2003 on the re-use of public sector information, the objectives of which are complementary to those of this Directive.