



OpenSDI, Open Spatial Data Infrastructures

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Spatial Data Management

- Acquisition, distribution, and utilization of geographic (or geospatial) data and mapping to **support public and private sector** applications of geospatial data (Clinton 1994)
- ... storage, indexing, and querying of spatial data ...
- ... **data structure & formats** ... analog, digital, GIS, spatial databases ...

Why SDI - Spatial Data Infrastructure?

Change No. **n**

- Avoid wasteful duplication of effort and promote effective and economical management of resources **among public authorities** (Clinton 1994)
- ... **organization & technology for access**
... INSPIRE, geoportals, web-services ...



Why OpenSDI - Open Spatial Data Infrastructure?

Change No. **n+1**

- Including **users outside** of public authorities into SDI as key for the **performance** of the infrastructure (Vancauwenberghe et al. 2018)
- ... **users & data** ... quality, availability, usage, update, privacy ...



Shared Responsibilities?

- Public authorities end their responsibilities by making data available at geoportal
- Users create new improved datasets but do not improve the infrastructure with that
- Users act like authorities in previous times (keep the data for themselves)

Can this behaviour (interests) ensure sustainability and further development of SDI?

EU Laws and Regulations connected to Open Spatial Data Infrastructures

- Council Directive 90/313/EEC of 7 June 1990: Freedom of Access to Information on the Environment
- PSI Directive 2003/98/EC of 31 December 2003: re-use of public sector information
- 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)
- **NEW! Directive (EU) 2019/1024 of 16 July 2019: The Directive on open data and the re-use of public sector information - “Open Data Directive”**



Spatial data as high value data (Directive (EU) 2019/1024)

List of thematic categories of high-value datasets, as referred to in Article 13(1)

1. Geospatial
2. Earth observation and environment
3. Meteorological
4. Statistics
5. Companies and company ownership
6. Mobility

Croatia: State of Play on OpenData - 2018



CROATIA

State-of-Play on Open Data - 2018



DIMENSION	INDICATOR	EU28 SCORES	COUNTRY SCORES*
Policy 	Overall score	82%	90%
	Policy framework	81%	94%
	Coordination at national level	80%	83%
	Licencing norms	88%	100%
Impact 	Overall score	50%	31%
	Strategic awareness	62%	45%
	Political	55%	23%
	Social	43%	41%
	Environmental	48%	44%
	Economic	31%	N/A
Portal 	Overall score	63%	57%
	Portal features	64%	60%
	Portal usage	76%	75%
	Data provision	64%	50%
	Portal sustainability	49%	42%
Quality 	Overall score	62%	71%
	Automation	61%	85%
	Data and metadata currency	54%	64%
	DCAT-AP compliance	71%	69%

* Weighted averages



Croatia Chronology

- Transposed PSI 2003 in place from March 2013
- EU member state from July 1, 2013
- Transposed PSI amendments from 2013 in place from August 2015
- Open Data Portal (CKAN) launched in March 2015
- Ordinance on licences from July 2017
- Open Licence Croatia July 2017 (compatible with CC-BY)
- INSPIRE from 2007

Official Statistics for Open Data Ecosystem in Croatia

- Number of institutions obliged under PSI (2 sources on Open Data Portal)
 - Register of Public Government Bodies - **4592**
 - List of Public Government Bodies - **5797**
- 74 publishers on Open Data Portal
- **578** data sets on Open Data Portal of Croatia (**last entry 2016, last app 2017**)
- **887** data sets on European Data Portal?
- Open Data Portal - 622
- NSDI geoportal - 212 (INSPIRE directive)
- City of Zagreb - 53
- CC-BY licence used on 673 data sets

Challenge 1 - Personal Experience, Dec 2017

- Protected areas of Republic of Croatia (Environmental Agency) – spatial data set
- **Service for automatic comparison of official data with OSM** – project work with students on Open Geoinformation course
- 3 sources of same data at the time – small differences in number of areas in all 3 data sets
- **Communicated** with agency and our findings were taken into account, and additional guides on use of data was given (internal code 1,2,3 on status).
- **Outsourcing of maintainance to private companies!!!**

Challenge 2 - City of Bjelovar - February 2019

- Open access to city budget (salaries, names (GDPR!), donations, contracts, welfare, lunches ...)
- Explanations, overview diagrams + detailed tables of every transaction
- **GDPR - City of Bjelovar didn't followed the recommendations of Agency for Protection of Personal Data !!!**

Challenge 3 - Geoportal Licence



Data contained in the State Geodetic Administration Geoportal system, except for publicly available view network services and data contained therein for which the [terms of use for view network services](#) apply, may not be exchanged, reproduced, collected or distributed in electronic or other form.



Pressure from OpenStreetMap community over the years for open access to data published over web-services.

The view network service is available to anonymous and registered users at no charge. The user may use this service to create new value-added products. ...



Broader Challenges

- Compatibility of Geoportals and Open Data Portals for automatic harvesting?
- Awareness and coordination on political level
- Technical conditions and resources of public authorities
- Exclusive rights arrangements between public bodies and private provider of IT services – costs for public bodies
- Availability of data
- Quality of data
- **Awareness and interest of public for open data**

Germany: State of Play on OpenData - 2018



GERMANY

State-of-Play on Open Data - 2018



DIMENSION	INDICATOR	EU28 SCORES	COUNTRY SCORES *
Policy 	Overall score	82%	77%
	Policy framework	81%	83%
	Coordination at national level	80%	71%
	Licencing norms	88%	83%
Impact 	Overall score	50%	39%
	Strategic awareness	62%	50%
	Political	55%	46%
	Social	43%	50%
	Environmental	48%	19%
	Economic	31%	15%
Portal 	Overall score	63%	54%
	Portal features	64%	48%
	Portal usage	76%	75%
	Data provision	64%	56%
	Portal sustainability	49%	42%
Quality 	Overall score	62%	89%
	Automation	61%	90%
	Data & metadata currency	54%	83%
	DCAT-AP compliance	71%	95%

* weighted averages

Open government - A culture of innovation and cooperation in government

- Philosophy of Open Government in Germany from the Federal Ministry of Interior, Building and Community

- “Open Government describes a development towards **more collaboration, participation and transparency in public administration**. The core issues of Open Government are to **improve services for citizens, to raise confidence in institutions and to create a culture of openness and citizen engagement**. The strength of democracy is based on the ability to listen to and work with each other.
- “[...] **Open Data is a tremendous resource and essential for a modern Open Government policy. Societies are fueled by the availability of reusable public data and innovation**. That is why the Federal Government is passing a bill to realize the principle “open by default” for the first time. The bill will provide legal security for public servants and a sustainable approach to more useful open government data. The bill is expected to become law in the summer of 2017.
- **The idea of Open Government has progressed beyond technology. It is no longer just about publishing data. Open Government has become a driver of innovative approaches to overcome social challenges. Being open to new ideas and being willing to listen to citizens’ concerns is a central element of our civil society.**



OpenData Portals in Germany - Examples

National Level: OpenData Portal Germany

Das Datenportal für Deutschland

Open Government: Verwaltungsdaten transparent, offen und frei nutzbar

Suchen

Erweiterte Suche

Kartensuche

Stöbern Sie in diesen Kategorien



Populatio
n and
society



Bildung, Kultur und
Sport
(2113)



Energie
(361)



Gesundheit
(1103)



Internationale Themen
(98)



Justiz, Rechtssystem
und öffentliche
Sicherheit
(3314)



Landwirtschaft,
Fischerei,
Forstwirtschaft und
Nahrungsmittel
(2006)



Regierung und
öffentlicher Sektor
(6124)



Regionen und Städte
(251)



Umwelt
(7635)



Verkehr
(2719)



Wirtschaft und Finanzen
(5217)



Wissenschaft und
Technologie
(817)

Search Results

Nach Datensätzen suchen

Suchen

Erweiterte Suche

Kartensuche

7666 Treffer 


Erweiterte Suche

Alles 7666

Daten 7666

Informationen 0

Blog-Beiträge 0

gefiltert nach: Raumbezug 

Sortieren nach: Relevanz absteigend 

Filtermöglichkeiten

zurücksetzen

KATEGORIEN

- Bevölkerung und Gesellschaft 3279
- Bildung, Kultur und Sport 1130
- Energie 116
- Gesundheit 370
- Internationale Themen 96
- Justiz, Rechtssystem und öffentliche Sicherheit 2705
- Landwirtschaft, Fischerei, Forstwirtschaft und Nahrungsmittel 1693
- Regierung und öffentlicher Sektor 4472
- Regionen und Städte 108
- Umwelt 3169
- Verkehr 1067



Datensatz


Geologische Übersichtskarte der Bundesrepublik Deutschland 1:200.000 (GÜK200) - CC 5518 Fulda

Blatt Fulda zeigt einen Teil der Hessischen Buntsandstein-Landschaft, die im Westen von Ausläufern des Rheinischen Schiefergebirges und im Norden durch den Einbruch der Nordhessischen Tertiärsenke ...

Veröffentlichende Stelle: -

Kategorie:

 Umwelt

Offenheit der Lizenz:  Freie Nutzung

Dateiformate:

[ATOM](#) [WWW](#) [XML](#)

Letzte Änderung:

15.11.2016

Zeitraum:

-

zum Datensatz 



Datensatz

Bodenübersichtskarte 1:200.000 (BÜK200) - CC5518 Fulda

Dateiformate:

[ATOM](#) [WWW](#) [XML](#)

Available Data

23.986 Datasets in 13 categories, 10 different licences and 10 different data formats

<input type="checkbox"/> Datenlizenz Deutschland Namensnennung 2.0	10684	<input type="checkbox"/> csv	11001
<input type="checkbox"/> http://dcat-ap.de/def/licenses/dl-by-de/2_0	4468	<input type="checkbox"/> html	9742
<input type="checkbox"/> Creative Commons Namensnennung (CC-BY)	1837	<input type="checkbox"/> wms	5991
<input type="checkbox"/> http://dcat-ap.de/def/licenses/dl-zero-de/2_0	1586	<input type="checkbox"/> karte	4398
<input type="checkbox"/> http://dcat-ap.de/def/licenses/cc-by-de/3_0	1241	<input type="checkbox"/> webanwendung	4397
<input type="checkbox"/> Nutzungsbestimmungen für die Bereitstellung von Geodaten des Landes Berlin	985	<input type="checkbox"/> pdf	4055
<input type="checkbox"/> Datenlizenz Deutschland – Zero – Version 2.0	892	<input type="checkbox"/> gml	3164
<input type="checkbox"/> Creative Commons CC Zero License (cc-zero)	470	<input type="checkbox"/> xml	2867
<input type="checkbox"/> Creative Commons Namensnennung – 4.0 International (CC BY 4.0)	376	<input type="checkbox"/> diverse	1684
<input type="checkbox"/> Nutzungsbestimmungen für die Bereitstellung von Geodaten des Bundes	327	<input type="checkbox"/> www	1381

State Level: OpenNRW - Northrhine Westphalia

The screenshot shows the OpenNRW website interface. At the top, there are navigation links for 'LEICHTE SPRACHE', 'GEBÄRDENSPRACHE', 'DATENSCHUTZ', and 'KONTAKT'. The main header includes the 'open nrw' logo and the text 'Beauftragter der Landesregierung Nordrhein-Westfalen für Informationstechnik (CIO)' with the state logo. Below this is a navigation bar with icons for 'OPEN.NRW', 'OPEN DATA', 'DIALOG', 'ZUSAMMENARBEIT', 'INFORMATION', and 'FAQ'. A search bar with the placeholder 'Portal durchsuchen' and a magnifying glass icon is present. Below the search bar, there are two tabs: 'offene Daten (3898)' and 'Inhalte (206)'. The 'offene Daten (3898)' tab is highlighted with a red box, and the text '3898 Treffer' is displayed below it. The main content area is titled 'Suche weiter eingrenzen' and contains three dropdown menus for 'Verfügbare Kategorie(n)', 'Verfügbare Format(e)', and 'Portale', each with the placeholder 'Optionen wählen'. Below these is a 'Suche zurücksetzen' button with a close icon. At the bottom right, there are sorting options: 'Sortieren nach', 'Name' (with an upward arrow), 'Letzte Änderung', and 'Relevanz'. A 'CSV' download button is also visible. The first search result is titled '2013-09-22_wahlbeteiligung_koeln' and includes the following details: 'Wahlbeteiligung in Köln für die Bundestagswahl 2013', 'Letzte Änderung: 14.06.2019', 'Veröffentlichende Stelle: Stadt Köln', and 'Kategorien: Regierung und öffentlicher Sektor'.

Municipality Level: OpenData Portal Bochum



- Rathaus, Bürger- und Presseservice
- Leben, Vielfalt und Menschen
- Tourismus und Veranstaltungen
- Kultur, Schulen und Bildung
- Wirtschaft und Standortmarketing
- Wissenschaft und Technologie
- Politik, Wahlen und Bezirke

Rathauskalender						
Juni 2019						
Mo	Di	Mi	Do	Fr	Sa	So
					1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30

- Veranstaltungen in Bochum**
- Aktuelles aus Bochum
 - Rathaus, Bürger- und Presseservice
 - Online-Dienste / Formulare
 - Mein Bochum - das Bürgerserviceportal
 - Rathauskalender
 - Online-Terminvergaben
 - BürgerEcho
 - Formulare von A bis Z
 - Formulare nach Ämtern
 - Open Data
 - Anwendungen
 - Datensätze
 - Kontakt
 - Links
 - Statistisches Informationssystem
 - Online-Dienste
 - Haushaltsplan

Rathaus, Bürger- und Presseservice > Online-Dienste / Formulare > Open Data



Open Data

Liebe Besucherin, lieber Besucher,

im Open Data Portal der Stadt Bochum werden neben Online-Anwendungen verschiedene Datensätze der Stadtverwaltung veröffentlicht.

Open Data bedeutet die freie Verfügbar- und Nutzbarkeit von, meist öffentlichen, Daten. Sie beruht auf der Annahme, dass vorteilhafte Entwicklungen eingeleitet werden, wenn Daten für jedermann frei zugänglich gemacht werden. Dies betrifft insbesondere Abwesenheit von Copyright, Patenten oder anderen Eigentumsrechten. Offene Daten sind sämtliche Datenbestände, die im Interesse der Allgemeinheit der Gesellschaft ohne jedwede Einschränkung zur freien Nutzung, zur Weiterverbreitung und zur freien Weiterverwendung frei zugänglich gemacht werden. Und entsprechen in der Regel dem Grundgedanken des Informationsfreiheitsgesetzes.

Daten, die den Kriterien von Open Data genügen sollen, müssen strukturiert und maschinenlesbar zur Verfügung gestellt werden, so dass sie sich filtern, durchsuchen und von anderen Anwendungen weiterverarbeiten lassen können.

Verschiedene Bundes- und Landesbehörden (www.govdata.de, Open.NRW), aber auch Initiativen (openruhr.de, Open Knowledge Foundation Deutschland) initiieren, fördern und unterstützen die Verbreitung von Open Data.

Hinweis:
Die URLs der einzelnen Datensätze bleiben bei einem Austausch der Datei unverändert.



Anwendungen
... Online-Dienste, interaktive und mobile Anwendungen ...

gültig		
%	abs.	%
54,1 %	4.897	99,03 %
52,85 %	4.454	24 %
48,96 %	4.423	1 %

Datensätze
... nach Kategorien geordnet ...



Ansprechpersonen
... Ihr Kontakt zu uns ...



Example Dataset Population

Bevölkerung

Inhaltsverzeichnis

[Anzahl der Einwohner nach statistischen Bezirken, Staatsangehörigkeit und Alter der Person](#)

[Anzahl der Einwohner nach Stadtbezirken, Staatsangehörigkeit und Alter der Person](#)

[Anzahl der Einwohner nach statistischen Bezirken, Staatsangehörigkeit und Geschlecht der Person](#)

[Anzahl der Einwohner nach Stadtbezirken, Staatsangehörigkeit und Geschlecht der Person](#)

Anzahl der Einwohner nach statistischen Bezirken, Staatsangehörigkeit und Alter der Person

Stand: 31. Dezember 2016

[csv-Datei](#) 

(veröffentlicht am 9. Mai 2017)

[xlsx-Datei](#) 

(veröffentlicht am 9. Mai 2017)

[Metadaten](#)

Stand: 31. Dezember 2015

[csv-Datei](#) 

(veröffentlicht am 20. Juli 2016)

[xlsx-Datei](#) 

(veröffentlicht am 20. Juli 2016)

[Metadaten](#)

Stand: 31. Dezember 2014

[csv-Datei](#) 

(veröffentlicht am 30. März 2015)

[xls-Datei](#) 

(veröffentlicht am 30. März 2015)

[Metadaten](#)

Stand: 31. Dezember 2013

[csv-Datei](#) 


(veröffentlicht am 25. Juli 2014)

[xls-Datei](#) 

(veröffentlicht am 25. Juli 2014)

[Metadaten](#)

INFORMATIONEN ZU DEN DATENSÄTZEN

veröffentlicht von:	Stadt Bochum
Lizenz:	Datenlizenz Deutschland Namensnennung 
Webseiten:	www.bochum.de/statistik

Barrier: Lack of Standards

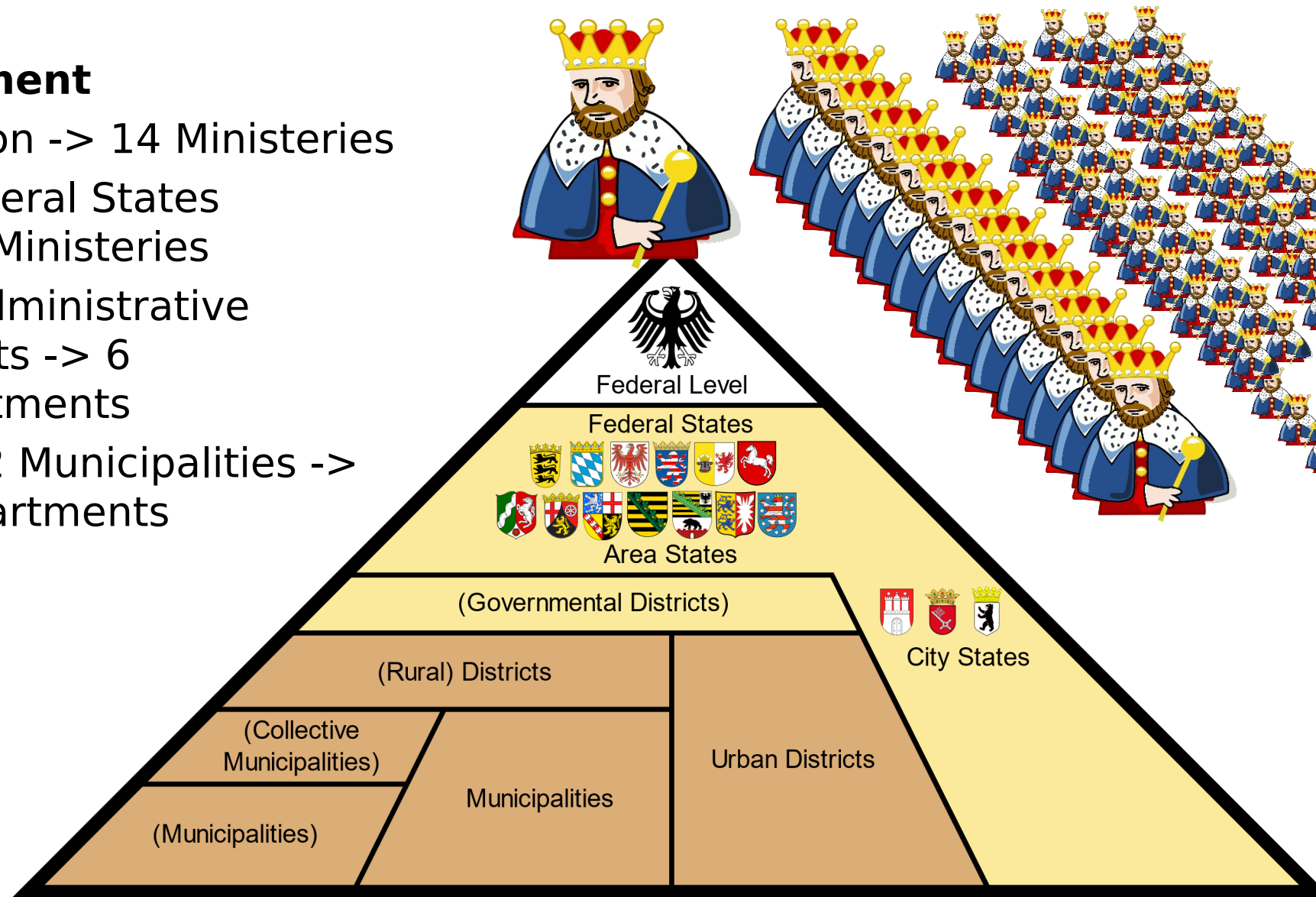
- Datamodels
- Formats
- Data Quality
- Portals
- Licences



Barrier: Federal Structure in Germany

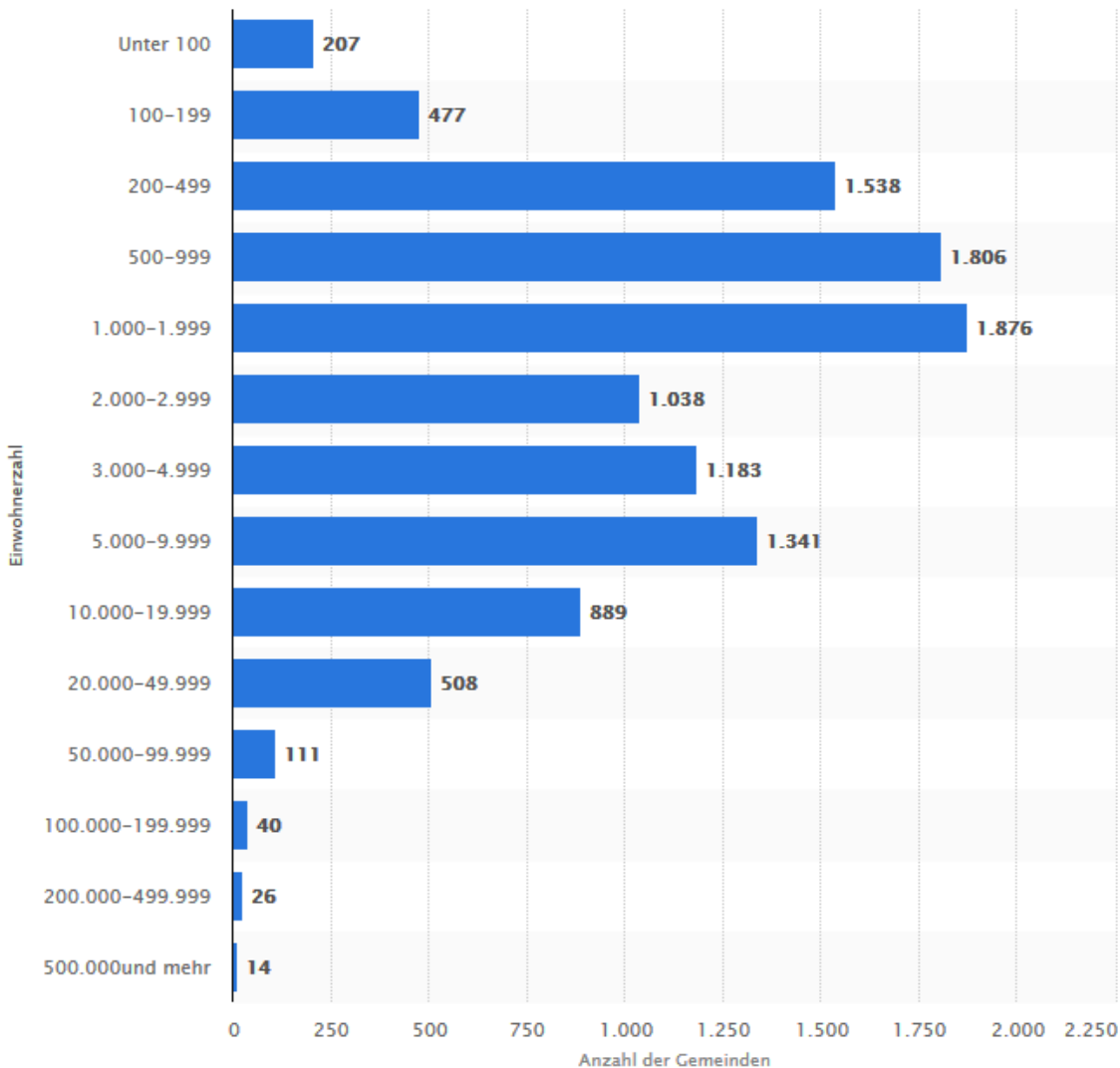
Government

- 1 Nation -> 14 Ministeries
- 16 Federal States -> 12 Ministeries
- 294 Administrative Districts -> 6 Departments
- 11.012 Municipalities -> 6 Departments



Federal Structure of Germany

Population size of local governments in Germany



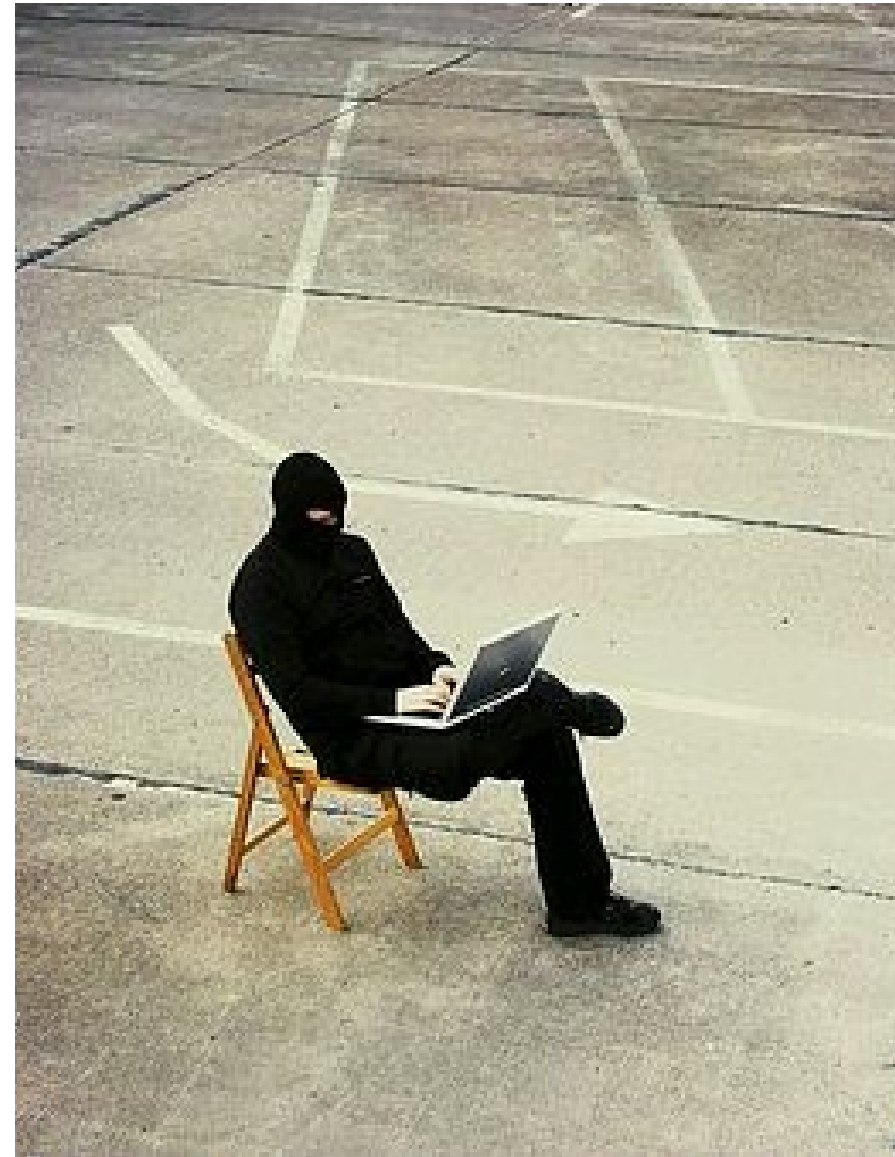
Local Governments as Providers of OpenData



Quelle: Eigene Darstellung basierend auf Angaben des Open Data Atlas: <http://opendata.tursics.de> (Stand: 30.3.2019)

Barrier: Blocking attitude of data providers

- „The data is mine, I don't want to share!“
- „Why should I share?“
- „The data underlies the data privacy rules, I can't share“
- „The data can be used from „wrong persons, it's not justified to share“ (right wing parties, media)



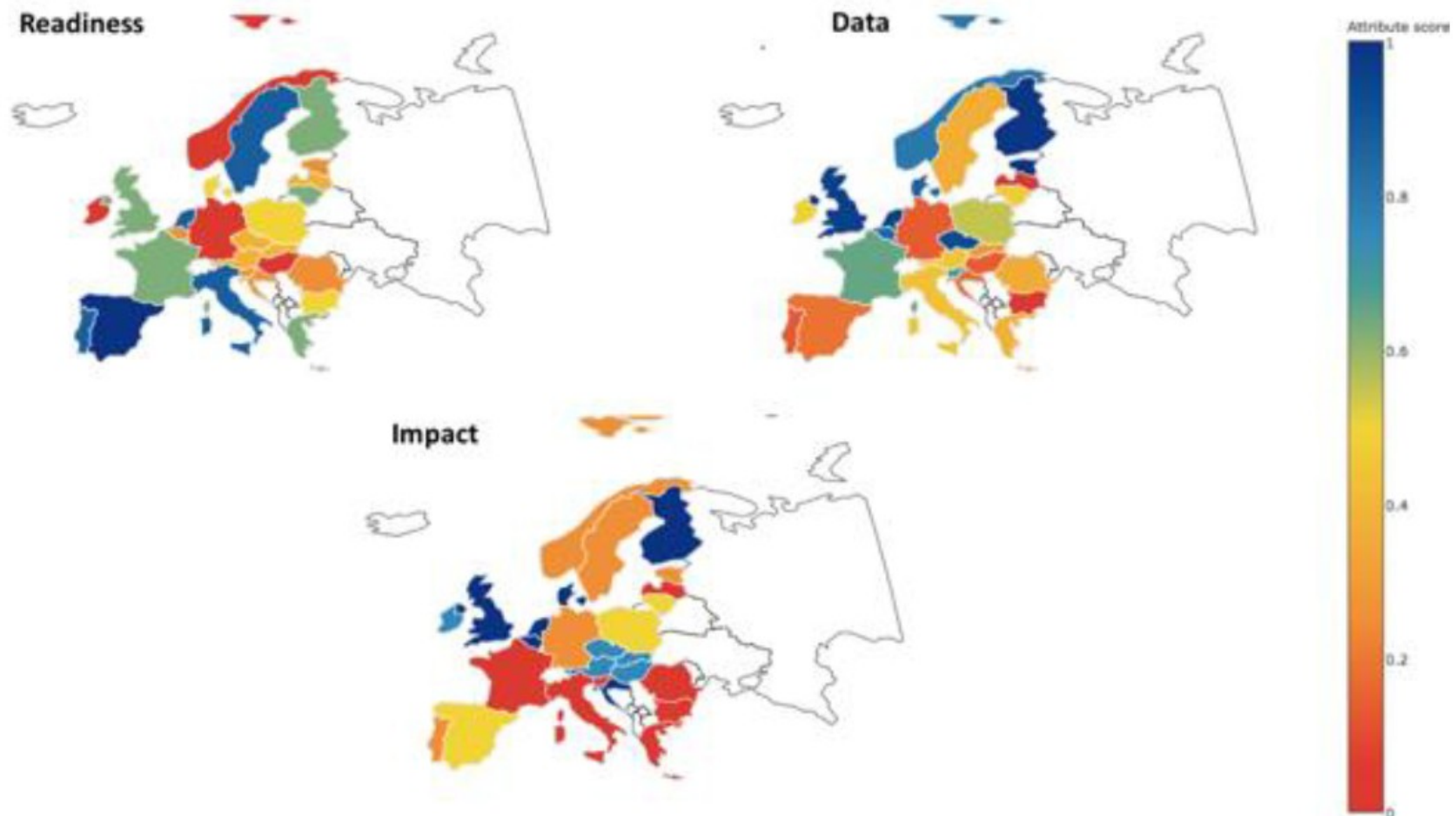
Barriers for OpenData Readiness in Germany

- Legislation is spread across the different levels of the federal structure and Open Data does not have the same weight everywhere
- Legacy systems, lack of metadata (therefore high effort to create it for publishing), different metadata standards, various different platforms to publish data
- Additional personnel or budget is normally not available for Open Data
- Capacity building within the administration
- Open Data is well known to a relatively small community, but not to the broad public. Besides the funding program memFUND (see Q3.10), the participation in the Open Government Partnership (OGP) overall brings more awareness
- Data cannot be used as long as it is not open. A lot of interesting data, especially for citizens, is located at the local level. With the federal bill and the commitment of the Länder to also make respective legislation, the amount of published data shall be increased



OPENS DI „Readiness of Europe“

Figure 1: Prototype showing the three key dimensions of the Map of Open SDI Europe (dark blue implies fully open, whereas red implies not open)





TWO NEW PROJECTS TO INCREASE OPENESS OF SDI



SPIDER: open SPatial data Infrastructure eDucation nEtwoRk

ERASMUS + Strategic Partnership Alliance
(start Sep 1, 2019)

- BOCHUM UNIVERSITY OF APPLIED SCIENCES, Germany
- TECHNISCHE UNIVERSITEIT DELFT, Netherlands
- KATHOLIEKE UNIVERSITEIT LEUVEN, Belgium
- LUNDS UNIVERSITET, Sweden
- SVEUCILISTE U ZAGREBU - GEODETSKI FAKULTET, Croatia



SPIDER: GOALS

- **Promote and strengthen active learning and teaching towards Open SDI**

Subobjectives:

- To explore, develop and implement the concept of Open SDI as a new paradigm to SDI education
- To develop and promote active and multidisciplinary learning and teaching on Open SDI
- To develop a general toolkit for implementing Open SDI in existing curricula in study programs of different disciplines
- To drive the uptake of Open SDI teaching and learning resources by teachers and students via open online platforms



SPIDER - envisaged Results and Impacts

- A better understanding of existing practices, policies and systems in education, and training across countries in Europe and beyond
- A central online SPIDER platform facilitating Open SDI education in Europe and beyond
- Inclusion of new, innovative concepts and topics related to Open SDI in SDI education
- Improved quality of education and training in Open SDI in Europe
- An education aligned with the future needs of the labour market

TODO - Twinning Open Data Operational

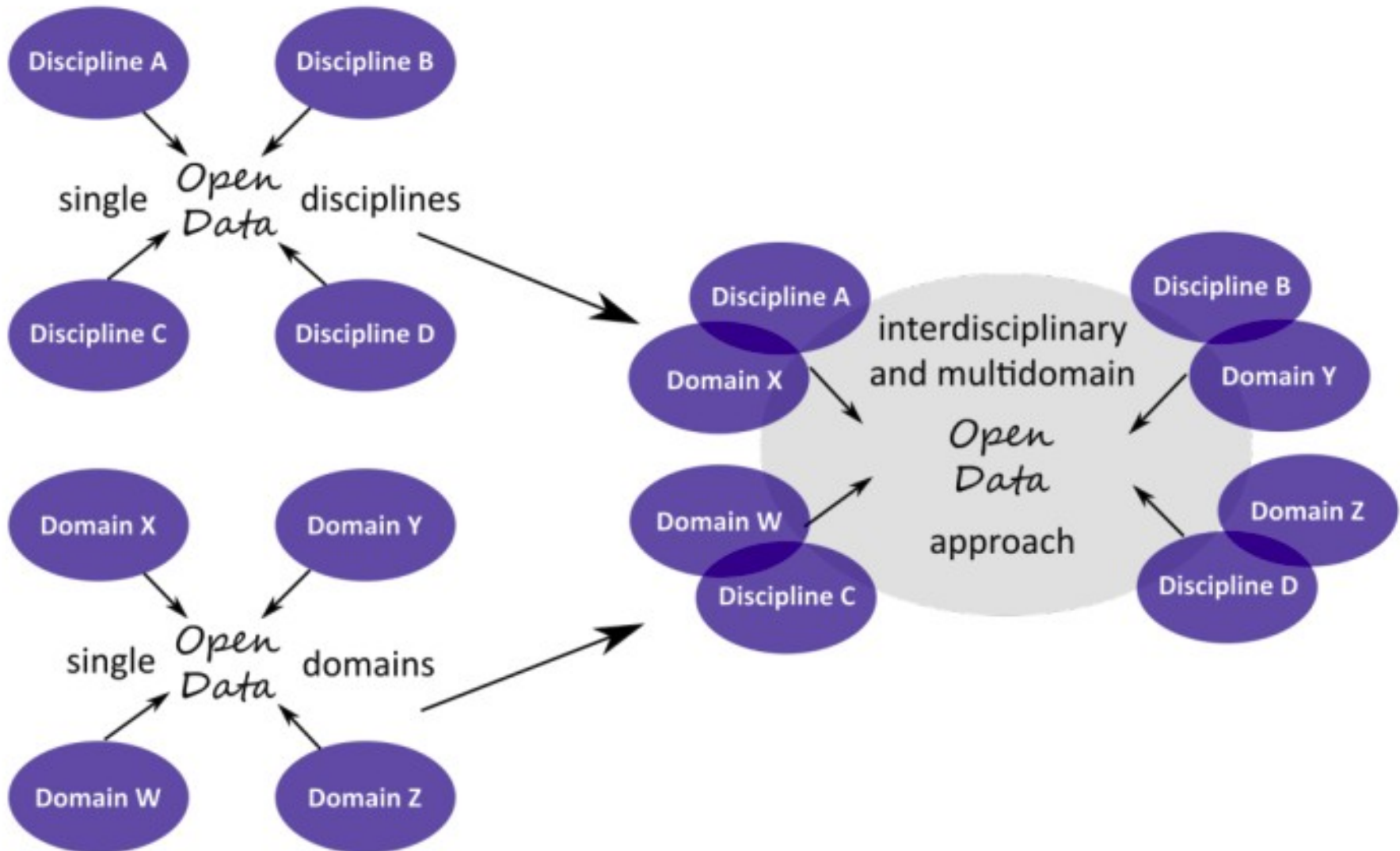
- HORIZON 2020 Twinning (start Oct 1, 2019)
- TU Delft + University of Aegean + 6 faculties of University of Zagreb
 - Geodesy
 - Electrical Engineering and Computing
 - Organization and Informatics
 - Law
 - Transport
 - Agriculture



TODO: Interdisciplinary and Multidomain Approach

Before TODO

After TODO





Join us on our project events!

**THANK YOU FOR THE
ATTENTION**