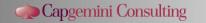
## **European Data Portal**



Activities in a nutshell



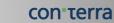














Capgemini Consulting

open data institute



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con<sup>•</sup>terra

4 key macro economic indicators for the EU28+ by 2020

Market Size and value added as percentage of GDP The market size is defined through the market volume (realized sales volume ) and the market potential.	€ 75.7 billion
<b>Number of Jobs Created</b> Number of additional jobs (in persons) created directly related to Open Data for the private sector.	25,000 jobs
<b>Cost Savings for the public sector</b> Savings include time saved for public administrators by using Open Data, eliminated transaction costs for providing data, realizing more transparency.	€ 1.7 billion
<b>Efficiency Gains</b> or productivity gains Qualitative assessment of indirect benefits for citizens. This can be in terms of time saved, lives saved, productivity gains.	7,000 lives 16% energy

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#### EUROPEAN DATA PORTAL (BETA)

- +398K metadata sets
- 34 countries covered
- 67 catalogues
- 13 categories to structure metadata
- A Goldbook for data holders
- 13 eLearning modules
- A library with the material from Open Data Support
- Featured highlights
- Latest Open Data news
- Several feedback functions
  - Help us improve
  - Be harvested by us
  - Tell us your story



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English (en)

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Search Portal

# Accessibility





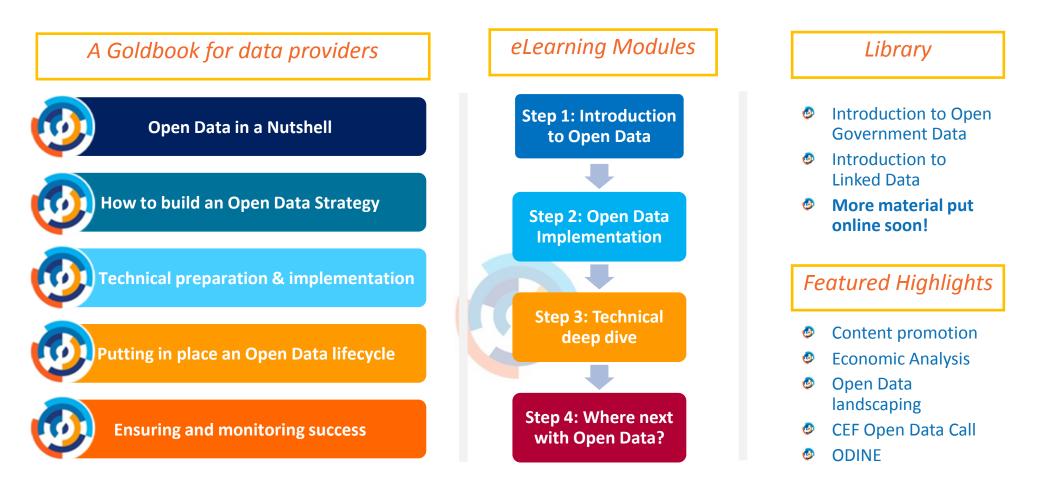






# WHO IS CONTRIBUTING TO THE EUROPEAN DATA PORTAL?

















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Four complementary work streams are focused on reuse

Fostering uptake on reuse of public data resources Leveraging community engagement to make the most out of Open Data
 Communicating and raising awareness about the Portal
 Studying the economic impact of the reuse of public data resources
 Preparing for the future and working on the sustainability

#### **Community Engagement**

Reports to drive understanding and reuse

**Topic 1: Open Data and Digital Transformation** 

**Topic 2: Open Data and eSkills** 

**Topic 3: Open Data and Privacy** 

Economic Benefits of Open Data								
Metrics to measure economic impact								
Market Size	Jobs Created	Cost Savings	Efficiency Gains					

Future actions will consist in making the most of domain specific activities: weaving our activities into existing communities rather than creating communities of our own







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# Share your Story



# Help us Improve

Help us improve

Your feedback will help us to improve the overall user experience. Any suggestions?

## European Data Portal



Portal Demo





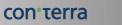




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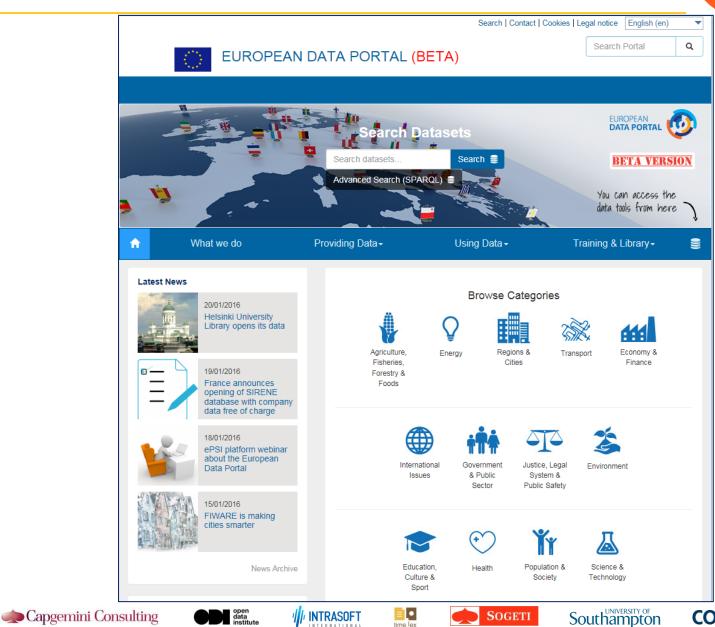
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#### **EDP Home Page**





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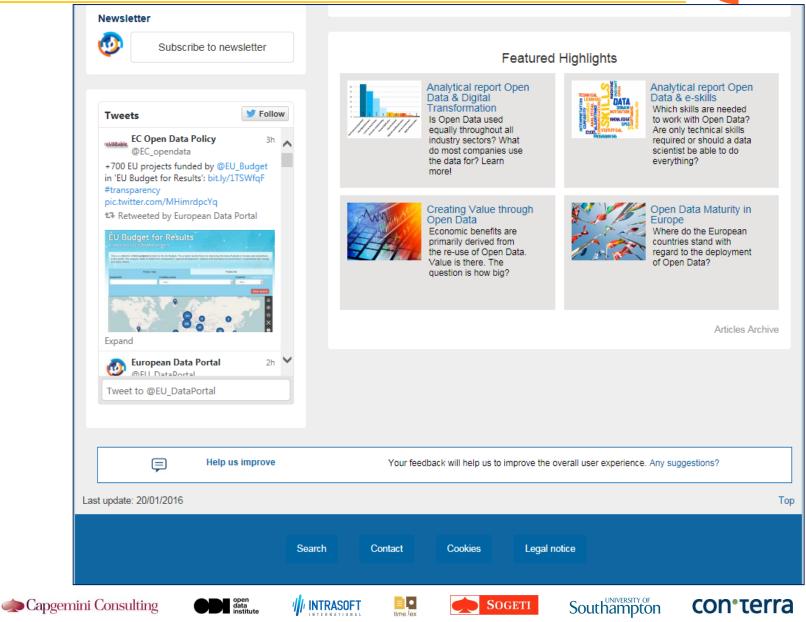


#### EDP Home Page (cont'd)

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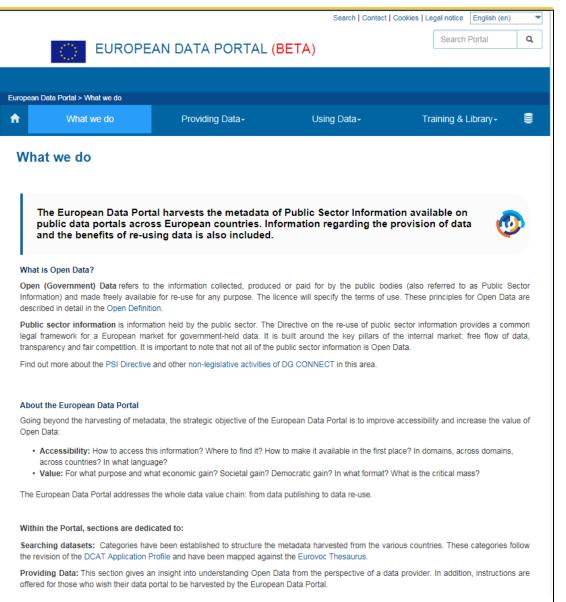




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#### What we do





















#### Providing Data / Overview



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Practical guidelines about everything you need to know, when you want to start sharing data.       The European Data portal will harvest an increasing number of regional and national portals.       Discover the European Data Portal's eLearning Programme on Open Data and how to molement it.         The Goldbook includes personalised information for different target groups using 4 predefined roles: the Decision Maker, the Data Manager, the Developer and the Contributor.       More information about what you need to do to be harvested by this portal can checklist that will take you through the process step by step.       Discover the European Data Portal's eLearning Programme on Open Data and how to unplement it.         Emergen Data Manager, the Developer and the Contributor.       Discover the European Data Portal's eLearning Programme on Open Data in an interactive learning environment. This will help you better understand Open Data, how to publish datasets, including technical requirements, etc.         Emergen Mathematical Manager, the Developer and the Contributor.       Portal's eLearning Programme on Open Data in an interactive learning environment. This will help you better understand Open Data, how to publish datasets, including technical requirements, etc.         Emergen Mathematical Mathematic	Providing Data		
	Practical guidelines about everything you need to know when you want to start sharing data. The Goldbook includes personalised information for different target groups using 4 predefined roles: the Decision Maker, the Data Manager, the	The European Data portal will harvest an increasing number of regional and national portals. More information about what you need to do to be harvested by this portal can be found in this section, including a checklist that will take you through the	Discover the European Data Portal's eLearning Programme on Open Data and how to implement it. Learn more about Open Data in an interactive learning environment. This will help you better understand Open Data, how to publish datasets, including
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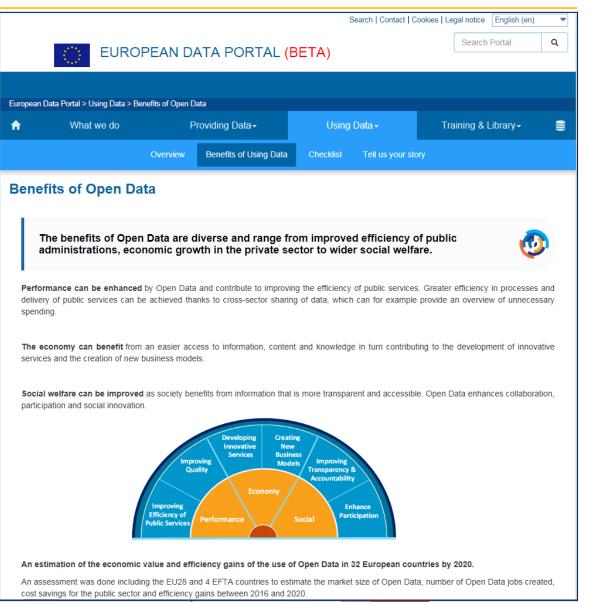




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#### Using Data / Benefits of Open Data





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#### Using Data / Tell us your story



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Sh	are your story at	bout how ye	ou make use of Ope	en Data.			9
Are you	an entrepreneur? A non	-governmental o	organisation? A civil servant	responsible for	publishing data? A lo	ocal authority?	
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#### Training & Library / Overview

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Training & Libra	arv				
	eLearning		Library		
	13 modules including all the information you need regardi Open Data. This section contains an interactive learning environment divided into different subjects to learn more about Open Data and advanced technical details.		A growing archive of O Data material, news an The Library offers a central ac to material on and around Op Material from many European projects is made available her section of the Portal will grow	d more cess point en Data. funded e. This	
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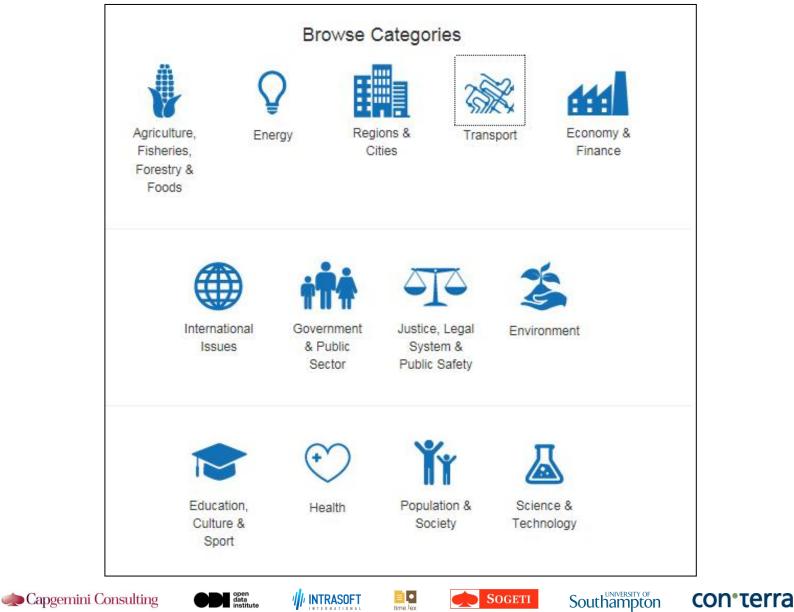
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#### EDP Data / Browsing Data by Category

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#### EDP Data / Datasets found in category "Transport"



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#### EDP Data / Datasets found for keyword "Vienna"

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#### EDP Data / Dataset details for "Vienna hydrography"



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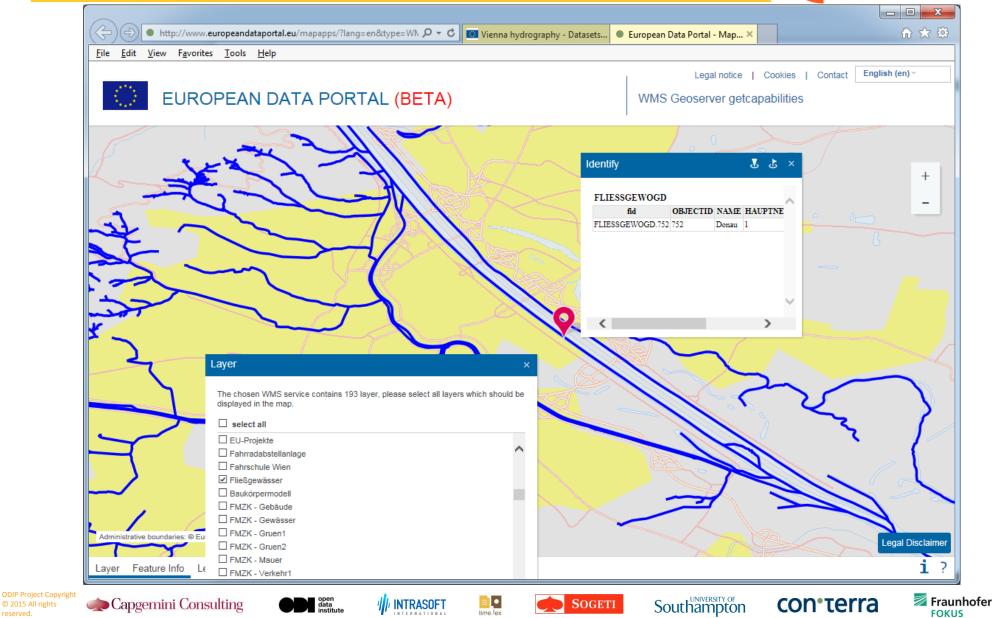




#### EDP Data / Dataset Spatial Visualization "Vienna hydrography"

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# **THANK YOU**

### Service 1 Contact Information

Mario FENDLER (INTRASOFT)

Phone: +352 / 44 10 12-1 Email: mario.fendler@intrasoft-intl.com





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## European Data Portal



#### Architecture





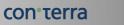




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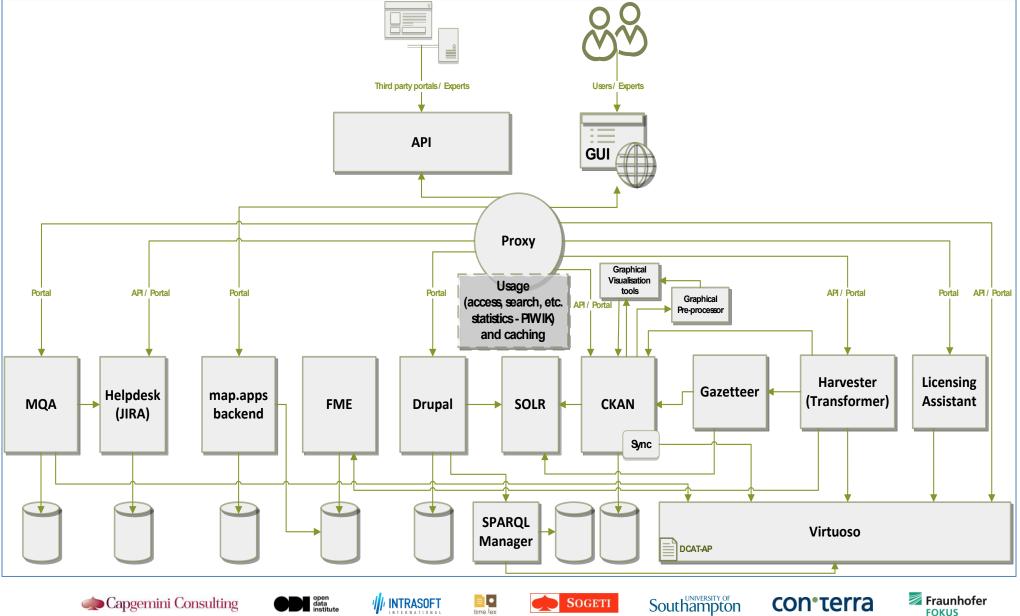




#### **Architecture Overview**



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Component	Description
API Access	Machine-readable (SOAP / REST) API
GUI Access	Portal website graphical user interface
CKAN	Portal's central metadata (dataset) repository
DRUPAL	Portal's Home Page managing editorial content
ECAS	European Commission Authentication System used for user registration and login in order to provide extended functionalities of the Portal
Adapt Framework	Online platform used for Portal Training Modules (available in EN + FR)
Proxy	Routing of (HTTP(S)) user requests to corresponding components
SOLR Portal Search (editorial data)	Search engine used for searching portal editorial content
SOLR Dataset Search (metadata)	Search engine used for searching and filtering datasets in the CKAN metadata repository
Licensing Assistant	Component to provide legal information on (re-)usage of specific datasets
SPARQL Manager	SPARQL query editor allowing to run SPARQL queries on linked data in the Virtuoso repository
Virtuoso	Linked data quadruple store that is synchronized with the CKAN repository

















Component	Description
map.apps:	Proprietary application to visualize geo-spatial data and information using geo-maps. It comes
Geo-spatial Data	with different tooling and thematic focus, a graphical configuration interface, supports
Visualisation	responsive web-design, i18n internationalization files, client side implementation of the OSGI specification (JavaScript)
Graphical Data	Recline.js/D3.js JavaScript libraries to visualize (statistical) data in tables and graphical charts
Visualisation	
Pre-processor	RESTFUL web API, running on a Node.js server which analyzes and transforms XSL/XLSX files
	into CSV format in order to be used from the Visualisation tool
Harvester	Single entry point component for harvesting data from multiple data sources in different
	formats and from different APIs
Gazetteer	Component providing geo-spatial data and information
FME	Component used by the Gazetteer as a universal spatial ETL tool (Extract-Transform-Load) that
	supports the accessing, processing and outputting of all spatial file / database formats and
	that is used for harvesting the sources for geographical names
smart.finder	Component used by the Gazetteer and simplifying searches for spatial data, services and
	documents. It enables fast and structured access to extensive, distributed and heterogeneous
	data stores
MT@EC	Machine Translation Services of the European Commission used for translation of the
	metadata into all of the supported languages by the portal















Component	Description
Helpdesk	Portal offers a user request/feedback form via the JIRA-API and generates JIRA tickets for follow-up by helpdesk
Metadata Quality	Component to report on the quality of the harvested metadata and to alert helpdesk in case
Assistant (MQA)	of issues
Monitoring	PIWIK component that provides Traffic Analytics of portal usage
Multilingual Support	Web pages + core editorial content + dataset descriptions available in all 24 official EU
	languages



















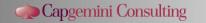


## **European Data Portal**



Activities in a nutshell



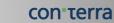








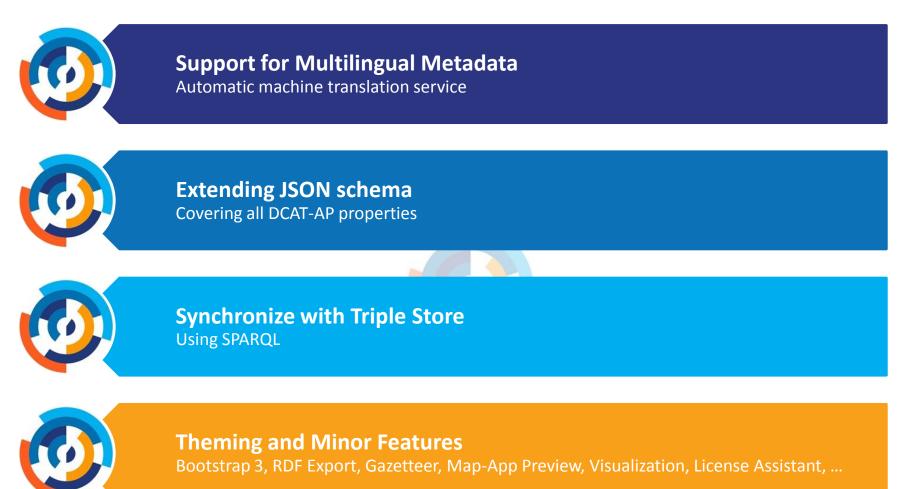








#### 3 major and a few minor extensions





















#### **Multilingual Support**

- Extra fields "translation" and "translation\_meta"
- Using machine translation service (MT@EC)
- Ø Solr schema
  - For each translated field an additional field in the Solr schema was included
  - Have language specific settings, like appropriate stemming functions
  - Depending on the search and language settings of the browser, the Solr search query included the respective fields, e.g. when searching for German and French only the German and French fields are used

```
"translation_meta": {
    "default": "en",
    "languages": ["en", "fr", "de"],
    "en": {
        "received": "2016-01-19T11:57:12.944031",
        "tag": "en,,
    },
    "fr": {
        "issued": "2016-01-19T11:57:12.944031",
        "tag": "fr-t-en-t0-mtec",
        "received": "2016-01-20T01:53:17.249751,
    },
    "de": {
        "issued": "2016-01-19T11:57:12.944031",
        "tag": "de-t-en-t0-mtec",
        "received": "2016-01-19T11:57:12.944031",
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        "received": "2016-01-20T01:53:17.249751,
        "tag": "de-t-en-t0-mtec",
        "received": "2016-01-20T01:53:17.249751,
        "
```

"translation": {

```
"fr": {
```

"notes": "Le présent rapport est destiné à compléter les rapports hfas Greater Manchester...",

"title": "Statistiques des transports Rochdale,,

#### }, "de": {

"notes": "Dieser Bericht hfas Berichte ergänzen soll, "Verkehrsstatistik" und "Greater …",

"title": "Verkehrsstatistik Rochdale"















#### JSON Schema

- CKAN uses a flat JSON-based key-value data structure
- Core fields and schema is fixed
- Extension of arbitrary fields is possible
- DCAT-AP uses RDF with fixed properties
- The range of many properties is open and not fixed
- Challenge: Handling the semantic gap and map abitrary source data to DCAT-AP <u>and</u> CKAN!

- Different point of views:
  - User view: API and Frontend
  - Internal Processing

















Mapping

- Map DCAT-AP classes to fitting CKAN concepts
  - Dataset  $\rightarrow$  Package
  - Catalogue  $\rightarrow$  Organization
- Map each DCAT-AP property to a semantic equivalent CKAN core field (if possible)
  ØE.g.: dct:description → notes
- Create new fields in CKAN for every property not covered
- DCAT-AP covers much more meta data than CKAN
- More than 25 extra fields were added
- Many core CKAN field have no equivalent

















#### Data Structures

- ORDF offers a complex and flexible data structure
- CKAN's plain JSON offers basic structures: Numbers, Dictionaries, Strings and Lists
- Obvious solution: JSON-LD To complex to integrate into CKAN for now
- Creation of basic data structure mapping
- Issue: Ranges of DCAT-AP properties are wide open
- Example:
  - Oct:contactPoint has the range vcard:Kind
  - vcard:Kind defines a variety of valid properties
- Solution: Map only the most "common" in CKAN
- Map cardinalities into JSON structures: List or single dictionary
- If linked to external resource, the URI is stored in addition





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Example

```
-<dcat:contactPoint>
 -<vcard:Organization>
    <vcard:organization-name>Bundesanstalt für Geowissenschaften und Rohstoffe</vcard:organization-name>
    <vcard:hasEmail rdf:resource="mailto:geologie.daten@bgr.de"/>
  </vcard:Organization>
 </dcat:contactPoint>
             "contact point": [
                   "type": "http://www.w3.org/2006/vcard/ns#Organization",
                   "resource": "http://www.organization.resource",
                   "email": "mailto:geologie.daten@bgr.de",
                   "name": "Bundesanstalt für Geowissenschaften und Rohstoffe"
                 }
               ٦
```















#### Data Structures

- Implemented as a CKAN Extension based on RDFLib
- Harvester or other clients create datasets in CKAN via the API in "CKAN-Style"
- The data is transformed into RDF
- RDF is stored in Virtuoso
- Base is the CKAN API and <u>not</u> RDF (at the moment)
- RDF is available via the SPARQL Endpoint of Virtuoso
- Human readable information is rendered in the Frontend (Labels etc.)
- The Mapping is not perfect, yet!

















#### Connecting to Tripple Store

- Each CRUD operation (except read) is synchronized with the triple store
- Hook into package\_show, package\_create, package\_delete logical functions (same for resource functions)
- API and Frontend included
- RDFlib + SPARQLWrapper



















#### Integrated Features

- Theming using Bootstrap 3 for better harmonizing with Drupal 0
- **Exporting RDF** 0
  - Datasets can be returned in rdf/xml or n3 format
- Gazetteer 0
- License Assistant  $\odot$
- Map-App Preview ø
- Visualization of Excel Data 0



















# Geospatial Components of the European Data Portal



Maps, Gazetteer, Geo-Harvesters





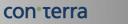




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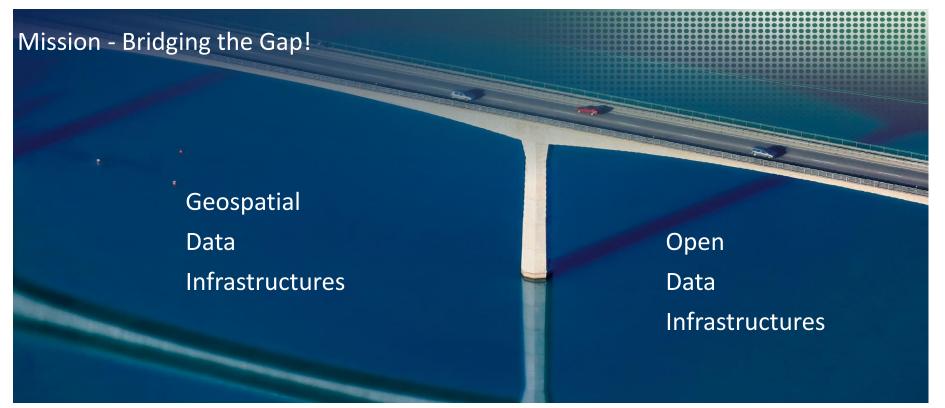


#### The role of con terra



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#### **EDP Geospatial Components**

Maps Visualization of Geospatial Data

data

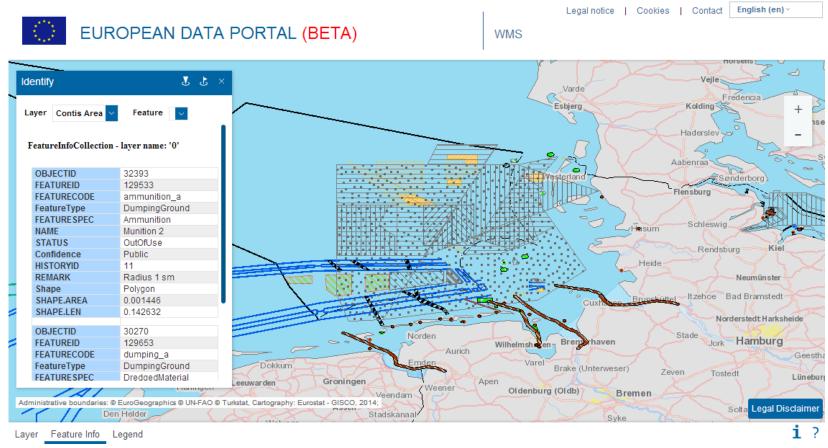
- Gazetteer Spatial Search and Filtering
- Harvesting Geospatial Metadata Mapping ISO 19139 to DCAT-AP

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#### Maps: Visualization of Geospatial Data









**Displaying Dynamic Content (WMS & GeoJSON) from Data Providers** 

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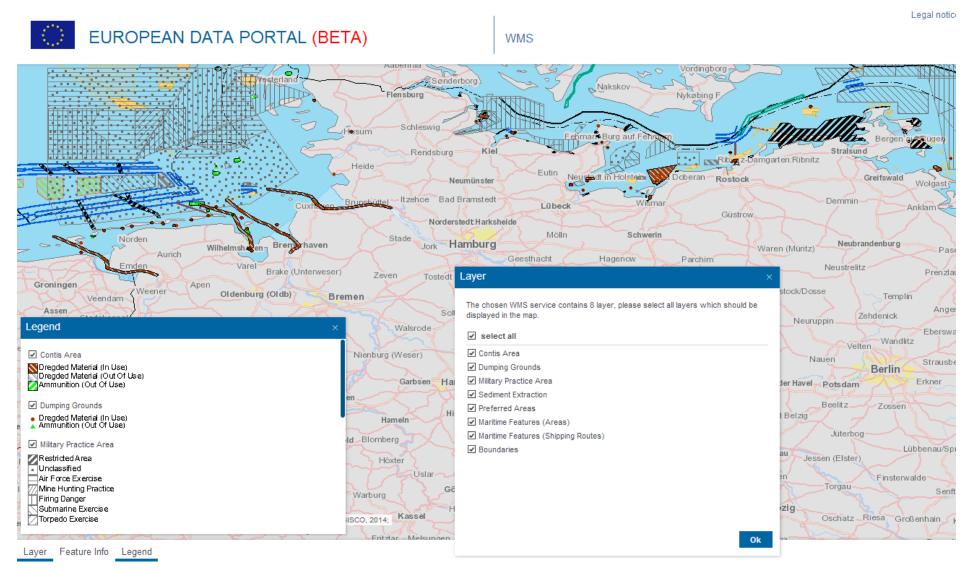




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#### Maps: Visualization of Geospatial Data









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	EURO	PEAN DATA PORTAL (E	BETA)	Search	Q	Based on: Geographical Names
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		continental shelf	<ul><li>A What we do</li><li>A / Datasets</li></ul>	Providing Data -	Using Data +	Added: Member States Bulk Data (e.g. shp)
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	penStreetMap contributors   claimer	UK Continental Shelf 2013		35 datasets found for " shelf"	continental	smart.finder
			© OpenStreetMap contributors   Discolaimer	Continental Shelf for Norway		

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Enables Spatial Search (e.g. cities and states) and Spatial Filtering (Extend)















#### Harvesting: Geospatial Metadata (I)



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EURO	PEAN DATA PORTAL (BETA)	▼ Catalogs
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V Datasets		Geocatalogue France (28567)
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		Geo data.gov.uk (11865)
	Multi-Language Search 🗸	dati.gov.it (10082)
	399,909 datasets found Order by: Relevance	datos.gob.es (8699)
		European Union Open (7573)
Map © OpenStreetMap contributors	Imperial Obligatory Imprints of the Stable Cadastre 1:2880 - Moravia and 👁	Dataportaal van de (6739)
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▼ Catalogs	Silesia. These maps originate in 1826-1843 and originally were	Swiss Metadata Cata (4471
Geoportal Czech Off	Imperial Obligatory Imprints of the Stable Cadastre 1:2880 - Moravia and	Open Data in Vlaand (2772
(139462)	Colour raster copies of so called Imperial Obligatory Imprints of the Stable Cadastre 1:2880 - Moravia and	Offene Daten Österr (1970
GDI-DE (76251) Geocatalogue France	Silesia. These maps originate in 1826-1843 and originally were	Offene Behördendate (1853)
-		Data.gov.ie (1229)



Metadata for geospatial resources based on DCAT-AP

#### GeoDCAT-AP

- Mapping metadata from prevalent existing geospatial metadata standards to DCAT-AP (INSPIRE / ISO 19115 Core)
- No new metadata schema made "from scratch", no replacement of existing standards

#### Adapter Architecture

- Adapters provide a uniform interface for harvesting: **OAI-PMH**
- Adapters use geospatial catalog interface standards to access remote geo-catalogues
- XSLT-based Transformation of ISO/INSPIRE metadata to DCAT-AP

Continental shelf information system	🔥 Dataset 👹 Categories 🛛 Activi	ty Stream & Feedback	
— Administration — WMS	The title and description of this dataset are	machine translated.	
Followers			
0	Continental shelf info Administration — WM	-	
	Administration — Wi	5	
Catalog	Data on all uses and nature conservation areas in the North Sea and in the Baltic Sea.		
	Distributions		
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Lat.	Appropriate areas f Dumping sites	Extraction of sediment Maritime shipping	
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	Additional Info		
	Field	Value	
	Last Updated	November 6, 2015, 21:36	
	Created	November 4, 2015, 09:54	
	Provenance	Resource:     Label: Bundesamt für Seeschifffahrt und Hydrographile (BSH)	
	Contsot Point	Type: http://www.w3.org/2006/vcard/hs#Organization     Resource:     Email: mailtoxial.truempler@osh.de     Name: BSH	
	Translated	true	
		<ul> <li>32f6a90d-07aa-46b6-9a4b-d24f405ffc19</li> </ul>	
	Identifier	<ul> <li>32768900-0788-4606-9840-02474050019</li> </ul>	







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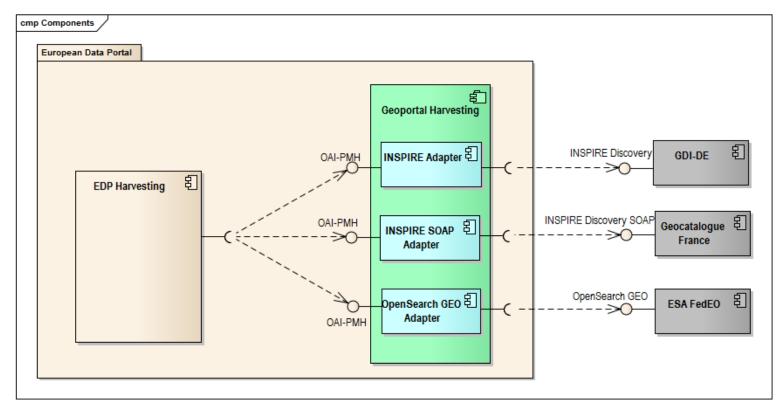






#### Harvesting: Geospatial Metadata (III)









Marc Kleemann Market Delivery Manager con terra GmbH

m.kleemann@conterra.de www.conterra.de

















# Go and try it out.

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