



Uptake of Open Geographic Information Through Innovative Services Based on Linked Data

Dimitri Kožuch, Martin Tuchyňa
Help Service - Remote Sensing,
Slovak Environment Agency

Inspirujme se 2015, 25 November 2015,
Bratislava, Slovakia



OVERVIEW

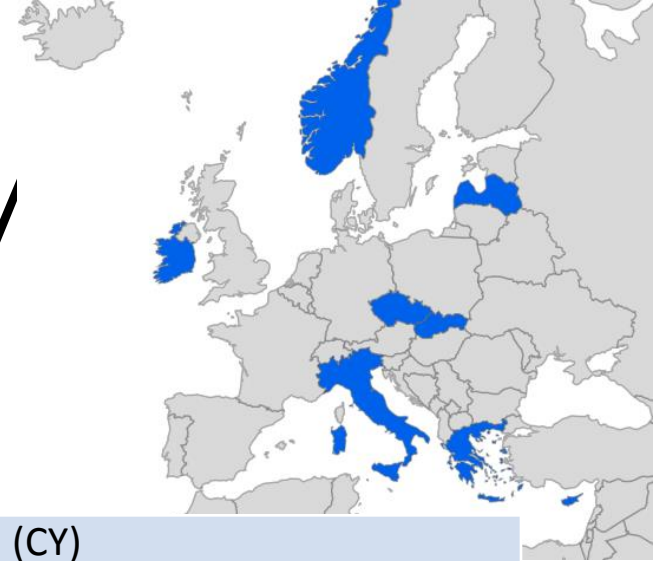
- Quick facts
- SDI4Apps Consortium
- What's the problem?
- General idea of SDI4Apps
- SDI4Apps Cloud Infrastructure
- SDApps Platform
- SDApps Pilots
- Community support

QUICK FACTS

Project title	Uptake of Open Geographic Information Through Innovative Services Based on Linked Data
Short title	SDI4Apps
Ref. number	621129
Funded under	Competitiveness and Innovation Framework Programme - The Information and Communication Technologies - Policy Support Programme (CIP-ICT-PSP-2013-7)
Objective	2.2a Open Data experimentation and innovation building on geographic information
Total budget	4,070 Mil. EUR (2,035 Mil. EUR co-funded by the EU)
Duration	April 2014 – March 2017
Coordinator	University of West Bohemia, Czech Republic
Website	http://sdi4apps.eu/

SDI4APPS CONSORTIUM

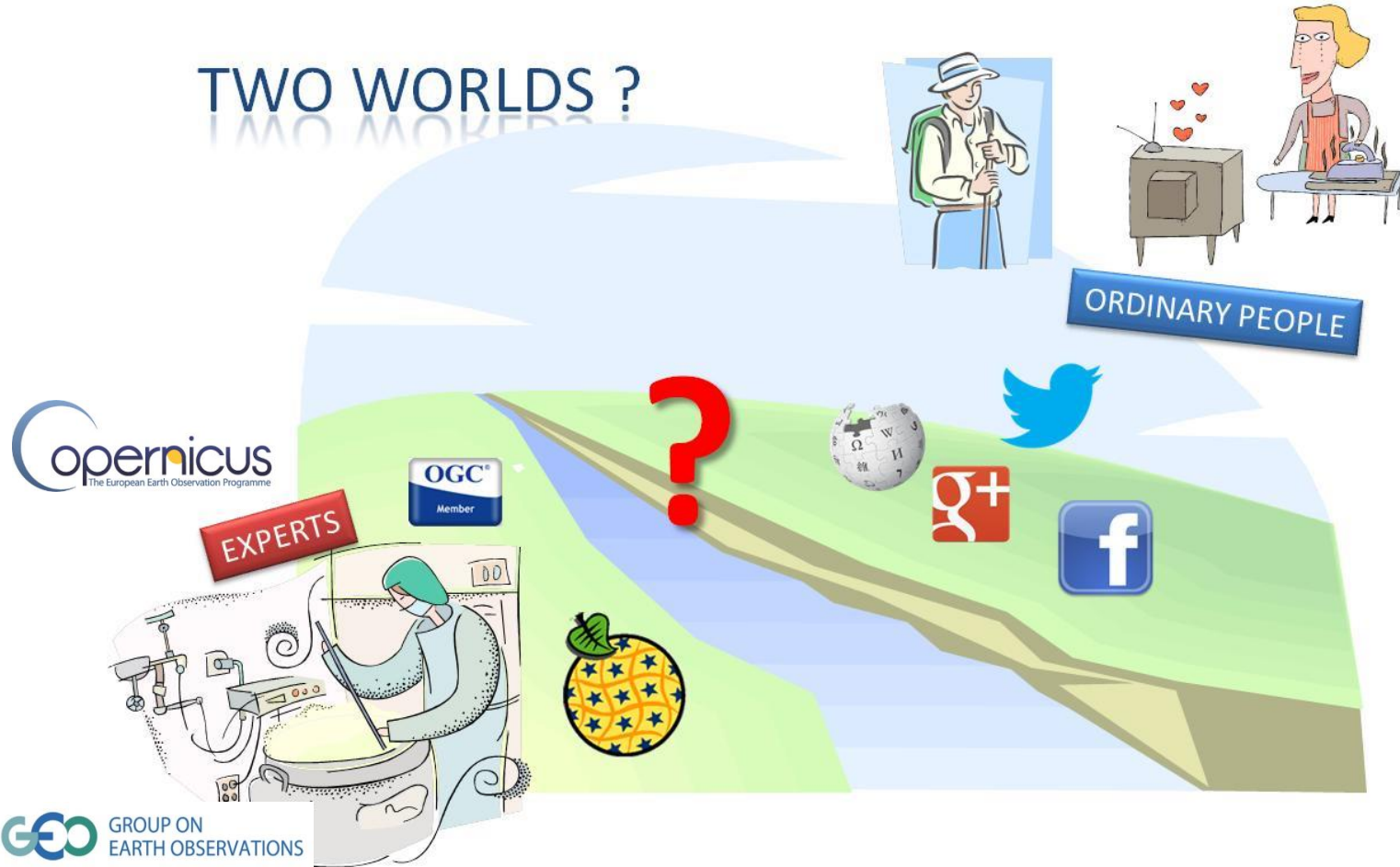
18 partners
8 European Countries



Asplan Viak Internet as (NO)	RTD Talos Limited (CY)
Baltic Open Solutions Center (LV)	Scuola Superiore Sant'Anna (IT)
Czech Centre for Science and Society (CZ)	Slovak Environment Agency (SK)
e-Pro Group as (SK)	Strategie Strutturali di Antonio Paterno' & c. sas (IT)
European Regional Framework for Co-operation (GR)	The National Microelectronics Applications Centre Ltd (IE)
Help Service Remote Sensing s.r.o. (CZ)	Uhlava (CZ)
Hyperborea S.r.l. (IT)	University of West Bohemia in Pilsen (CZ)
Masaryk University (CZ)	Vidzeme Planning Region (LV)
Pronatur (SK)	Zemgale Planning Region (LV)

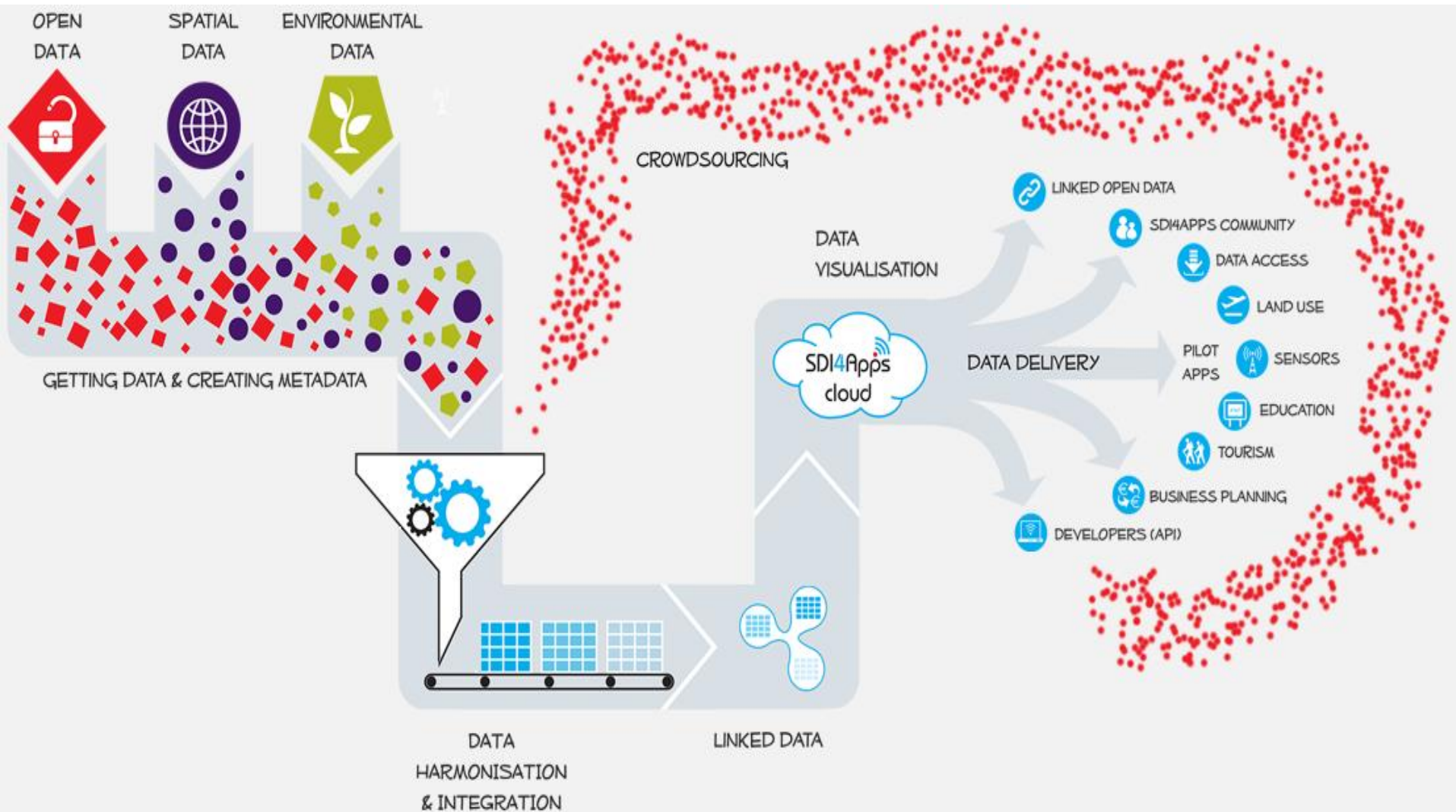
WHAT'S THE PROBLEM?

TWO WORLDS ?



Inspirujme se 2015, 25 November 2015,
Bratislava, Slovakia

GENERAL IDEA OF SDI4APPS



SDI4APPS CLOUD INFRASTRUCTURE

Cloud environment for
SDI4app platform - based on
CERIT Scientific cloud

With tested possibilities to
migrate on another clouds:

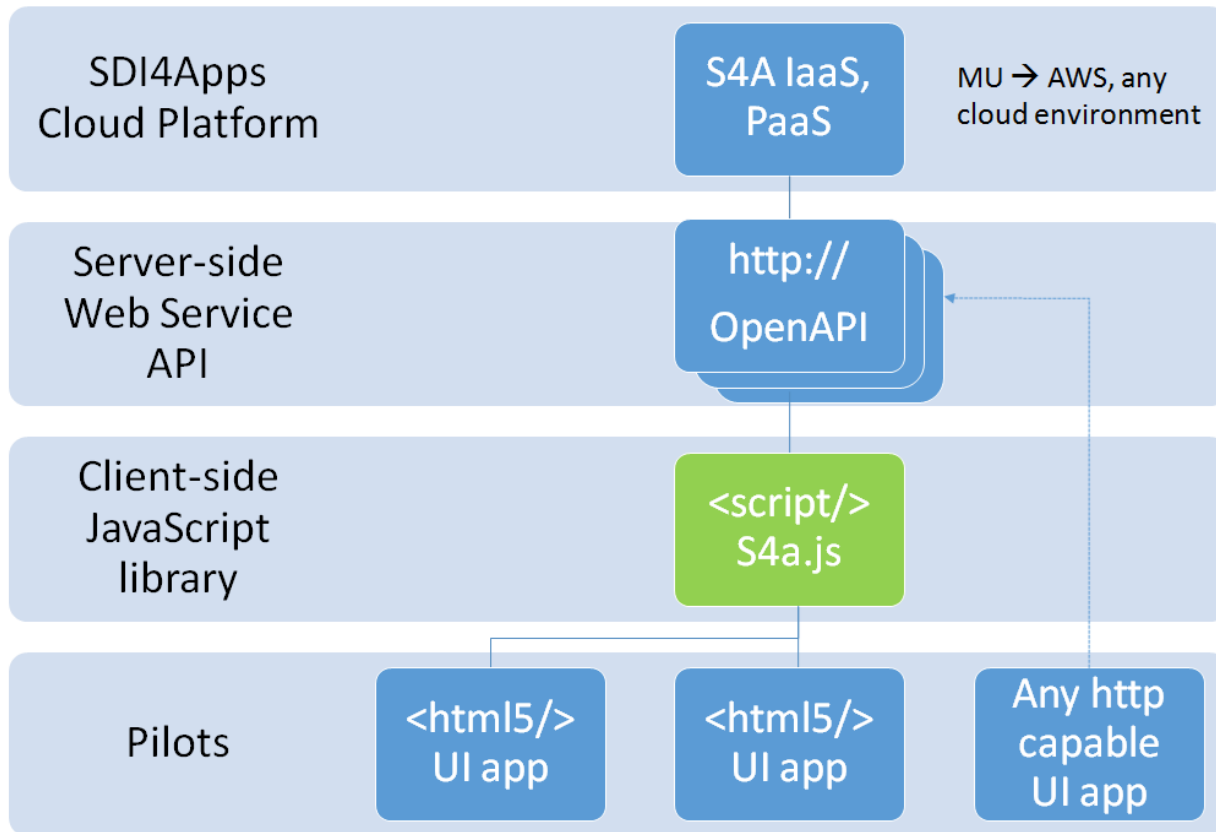
- OpenNebula at CERIT-SC
- Amazon AWS
- Google Computing Engine
- Microsoft Azure



	CERIT-SC cloud
web interface URL	https://cloud.metacentrum.cz/
hypervisors	KVM, Xen
provided disk images	Debian, CentOS, SciLinux, MS Windows
disk image upload formats	qcow2, raw
term for VM	VM
term for VM spec (CPUs, RAM..)	template
terms for VM suspend, stop and delete	suspend, stop, undeploy
file storage service	Cumulus (S3 compatible)
persistent disk storage	persistent disk images, copy on start and stop

SDI4APPS PLATFORM

Set of re-usable SW components



Inspirujme se 2015, 25 November 2015,
Bratislava, Slovakia

SDI4APPS PILOTS

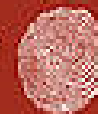
Set of apps aiming to demonstrate the deployment of the SDI4Apps platform via cloud environment

- PILOT I: Easy Data Access
- PILOT II: Open Smart Tourist Data
- PILOT III: Open Sensor Network
- PILOT IV: Open Land Use Map Through VGI
- PILOT V: Open INSPIRE4Youth
- PILOT VI: Ecosystem Services Evaluation

PI: EASY DATA ACCESS



An Chomhairle Oidhreachta
The Heritage Council



1. Mobile Apps to support Tourism for Conservation

SDI4Apps enabled European Tourism Indicator System (ETIS) Webservice & Apps for the Burren & European GeoParks Network. ETIS is a new EU standard, that is a locally owned & led process for monitoring, managing, & enhancing the sustainability of a tourism destination.

- GeoPark Manager selects ETIS options relevant to their Park & the content is automatically published in Survey Apps for
 - Visitors
 - Residents
 - Enterprises
- Webservice Dashboard will show how the destination is performing as per ETIS framework



2. Mobile App for Protected Heritage Sites

Enabling Field Officers, visitors & people interested in their local heritage, to seek out & ground truth potential Monument sites. Once reported the inputs will be verified to confirm their status, at a webservice dashboard – by Monument Field Officers



Inspirujme se 2015, 25 November 2015,
Bratislava, Slovakia



PII: OPEN SMART TOURIST DATA

Coverage



Web application will represent a practical and useful subset from the wide range of outputs of tourist data related projects.

The achieved state consist in collection of existing data representing Points Of Interests (POI) related to biking and cyclotourism.

SDI4Apps POI data set

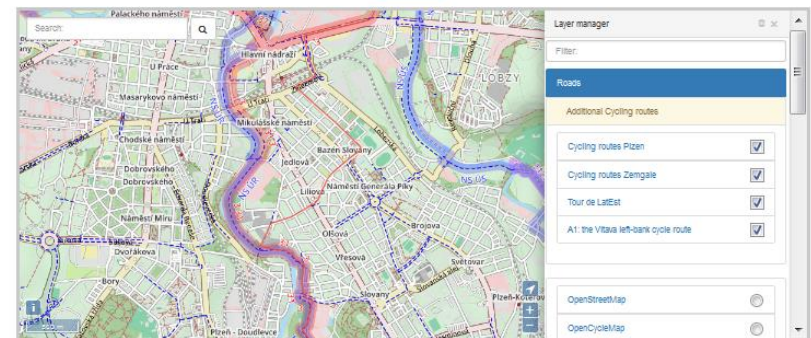
HOME VISUALIZATION ABOUT METHODOLOGY LINKS CONTACT

SDI4Apps

Over 4,000,000 Points of Interest in the data set

Open and seamless SPOI data set, which is based on Linked data principles, contains over 4 million Points of Interest important for tourism from Europe and Africa.

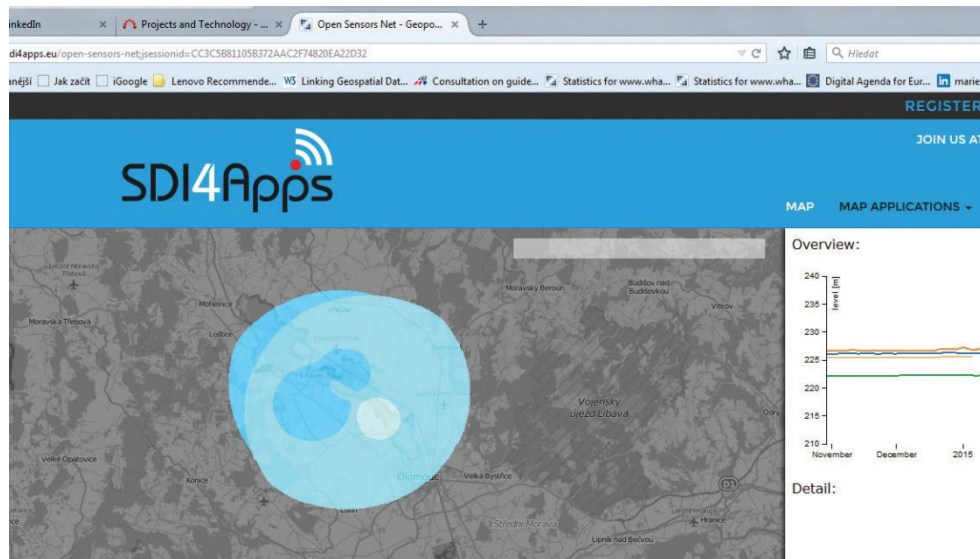
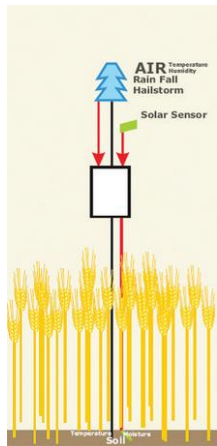
Visualization



PIII: OPEN SENSOR NETWORK

Main aim is to create an environment where different groups of volunteers (farmers) will be able to integrate low cost sensors (meteorological, quality of air, etc.) into local and regional web sensor networks.

The pilot application will integrate meteorological data and in-situ meteorological sensing networks based on small stations collecting agro-meteorological data to support the crop production systems.



Inspirujme se 2015, 25 November 2015,
Bratislava, Slovakia

PIV: Open Land Use Map Through VGI

The intention is to start to support voluntary initiative for open land use mapping.

The initial work was already done in the Plan4business project

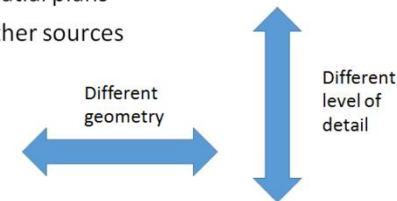
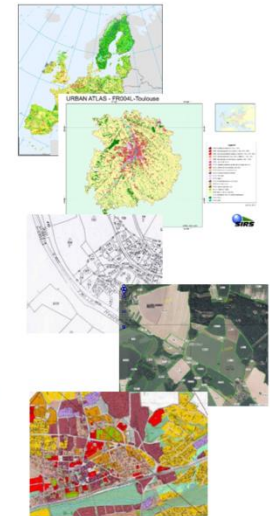
The intention is to extend this initiative also outside Europe.

Foreseen steps

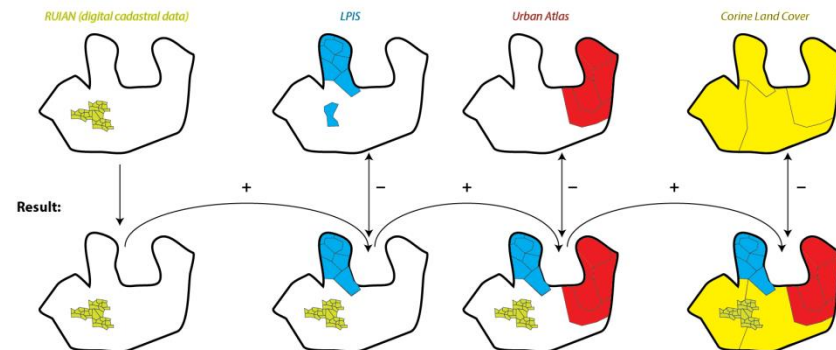
- Define data model for land use mapping based on the INSPIRE HILUCS classification scheme
- Transfer existing data and build initial land use map as a combination of different sources
- Make the open land use map publicly available
- Deploy the SDI4Apps mobile and desktop interface for updating the map
- Deploy harmonisation tools for updating open land use map using existing available open data

OPEN LAND USE MAP

- Corine Land Cover 2006
- Urban Atlas
- Czech cadastre
- Land Parcel Identification System – LPIS
- Spatial plans
- Other sources



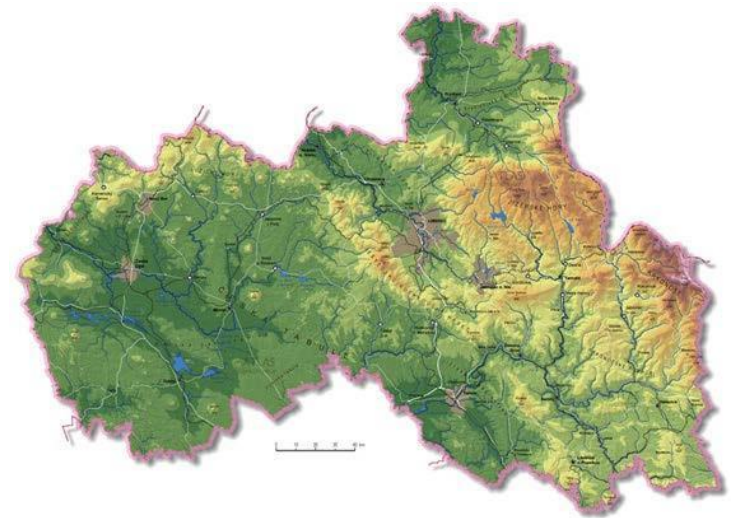
Sources of Data:



PV: OPEN INSPIRE4YOUTH

Where the focus will be on set of deployed applications for students and youth, that will include:

- educational multilingual materials about regions
- game type materials with a focus on environmental and cultural heritage knowledge
- evaluation of the effectiveness of the SDI4Apps solution, and limits and benefits of the solution in comparison with existing technologies (the task will cooperate with the Plan4business and E.L.F projects)



PVI: ECOSYSTEM SERVICES EVALUATION

The pilot will be focused on the identification of spatial representation of the outcomes of ESS Evaluation with focus on sustainable support of tourism.

Initial version of the app has been deployed with data for following ESS:

- Wood (paper pulp) production
- Number of livestock per hectare of pasture
- Carbon sequestration based on land types
- Landscape quality from tourism perspective
- Biodiversity
- Overall assessment of ecosystem services

Future work:

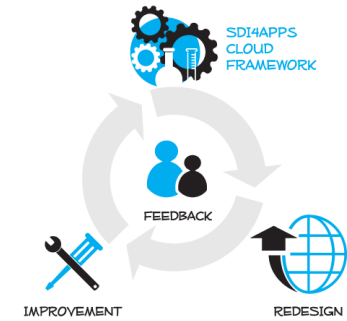
- Use-cases demonstrating the ESS benefits
- Deployment of the SDI4App platform enablers

GeoServer Layer Preview interface showing a list of 11 layers. The table below represents the data shown in the screenshot:

Type	Name	Title	Common Formats	All Formats
sk_pilot_ess_rasters:1_lesy_biomasa_norm	1_lesy_biomasa_norm	1_lesy_biomasa_norm	OpenLayers KML	Select one
sk_pilot_ess_rasters:4_CR_norm	4_CR_norm	4_CR_norm	OpenLayers KML	Select one
sk_pilot_ess_rasters:4_CR	4_CR	4_CR	OpenLayers KML	Select one
sk_pilot_ess_rasters:2_dobytok_norm	2_dobytok_norm	2_dobytok_norm	OpenLayers KML	Select one
sk_pilot_ess_rasters:3_uhlik_norm	3_uhlik_norm	3_uhlik_norm	OpenLayers KML	Select one
sk_pilot_ess_rasters:6_sluzob_norm_final	6_sluzob_norm_final	6_sluzob_norm_final	OpenLayers KML	Select one
sk_pilot_ess_rasters:3_uhlik	3_uhlik	3_uhlik	OpenLayers KML	Select one
sk_pilot_ess_rasters:5_biodiv_norm	5_biodiv_norm	5_biodiv_norm	OpenLayers KML	Select one
sk_pilot_ess_rasters:2_dobytok_float	2_dobytok_float	2_dobytok_float	OpenLayers KML	Select one
sk_pilot_ess_rasters:1_lesy_biomasa	1_lesy_biomasa	1_lesy_biomasa	OpenLayers KML	Select one
sk_pilot_ess_rasters:5_biodiverzita	5_biodiverzita	5_biodiverzita	OpenLayers KML	Select one

SK Pilot Ecosystem Services Evaluation application interface. The map shows a spatial evaluation of ecosystem services. The right panel lists the evaluation layers:

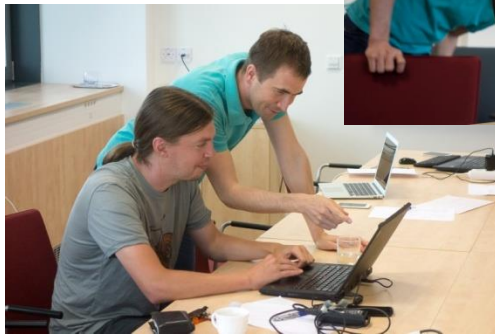
- UNDERLYING LAYERS
 - 1. WOOD (PAPER PULP) PRODUCTION
 - 2. NUMBER OF LIVESTOCK PER HECTARE OF PASTURE
 - 3. CARBON SEQUESTRATION BASED ON LAND TYPES
 - 4. LANDSCAPE QUALITY FROM TOURISM PERSPECTIVE
 - 5. BIODIVERSITY
 - 6. OVERALL ASSESSMENT OF ECOSYSTEM SERVICES



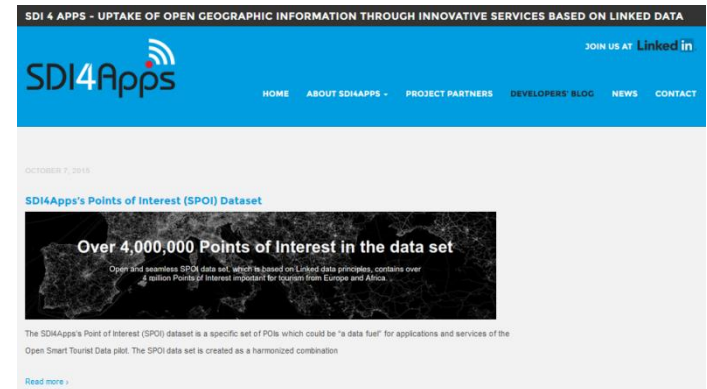
COMMUNITY SUPPORT

Importance of the interaction with the user communities is ensured via:

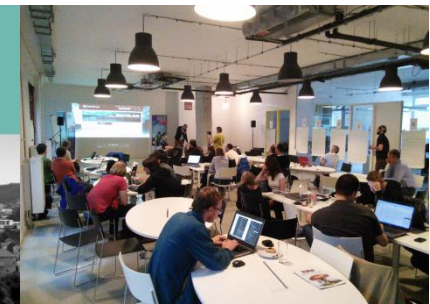
- Code Camps



- Developer's blog



- DanubeHack



Inspirujme se 2015, 25 November 2015,
Bratislava, Slovakia

Further info

- <http://www.sdi4apps.eu>
- <http://www.danubehack.eu>

Questions

- dmitrii@hsrs.cz
- martin.tuchyna@sazp.sk

Thank you!