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User groups set up and analysis

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Linked Open Data for environment protection in Smart Regions

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Executive Summary

The main aim of this deliverable is to define the framework for interaction with the stakeholders acting as essential indicators pointing for evaluation activities that best represents the further progress of the project, including public bodies, researchers, companies, non-government bodies and citizens. In order to achieve this outcome, user groups will be set up and maintained in order to assess both partners and external users in the increasing adoption of the solutions provided, contributing to building a self-sustainable environment.

This document is the results of Task T6.2 “User groups set up and analysis” creating the part of the dossier within the Work Package (WP) 6 aiming to delineate evaluation of the project results and assessment of their progress. At the same time this WP via activities related to this deliverable serves as the main channel to establish a community building process.

The initial part of the document introduced the main terminology with a brief overview on the state of play including the outlook for the main aims to be achieved with this effort.

The following chapter describes the methodological approach based on the main principles and identified expectations from the project as well as world’s outside perception. These assumptions provide the base for the user groups proposal and their definitions

For each user group, an essential set of activities is proposed in chapter 3 with a description of their role and expected outcomes. To place these activities in time a roadmap has been proposed to ensure that the activities are in line with project tasks as well as important milestones of external projects and initiatives.

Having some measurable parameters for each users’ group activity via Evaluation metric will help to track and evaluate the progress of the project implementation from an external point of view. Together with the maturation of the project outcomes, the contribution to the community building process can be also mapped.

All efforts to interact with the stakeholders and in general any external parties should take into the consideration the possible limitations and risks, which can occur during the activities’ life span. With that in mind the list of main issues and possible solutions are listed in chapter 6.

Effective communication can represent half of the success of any effort. Therefore a dedicated chapter indicates the main elements of the communication plan prepared to provide guidelines for effective and transparent information exchange at appropriate times between relevant involved parties.

Particular attention is also paid to maintenance of the User groups and to the question of the sustainability of related networks beyond the project lifespan. This document ends with conclusions summarizing motives and expectations with an outlook for possible outcomes of the effort within the resources and time available.

Although this document is just a starting point for the communication of the project with the outside world it can significantly delineate the way that the SmartOpenData project will be received on the scene and at the same time receive important scene input to adjust the outcomes.

1 Introduction

This chapter provides basic information allowing readers to understand the topic addressed by this deliverable via an initial set of concepts definitions, aspects to be taken into the consideration regarding the current state of play in the area as well as initial background on which SmartOpenData related activities are building upon.

1.1 Basic terms and concepts

The following list of terms is collected to ensure common interpretation of the terms and underlying concepts:

Semantic web -The Semantic Web is an extension of the existing World Wide Web. It provides a standardized way of expressing the relationships between web pages, to allow machines to understand the meaning of hyperlinked information¹.

Linked data - is a term used to describe openly accessible and interlinked data about "Things" on the Web².

Open Data - is data that can be freely used, shared and built-on by anyone, anywhere, for any purpose³.

Geo data - any data with a direct or indirect reference to a specific location or geographical area⁴

Linked geo data - represents linked data with a direct or indirect reference to a specific location or geographical area. At the same time this term is used by the LinkedGeoData.org. Initiative with the aim of adding the spatial dimension to the Web of Data⁵.

Linked open geo data - covers linked geo data that can be freely used, shared and built-on by anyone, anywhere, for any purpose.

Stakeholder - any physical or legal person expressing interest and acting as producer, user, or transformer of linked open geo data and semantic web technologies.

Network - group of organized individual stakeholders.

Producer - stakeholder involved in creation and maintenance of linked geo data.

User - stakeholder focusing on use and consumption of linked geo data.

Transformer - stakeholder aiming to process and transform available linked geo data into the new added value form (new data, application, service, etc.).

Hackathon/Hackday - is an event in which computer programmers and others involved in software development, including graphic designers, interface designers and project managers, collaborate intensively on software projects⁶.

(Code) Sprint - is a get-together of people involved in a project to give a focused development on the project. Sprints are organized around the ideas of the Extreme Programming discipline of software development⁷.

¹http://semanticweb.org/wiki/Semantic_Web

²http://semanticweb.org/wiki/Linked_data

³<http://blog.okfn.org/2013/10/03/defining-open-data/>

⁴<http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:32007L0002:EN:NOT>

⁵<http://linkedgeo.org/About>

⁶<http://en.wikipedia.org/wiki/Hackathon>

⁷http://en.wikipedia.org/wiki/Sprint_%28software_development%29

Web Scrapping events - focused on collection of datasets from web accessible sites

1.2 Setting the scene

The SmartOpenData project aims to create a Linked Open Data infrastructure (including software tools and data) enriched with geospatial dimension deployed initially to meet the requirements and potential of the environmental thematic domain. To meet this ambitious expectation appropriate stakeholders and networks shall be identified. This activity will help to map the current state of play, main roles and players including relevant community needs and potential.

The concepts of Linked Open Geo Data paradigm are still relatively new, which is reflected also in the size and maturation of the community, including awareness of related potential and challenges. At the same time, there are important ongoing activities, initiatives and projects with various level of relevance and level of development.

In order to get a better overview about the current state of play and where possible contribute in concrete and practical manner, the SmartOpenData project will establish a set of activities, communication channels and tools to share the project status and invite stakeholders to help adjust the project outcomes to ensure their relevance and usefulness for the target communities.

Where possible these activities should also contribute to the shaping and future sustainability of the community also across other thematic domains.

1.3 SmartOpenData perspective

Voice and opinion of the directly and indirectly involved stakeholders and communities plays an important role within the SmartOpenData project. In order to ensure plans defined via the project proposal will be delivered in line with the requirements of the initial call as well as related domain expectations, the end users' perspective will be addressed through various activities and deliverables.

The SmartOpenData infrastructure will be represented by the set of the components including architecture, data modeling framework and set of semantic front end facilities. This set of main infrastructure components will be completed with the linked open geo data and tools for their creation and manipulation.

Through targeted pilots in these areas, the project aims to harmonize metadata, improve spatial data fusion and visualization and publish the resulting information according to user requirements and Linked Open Data principles to provide new opportunities for SMEs.

All of these components will be collected and synchronized to provide the evidence of how the Linked Open Data Initiative can be linked with INSPIRE, GEOSS Data-CORE, Copernicus and external third parties and how it can impact on the economic and sustainability progress in European Environmental research and protection.

Despite various initiatives and projects in the domain, Linked Open Geo Data is still not mature enough to provide sufficient a base in the sense of knowledge, content, functionality and tools to provide significant evidence to reach the critical mass for wider deployment in the main societal sectors.

For that reason the SmartOpenData project aims to build the community based on existing and collected knowledge towards opening stakeholders' engagement.

1.4 Target objectives

In order to address the stakeholder's role and importance from the SmartOpenData perspective, the following target objectives are proposed and will be evaluated in detail throughout the rest of this document:

- Identify related target stakeholders
- Define the user groups
- Establish user groups
- Collect relevant use cases, linked open geo data, tools and applications
- Observe main challenges
- Set up and maintain SmartOpenData stakeholders and knowledge base database
- Setting up and maintenance of SmartOpenData Knowledge Base Inventory
- Launching the SmartOpenData Knowledge Base survey
- Support for SmartOpenData Knowledge Base events
- Summarize the community building outcomes
- User groups maintenance and sustainability

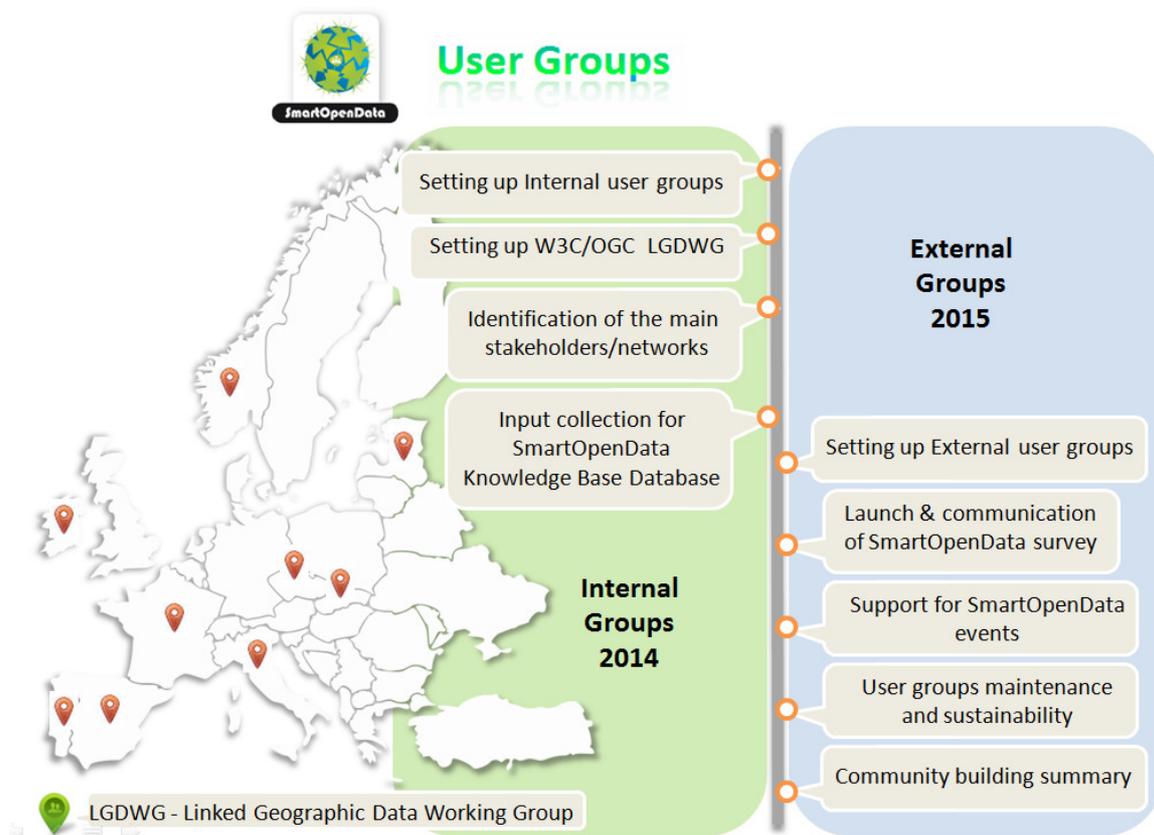


Figure 1 SmartOpenData User Groups Framework

2 Methodology for analysis related to user groups

This section provides an overview of the methodological approach for analysis how to set up user groups as well as for analysis of their activities, respecting privacy aspects and ethical issues.

2.1 Principles

The following principles are taken into the consideration in selection of the appropriate user group set up:

- Simplicity - design of the user groups should be as simple as possible in the sense of structure, governance and coverage.
- Focus on knowledge - interaction between SmartOpenData project consortium and stakeholders based on exchange of knowledge assets (e.g. in form of use cases, linked open geo data, tools, applications and related issues).
- Flexibility – User groups should ensure flexibility reflecting specific stakeholder’s setup for particular area of coverage.
- Competitiveness – where possible healthy competitive atmosphere should be supported in order to create space for motivation and innovation.

2.2 Expectations

Before proposing any methodological approach to design the options on how interaction with the stakeholders should be established two main expectation perspectives should be analyzed:

2.2.1 What are the expectations of the project?

Based on the review of the Description of the work, already produced deliverables as well as discussions held so far, expectations from the SmartOpenData perspective can be summarised in context of communities interaction as:

- Stakeholder’s feedback on published outcomes and foreseen activities as mentioned above
- Independent advise on the direction of the project progress
- Help in fitting the purpose for further utilization and development of project outcomes
- Where relevant, contribute to dissemination of the project outcomes and awareness rising
- Participation in stakeholder’s related group activities
- Contribute with the knowledge base assets (use cases, linked geo data, tools, applications as well as issues related to the field)

2.2.2 What can be expectations from the external stakeholders?

Despite the limited information from the linked geospatial data field, related initiatives⁸ indicate the importance of facilitating open (not only government) data. Based on the analysis of the Description of the Work, review of secondary internet sources (studies, reports, presentations at conferences) as well as experience of the authors preferences from the stakeholders perspective can be summarized as follows:

- National data is deemed the most important resource, followed by regional, EU and world wide data
- Most of the stakeholders still slightly prefer application programming interfaces (APIs) and XML to RDF for data access
- Access to linked (where possible open) geo and non-geo data resources
- Availability of the easy to use tools for data transformation, publication, discovery, visualization and further processing
- Existence of human readable interfaces, services and applications utilizing linked data resources
- Stakeholders support facilities, providing advice/help desk/knowledge sharing in deployment and maintenance of semantic technologies and linked data

Based on a comparison of the above mentioned initial sets of expectations, the SmartOpenData project can contribute to the fulfillment of stakeholder's expectations as follows:

- Linked open geo data provided by the members of the consortium
- Provision of space for knowledge exchange
- Consult the SmartOpenData data infrastructure components
- Possibility to shape the demonstration pilots
- Contribute to the community building activities
- Contribution to the liaisons in standardization of the landscape around geospatial data on the Web

2.3 Approach

The combination of elements from existing methodologies (e.g. SDI4Apps⁹, COMSODE¹⁰, SmeSpire¹¹) with the specific components proposed within the SmartOpenData project (already achieved and foreseen outcomes) will be the main approach to ensure existing knowledge is utilized accordingly, together with the new information and aspects specific for the addressed domain.

⁸http://ceur-ws.org/Vol-739/paper_6.pdf

⁹<http://sdi4apps.eu/>

¹⁰<http://www.comsode.eu/>

¹¹<http://www.smespire.eu/>

The work of Task T6.2 resulting in this report, aimed to deliver analysis how to set up User groups to evaluate project progress as well as trigger multiply benefits for all directly and indirectly involved stakeholders. This will be executed internally via gathering evaluation requirements from other WPs and externally via interaction with identified stakeholders.

The methodology will be focused on internal and external evaluation of the infrastructure on the basis of the project results, especially on assessment of the SmartOpenData architecture components, data modeling framework, semantic front end facilities and on the outcomes of the demonstration pilots evaluation, in connection with concrete environment-related activities.

This kind of approach should ensure that the user requirements are reflected and provision of feedback back to the project technology related activities. At the same time establishment community network should help to facilitate knowledge exchange among the related stakeholders and improvement of Linked Open Geo Data technology and concepts maturation not only within the environmental domain.

2.4 Methodology:

In order to establish a meaningful and effective framework for interaction with the stakeholders methodology based on a set of main criteria based on continuous evolvement of the groups from internal level to external, respecting geographical diversity of the countries represented within the SmartOpenData project consortium, will be used to analyze and propose user groups:

2.4.1 Specifying the criteria

The following main criteria were taken into consideration in the proposal for user groups in the SmartOpenData project:

- Coverage of SmartOpenData user related requirements
- Appropriate field and domain coverage
- Geographic coverage as wide as possible
- Adjustment/improvement of the project outcomes
- Knowledge sharing
- Strengthen awareness rising

Evaluation metrics are specified for each user group activity in chapter 5.

2.4.2 Users groups definition and proposal

As indicated in previous text, there will be two main levels in setting up the framework for interaction with the stakeholders:

- **Internal** – composed of members of the partners directly involved in the SmartOpenData project consortium.
- **External** – any other participant except those identified in the internal level.

Both levels will also be based on geographic coverage of the countries represented in consortium plus one international working group addressing a standardization effort in the field.

The initial structure is depicted in the following schema.

User Group no.	Country	Group Leader/s
1	Czech republic	CCSS,FMI
2	France	ERCIM
3	Ireland	MAC,MWRA
4	Italy	FBK,ARPA
5	Latvia	IMCS
6	Norway	SINTEF
7	Portugal	DGT
8	Spain	TRAGSA, UPM
9	Slovakia	SAŽP
10	W3C, OGC	ERCIM

Table 1 SmartOpenData User groups

The main aim of this set of 10 groups will be evaluation of project activities through facilitated communication of group leaders with the members of the group. At the same time this activity will initiate the community building process via creation and maintenance stakeholder's communities and networks with interest to better exploit the potential of linked open geo data concepts and technologies. In addition to that last group comes with a more "umbrella" mission to address the most important issues in the field towards the main global standardization authorities.

Each group, except the last one where specific deliverables are foreseen¹², will focus their activities on the following activities:

1. Setting up Internal user groups
2. Identification of the relevant stakeholders
3. Collection of relevant use cases, linked open geo data, tools and existing applications
4. Collection of the main challenges
5. Setting up External user groups
6. Communication of SmartOpenData Knowledge Base survey
7. Support for SmartOpenData Knowledge Base events
8. Summary of community building outcomes
9. User groups maintenance and sustainability

¹²<http://www.w3.org/2014/05/geo-charter#deliverables>

3 User groups activities

A short description of each activity should ensure a common understanding and interpretation of the expectations from the user groups.

3.1 Setting up Internal user groups

This initial level of stakeholders groups will create the base within the project consortium members to collect an initial knowledge base as a foundation to reach wider external stakeholders. These groups will collect information about the current linked open geo data activities within the geographical scope of the countries involved and prepare the ground for further exploitation on the external level of stakeholders' interaction.

Main outcomes:

- Small working group with (cca. 2-5) members on behalf of each country involved in the project, each with a nominated contact point
- Agreed methodology to prepare an initial identification of relevant stakeholders for each country
- Common structure to collect information for the SmartOpenData Knowledge Base Database.

3.2 Setting up and maintenance of the W3C Data Working Group /OGC Linked Geographic

The Spatial Data on the Web Working Group will focus specifically on Web technologies. Where relevant, it will promote Linked Data using the 5 Stars of the Linked Data paradigm, but this will not be to the exclusion of other technologies. In other words, this WG is focused specifically on the intersection of the issues identified by the World Wide Web Consortium¹³ (W3C) and Open Geospatial Consortium (OGC)¹⁴ members.

Main outcomes:

- Use Cases and Requirements (Note)
- Spatial Data on the Web Best Practices (Recommendation)
- Time Ontology in OWL(Recommendation)
- Semantic Sensor Network Vocabulary (Recommendation)
- Coverage in Linked Data (Recommendation)

The titles of the deliverables are not final. The Working Group will have to decide on the final titles as well as the structures of the documents.

¹³<http://www.w3.org/>

¹⁴<http://www.opengeospatial.org/>

3.3 Identification of relevant stakeholders

This activity will be focused on mapping the current situation or potential for existence and activities related to utilisation of linked open geo data and semantic technologies within the countries of the SmartOpenData project coverage. This activity will be done via a set of coordinated actions based on a common structure in order to collect comparative information.

Main outcome:

- SmartOpenData Stakeholders Database

3.4 Collection of input for SmartOpenData Knowledge Base Database

This will be the first iteration of the activity, where each user group will collect, based on the agreed common structure, information related to the linked open geo data across the 9 European countries. Information that will consist of the following asset types:

- relevant use cases
- linked open geo data
- tools
- existing applications
- main issues

Already during the implementation of the project, important information assets were collected and this activity will help to enrich this knowledge and process in human and machine readable form to serve as an input for second level of interaction with stakeholders. Outcomes of this activity will be also used as an input for the W3CData Working Group /OGC Linked Geographic activities.

Main outcome:

- SmartOpenDataKnowledge Base Database

3.5 External user groups set up

This user group level provides establishment of direct interaction with the external stakeholders. The selection of the members will be ensured by the internal user groups together, if needed with the input provided by the Call for Expression of Interest with consultation of the General Assembly, the Advisory Board.

Main outcomes:

- Extended Internal user groups with (cca. 5-10) members on behalf of each country involved in the project, each with nominated contact point
- Setting up the national SmartOpenData National Nodes in the form of web sites acting as channels to communicate the status of project implementation and collect user feedback on relevant project deliverables with a focus on two main aspects:
 - Evaluation and assessment of the SmartOpenData infrastructure

- Evaluation and assessment of the SmartOpenData pilots
- Setting up and maintenance of the SmartOpenData Knowledge Base Inventory including information about the stakeholders, use cases, linked geo data, tools, applications as well as issues related to the field

3.6 Launch and communication of SmartOpenData Knowledge Base Survey

The main purpose of the survey will be to collect two basic types of information. The first one will be related to the evaluation and improvement of the SmartOpenData project outcomes and explore the potential to utilise the project results into commercial and societal benefits. The second aim will be focused on improvement of information about the linked open geo data field collected by the internal user groups via the Linked Open Geo Data Knowledge Base database.

Main outcomes:

- Launched SmartOpenData Knowledge Base Survey
- Collected feedback on project outcomes
- Updated information in the SmartOpenData Knowledge Base Inventory

3.7 Support for SmartOpenData Knowledge Base events

This activity will be focused on direct involvement of the SmartOpenData project in national linked open geo data related events with the main aim to increase awareness and contribute to the community building process. These activities should preferably be focused on tangible outcomes such as workshops, hackatons, hack days, open geo data meet-ups, etc. In the final event organised by the project, the most successful activities with their authors will be presented. Appropriate attention should be paid also on cross border and international knowledge exchange.

Main outcome:

- Linked open geo data related events organised or co-organised by the each working group

3.8 User groups maintenance and sustainability

The main aim of this activity will be direct interaction of the user groups with the concrete tasks of the project through consultation of the activities on the SmartOpenData infrastructure components and pilots. Establishment of dedicated user groups is not an easy task, but ensuring these user groups will have potential to sustain even after the project will end is a much more challenging task. For this reason, the SmartOpenData project will dedicate the necessary effort to investigate, what exists in each of the involved countries and what potential there is to make this kind of communities and networks self sustainable, what are the minimal preconditions and what can be done from the project consortium level in order to keep these hubs alive and growing even beyond the original geographical scope of the consortium.

Main outcome:

- Deliverable D 6.3 User group maintenance

3.9 Summary of community building outcomes

Collection of all experience from the process described above will help to identify strong and weak aspects that the linked open geo data field is facing, and prepare recommendations for the further steps to be taken to achieve the critical mass allowing wider exploitation of the semantic technologies across the whole of society.

Main outcome:

- Summary of the community building process via D 6.4 Evaluation and assessment of pilots and D 6.5 Evaluation and assessment of SmartOpenData infrastructure

4 User groups roadmap

To address the above mentioned objectives the following roadmap is proposed:

User groups Roadmap	Date	07/14	08/14	09/14	10/14	11/14	12/14	01/15	02/15	03/15	04/15	05/15	06/15	07/15	08/15	09/15	10/15
	Month	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
Internal user groups level	5																
1 Setting up internal user groups	2																
2 Setting up the W3C/OGC Linked Geographic Data Working Group	1																
3 Identification of the main stakeholders/networks	2																
4 Collection of input for SmartOpenData Knowledge Base	2																
External user groups level	10																
5 Setting up of external user groups	2																
6 Launch & communication of SmartOpenData survey	6																
7 Support for SmartOpenData events	15																
8 User groups maintenance and sustainability	10																
9 Summary of community building outcomes	4																

Table 2 User groups roadmap

Proposed roadmap is reflecting the spatio-temporal coverage of the SmartOpenData milestones in line with the activities related to the interaction with the stakeholders.

4.1 Linkage with related initiatives

Where possible this roadmap will be adjusted with the dissemination and stakeholder's interaction activities of the related ongoing projects, initiatives, standardisation activities, policy development and interoperability & harmonisation activities.

4.1.1 Synergies with the projects

Where possible and relevant the SmartOpenData project will contribute and take into the consideration activities and outcomes of the relevant projects through various activities, as for instance User Board¹⁵ (COMSODE), Social Validation¹⁶ (SDI4Apps), build on existing community input Best Practices¹⁷ (SmeSpire) and others (e.g. MELODIES, SWITCH, GeoKnow, LINDA, SemaGrow, GEOWOW, Plan4Business, InGeoCLOUDS, LOD2, DaPaaS, OpenCube).

4.1.2 Connection with the initiatives

European Commission is through its bodies running a set of activities with high relevance to the SmartOpenData project objectives. With that it is important to ensure close connection to ensure project can contribute to the discussions and activities together with reuse the outcomes on both sides. The following list is not exhaustive, but serves as indication which type of activities should be in high attention and focus of the User groups activities.

¹⁵<http://www.comsode.eu/index.php/2014/06/second-user-board-meeting-recommendations-for-technology-and-methodology/>

¹⁶<http://sdi4apps.eu/objectives/>

¹⁷<http://best-practices.smespire.eu/>

4.1.2.1 INSPIRE Maintenance and Implementation Framework (INSPIRE MIF)

INSPIRE MIF¹⁸ is an activity led by The European Commission Joint Research Centre with the support of The Directorate-General for the Environment, the European Environment Agency and involvement of European Member States. Main aim is to establish framework allowing European Commission to fulfill expectations define by legal framework of INSPIRE Directive¹⁹ and support Members States in spatial data infrastructure implementation and further maintenance. INSPIRE MIF operates through two set of permanent Maintenance and Implementation Groups (MIG: policy & technical), whilst currently there were identified 20 top priority areas of focus with assigned actions. SmartOpenData project will contribute also through the User groups and will try to utilize the MIF outcomes as indicated during the last INSPIRE conference in Aalborg²⁰.

4.1.2.2 EEA/EIONET Common Database on Designated Areas (CDDA) in conformity with the INSPIRE data specifications project

European Environment Agency²¹ launched project aiming to explore the proper transformation process and to build the knowledge about the CDDA²² spatial data sets transformation and validation for the conformity with the INSPIRE Protected sites data specifications. Together with some members of the European Environment Information and Observation Network²³ (EIONET) involved in the CDDA data flow, parallel voluntary testing activity, was set-up to exchange the experiences of the INSPIRE implementation and explore the results of this prototype to form a basis for the future harmonised CDDA and INSPIRE conformant data flow. This activity will be also be supported by the SmartOpenData project through the SAŽP partner and where possible also by other partners or related User groups in order to utilise experience and outcomes in project pilots as well as in the outcomes of EEA CDDA/INSPIRE Project.

4.1.2.3 Interoperability & harmonisation activities

An important set of activities also takes place via Interoperability Solutions for European Public Administrations (ISA) European Commission programme aiming to improve electronic performance, effectiveness and cooperation within public administration. Working Group on Spatial Information and Services (ISA SIS WG)²⁴ is addressing this challenge via effort to bridge INSPIRE and eGovernment communities through two ISA/Joinup actions managed by the EC Joint Research Centre:

- Reusable INSPIRE Reference Platform²⁵ (ARE3NA)
- European Union Location Framework²⁶ (EULF)

¹⁸<http://inspire.ec.europa.eu/index.cfm/pageid/5160>

¹⁹<http://inspire.ec.europa.eu/index.cfm/pageid/3>

²⁰http://inspire.ec.europa.eu/events/conferences/inspire_2014/pdfs/workshops/17_06_16.00/147/SmartOpenData_INSPIRE.pdf

²¹<http://www.eea.europa.eu>

²²<http://rod.eionet.europa.eu/obligations/32> ; <http://www.eea.europa.eu/data-and-maps/data/nationally-designated-areas-national-cdda-8>

²³<http://www.eionet.europa.eu/>

²⁴<http://inspire-forum.jrc.ec.europa.eu/pg/pages/view/240687/first-isa-spatial-information-and-services-working-group>

²⁵http://ec.europa.eu/isa/actions/01-trusted-information-exchange/1-17action_en.htm

²⁶http://ec.europa.eu/isa/actions/02-interoperability-architecture/2-13action_en.htm

Through ISA SIS WG membership (SAŽP) as well as contribution to Joinup actions SmartOpenData project will facilitate knowledge exchange via mutual contribution and re-use of relevant outcomes.

4.1.2.4 Open Data movement

Is represented by various activities with different scope, level of detail (e.g. European Commission's Open Data Support²⁷, Open Data Portal²⁸ and the upcoming EU Open Data Core Platform²⁹, or various Open Government Partnership³⁰ activities in each of the Member States) but the same ambitions – to freely release certain data to everyone to use and republish as they wish, without restrictions from copyright, patents or other mechanisms of control. These activities, developed by establishing and maintaining user groups, will be supported in order to provide the experience and evidence to collect benefits as well as possible issues which should be taken into the consideration. Via support of SmartOpenData Knowledge Base events attention should be paid to national and cross border activities to help countries lacking expertise in awareness raising and guidance for interested stakeholders.

4.1.2.5 Contribution to the standardisation activities

Standardization activities plays crucial role in the effort to make easy and effective exchange of linked open geo data in reality. W3C paves the road for the internet and semantic standards, whilst OGC is significantly influencing the geospatial technology evolution. There is still a long way ahead, but important essential steps are about to be made and the Spatial Data on the Web Working Group can significantly contribute to this effort. Through User groups information about ongoing activities and partial outcomes can be communicated on national level and at the same time stimulate input during the consultation phase for foreseen deliverables.

4.1.2.6 Policy framework

Legislation framework is shaping the ground and environment for easier access, re-use and added value generation for the digital society we are living nowadays. User groups can directly and indirectly influence the way how relevant legislation acts and accompanied guidance documentation is developed and maintained at European as well as at National level. Where possible, ongoing legislation development and implementation activities will be within the scope through SmartOpenData Knowledge Base survey as well as maintenance and sustainability activity. Main focus will be delineated by the legislation framework for, public sector information (Public Sector Information³¹ Directive 2003/98/EC³²), spatial data infrastructures (INSPIRE Directive 2007/2/EC) as well as environment (Directive 2003/4/EC³³) including national transposed policies.

²⁷ <http://ec.europa.eu/digital-agenda/en/open-data-0>

²⁸ <https://open-data.europa.eu/en/data/>

²⁹ <https://www.business-cloud.com/articles/news/eu-tenders-open-data-platform>

³⁰ <http://www.opengovpartnership.org/>

³¹ <http://www.lapsi-project.eu/commission-publishes-guidelines-encouraging-psi-re-use>

³² <http://ec.europa.eu/digital-agenda/en/european-legislation-reuse-public-sector-information>

³³ http://europa.eu/legislation_summaries/environment/general_provisions/l28091_en.htm

5 Evaluation metrics

For each the user groups' activities, there will be defined a basic set of parameters with proposed indicators in order to evaluate the project progress as well as the status of the community building development.

The main aim of the mechanism is to help with evaluation of the project results and assess their progress following the internal project roadmap defined by a Gantt chart in line with ongoing related activities and project at national as well as international level. Based on that, an indicative set of indicators is proposed for the first and second year of project implementation. These will help to measure the status of progress and where needed, trigger appropriate actions to ensure essential evidence level will be obtained.

When targeting the stakeholders, attention will also be paid to balanced representation of all main societal stakeholders domains (public bodies, researchers, companies, non-governmental sector and citizens).

Objective	Parameter	Target indicator for 1st year	Target indicator for 2nd year
Setting up internal user groups	Amount of user groups	9	9
	Size of the groups (number of involved stakeholders)	2-5	N/A
Setting up the W3C/OGC Linked Geographic Data Working Group	Amount of deliverables	1	4
Identification of the main stakeholders/networks	SmartOpenData Stakeholders Database records	10	20
Collection of available relevant use cases	SmartOpenData Knowledge Base Database Use Case records	5	25
Collection of available relevant linked open geo data	SmartOpenData Knowledge Base Linked Open Datasets	15	30
Collection of available relevant applications	SmartOpenData Knowledge Base Applications	5	10

Collection of main challenges	SmartOpenData Knowledge Base Challenges	3	3
Setting up of external user groups	Size of the groups (number of involved stakeholders)	N/A	5-10
	SmartOpenData SmartOpenData National Nodes	N/A	9
	SmartOpenData Knowledge Base Inventory	N/A	1
Launch and communication of SmartOpenData Knowledge Base Survey	Participants of SmartOpenData Knowledge Base Survey (per each user group)	N/A	5
Support for SmartOpenData events	Number of events for promoting the project and strengthen the community building	1	1
User groups maintenance and sustainability	Number of groups with indication for existence behind the end of the project	N/A	5
Summary of community building outcomes	Amount of deliverables with related input	N/A	2

Table 3 User groups evaluation metrics

6 Open issues and possible solutions

Addressing the above mentioned activities some issues can occur, such as interaction with the stakeholders that can have unpredicted consequences in some cases. With that in mind, the following aspects will be taken into the consideration:

6.1 User groups balancing

Possible risks:

Although the proposed methodology is addressing three main levels of geographical detail (from national, through international towards European/Global) there can remain inconsistencies in the collected information that is input and the conclusions derived from them.

Aspects to consider:

Where possible all available information sources should be taken into consideration in data collection, as well as the information and knowledge generation phase.

6.2 User groups structure

Possible risks:

In some cases, the size of the country, maturation of the information-communication technologies as well as historical background should be considered during the evaluation of identified relevant stakeholders.

Aspects to consider:

User groups should well represent the main stakeholders on the scene. Where needed and each relevant societal stakeholder's domains (public bodies, researchers, companies, non-governmental sector and citizens) should be represented.

6.3 Offer vs. demand

Possible risks:

In case the SmartOpenData project will not provide a sufficient set of attractive enough assets there is a risk that there will not be sufficient interest by external stakeholders to take part in user groups activities.

Aspects to consider:

There should be enough assets on the offer side from the SmartOpenData project consortium in the form of deliverables, use cases, linked open data, tools, applications, events and knowledge to attract the attention of those who are supposed to be future users of the project results.

6.4 Option for Call for expression of interest

Possible risks:

In case selection of the stakeholders by the internal user group members will not be sufficient, a publically announced call for expression of interest to take part in external user group can help target necessary stakeholders networks.

Aspects to consider:

Attention will have to be paid to the structure and content quality of the call, as well as to effective communication, in order to target relevant stakeholders.

6.5 Setting up SmartOpenData Knowledge Base Inventory

Possible risks:

In case the overall input from internal and external user group activities will be limited, the question remains, what will be the most appropriate communication channel to share content of the SmartOpenData Knowledge Base in human and machine readable manner. Based on interaction with the stakeholders' option to deploy Inventory as registry solution will be consulted and if there will be support for this way of implementation, the register's maintenance will have to be discussed and established with the outlook for future sustainability.

Aspects to consider:

The option of final technical implementation depends on the suitability of the registry concept for this kind of knowledge representation as well as on resource capacities of the whole project consortium.

6.6 Management of intellectual property

Possible risks:

In some cases access and further options/limitations for some assets collected within SmartOpenData Knowledge Base can become unclear because of heterogeneity of licensing frameworks.

Aspects to consider:

Where possible, standardized and widely used licensing frameworks should be supported in order to increase the transparency of the intellectual property rights, further re-use and added value generation. Activities should consider already collected relevant knowledge (D 2.1 Requirements of the SmartOpenData Infrastructure³⁴) as well as activities related to the EU Open Data core platform implementation.

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http://www.smartopendata.eu/sites/default/files/SmartOpenData_D2.1_Requirements_of_the_infrastructure_0.pdf

6.7 How to reach the stakeholders

Possible risks:

There are various options, how to reach relevant stakeholders but in some cases there is a risk that inappropriate communication can create misunderstanding with some negative effects (e.g. lack of interest, negative reputation).

Aspects to consider:

Proper, well negotiated communication should therefore take place, involving the main players on the scene, showing the benefits of this kind of stakeholder's interaction can bring to all involved parties. The most realistic and preferred option will be the combination of re-use of existing networks (INSPIRE, Eionet, Open Data communities, etc.) with active search for new stakeholders.

7 Communication plan

7.1 Main goals of communication plan

- Target relevant stakeholders and networks
- Engage stakeholders with the project
- Help to increase awareness rising
- Get the right messages across in the right way
- Improve understanding of the SmartOpenData project's outcomes

7.2 Overall communication objective

The main aim of the communication plan for the User groups is to provide well planned guideline for effective and transparent information exchange at the appropriate time between relevant involved parties.

7.3 Communication source

In order to pass messages from one side to another, initial impulses have to be triggered. This is the role of the following parties acting as triggers of the communication activities. Within the scope of the SmartOpenData project main initiators of the communication will be:

- SmartOpenData project consortium
- Internal and External User groups

7.4 Audience

Respecting the domain and geography dimension, the main audience as receivers of the communication activities is represented by the following parties (From EU level to local ones):

- SmartOpenData project consortium
- Internal and External User groups
- Other related projects and initiatives Public bodies
- Research and development authorities
- Private sector companies
- Non-governmental sector
- Citizens

7.5 Communication objectives

These objectives represent the main expectation to be addressed whilst communication activity is executed between source and audience. For each user group, activity-relevant communication objectives are designed to clarify expectations from involved parties.

7.6 Channels

Channels specify the methods and means by which communication takes place among the involved parties. Concrete examples can span from direct interaction in the form of discussion to indirect channels, such as surveys social networks announcements.

7.7 Timing

In order to provide a temporal dimension, timing indicates when each particular communication activity should take place in order to achieve best effect.

7.8 Communication plan summary

The following table provides a summary of the SmartOpenData User Groups Communication plan

Activity	Communication source	Audience	Communication Objective	Channel/s	Timing Month /Year
Setting up Internal user groups	SmartOpenData project consortium (At minimum partners involved in WP6-7)	Internal User Group	Provide initial input and guidance for User group members	Internal email /telcos	08-09/2014
	Internal User Group	SmartOpen Data project consortium	Delivery of Agreed methodology to prepare initial identification of relevant stakeholders	Document delivered via email	09/2014
	Internal User Group	SmartOpen Data project consortium	Delivery of Common structure to collect information for SmartOpenData Knowledge Base Database	Document delivered via email	10/2014
Setting up and maintenance of the W3C Data Working Group /OGC Linked	W3C Data Working Group /OGC Geographic	SmartOpen Data project consortium Another related projects	Provision of the deliverables for public consultation	Website	Milestones SDW WG

Geographic			and initiatives Public bodies Research and development authorities Private sector companies Non-governmental sector Citizens			
Identification of relevant stakeholders	Internal Group	User	SmartOpen Data project consortium	Execute initial identification of the relevant external stakeholders and establish collect basic input for SmartOpenData Stakeholders Database	Internal email /telcos	11/2014
Collection of input for SmartOpenData Knowledge Base Database	Internal Group	User	SmartOpen Data project consortium	Identify initial input for SmartOpenData Knowledge Base Database	Internal email /telcos	12/2014
External user groups set up	Internal Group	User	Another related projects and initiatives Public bodies Research and developme	Execute initial identification of the relevant external stakeholders and establish first communication to extend content of the SmartOpenData Stakeholders	Combination of indirect (websurvey social networks campaign, call for expression of interest) and direct	01-02/2015

		<p>nt authorities</p> <p>Private sector companies</p> <p>Non-governmental sector</p> <p>Citizens</p>	Database	interaction (emails, calls, meetings)	
<p>Launch and communication of SmartOpenData Knowledge Base Survey</p>	<p>External User Group</p>	<p>Another related projects and initiatives</p> <p>Public bodies</p> <p>Research and development authorities</p> <p>Private sector companies</p> <p>Non-governmental sector</p> <p>Citizens</p>	<p>Launching the survey</p> <p>Promoting the survey</p> <p>Stimulating stakeholders to contribute and further disseminate the info about the survey</p>	<p>Website</p> <p>Articles in relevant print and electronic media</p> <p>Social networks announcements</p> <p>Email digest</p> <p>Direct interactions (meetings, consultations)</p>	<p>03-06/2015</p>
<p>Support for SmartOpenData Knowledge Base events</p>	<p>SmartOpenData project consortium</p> <p>External User Group</p>	<p>Another related projects and initiatives</p> <p>Public bodies</p> <p>Research and development authorities</p> <p>Private</p>	<p>Organise and co-organise target oriented events</p> <p>Present the outcomes of the project</p> <p>Identify event topics fitting the needs of the project as well as participating stakeholders</p> <p>Collect</p>	<p>Website</p> <p>Articles in relevant print and electronic media</p> <p>Social networks announcements</p> <p>Email digest</p> <p>Direct</p>	<p>08/2014-10/2015</p>

		sector companies Non-governmental sector Citizens	expectations and outcomes of the events	interactions (meetings, consultations)	
User groups maintenance and sustainability	SmartOpenData project consortium External Group User	Another related projects and initiatives Public bodies Research and development authorities Private sector companies Non-governmental sector Citizens	Ensure provision of sufficient amount of information as for stakeholders Increase stakeholders involvement while keeping appropriate relevance Ensure appropriate input to particular SmartOpenData activities Collect recommendations for further sustainability of the groups and related communities	Website Social networks announcements Email digest Direct interactions (meetings, consultations)	01-10/2015
Summary of community building outcomes	External Group User	SmartOpen Data project consortium Another related projects and initiatives Public bodies Research and development authorities	Collect the main outcomes from the activities, summarise what was successful, where further work will deserve attention in future	Document delivered via email Website	07-10/2015

		Private sector companies Non-governmental sector Citizens			
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Table 4 Communication plan for SmartOpenData User groups

8 Strategy for further maintenance and sustainability

As already stated, establishment of functional stakeholders interaction is only part of the success story, as more challenging is the question, how to keep existing communities and networks fresh and vital. With this in mind, the framework depicted in this document aims to address these aspects as follows:

- Create and maintain user groups with already existing and functional communities and networks
- Where this is not the situation, establish this kind of user groups base and influence during the lifetime of the project to improve this situation
- Search for the possibilities/channels through initiatives, calls, competitions how to inspire established communities to become self sustainable
- Contribute to relevant initiatives and build on top of the experience and knowledge already collected
- Investment into the standardisation and harmonisation activities to ensure standards respect contemporary technology and society development
- Support for creation of connection between established stakeholders and stakeholders from the new domains
- Further maintenance of the SmartOpenData Knowledge Base
- Support events with potential to create new knowledge, connections communities and networks
- Support activities focused on harmonisation of existing licensing frameworks
- Promote the outcomes of the project and this task at international, but mainly at national events, discussions and through the publications and communications (social networks, media)

9 Conclusions

Geospatial data has been particularly successful helping citizens, decision makers and researchers perform a wide range of use cases from simple daily activities to occasional but very complex location-specific analyses (Logica Business Consulting, 2012). Deployment of linked data concepts using the potential of semantic technologies can make this success even more visible. Without direct involvement of those who are foreseen to be the audience and target user this will not happen. Therefore interaction with relevant stakeholders through the frameworks, like the one described in this document, serves as an important precondition to make sure that the funding and effort spent through this project is a good investment. The final testimonial should therefore be not only the size and quality of the deliverables or amount of references, but also the amount of stakeholders knowledgeable in the secrets of linked open geo data, and willingness to spread this knowledge in the area where they live.

Annex A: Example of the questions for SmartOpenData Knowledge Base Survey

Questions to be addressed:

The following list of questions is illustrative. The final structure will be designed during the activity of external user group set up:

1. Is there a need for user (stakeholders) group/community support at all?
2. If so, what kind of support deserves highest priority?
3. What else should the project offer to the stakeholders interested in linking of geodata?
4. What else should the stakeholders bring to the SmartOpenData project as well as their communities in return?
5. Which are the main issues/challenges?
6. Which are addressed by project? By which WP/Pilot?
7. Which are not addressed? If so who else is working on them?
8. Is there a potential to develop new added value services based on the infrastructure and data made available via the project?
9. If so, in what form?
10. Will public bodies and rural and protected areas benefit from opening their data by improving their knowledge and environment protection through new innovation ecosystems?
11. What is the structure of relevant stakeholders? What is the ratio between producers, users and transformers?
12. And others...

Annex B: List of abbreviations

ARE3NA	Reusable INSPIRE Reference Platform
CDDA	Common Database on Designated Areas
EEA	European Environment Agency
EIONET	European Environment Information and Observation Network
EULF	European Union Location Framework
GEOSS	Global Earth Observation System of Systems
INSPIRE	Infrastructure for Spatial Information in the European Community
ISA	Interoperability Solutions for European Public Administrations
MIF	Maintenance and Implementation Framework
MIG	Maintenance and Implementation Group
OGC	Open Geospatial Consortium
OGP	Open Government Partnership
OWL	Web Ontology Language
PSI	Public Sector Information
W3C	World Wide Web Consortium
WP	Work package

Annex C: References

- DaPaaS <http://project.dapaas.eu/>
- GeoKnow <http://geoknow.eu/>
- GEOWOW <http://www.geowow.eu/>
- <http://best-practices.smespire.eu/>
- http://ceur-ws.org/Vol-739/paper_6.pdf
- <http://ec.europa.eu/digital-agenda/en/european-legislation-reuse-public-sector-information>
- <http://ec.europa.eu/digital-agenda/en/open-data-0>
- http://ec.europa.eu/isa/actions/01-trusted-information-exchange/1-17action_en.htm
- http://ec.europa.eu/isa/actions/02-interoperability-architecture/2-13action_en.htm
- http://europa.eu/legislation_summaries/environment/general_provisions/l28091_en.htm
- http://inspire.ec.europa.eu/events/conferences/inspire_2014/pdfs/workshops/17_06_16.00/147/SmartOpenData_INSPIRE.pdf
- <http://inspire.ec.europa.eu/index.cfm/pageid/3>
- <http://inspire.ec.europa.eu/index.cfm/pageid/5160>
- <http://inspire-forum.jrc.ec.europa.eu/pg/pages/view/240687/first-isa-spatial-information-and-services-working-group>
- <http://sdi4apps.eu/>
- <http://sdi4apps.eu/objectives/>
- <http://www.comsode.eu/>
- <http://www.comsode.eu/index.php/2014/06/second-user-board-meeting-recommendations-for-technology-and-methodology/>
- <http://www.eea.europa.eu>
- <http://www.eionet.europa.eu/>
- <http://www.opengovpartnership.org/>
- http://www.smartopendata.eu/sites/default/files/SmartOpenData_D2.1_Requirements_of_the_infrastructure_0.pdf
- <http://www.smespire.eu/>
- <http://www.w3.org/>
- <http://www.water-switch-on.eu/>
- <https://open-data.europa.eu/en/data/>
- InGeoCLOUDS <http://www.ingeoclouds.eu/>
- LINDA <http://linda-project.eu/>
- LOD2 <http://lod2.eu>
- Logica Business Consulting, 2012
http://www.forumstandaardisatie.nl/fileadmin/os/documenten/Internationale_benchmark_v1_03_final.pdf
- MELODIES <http://www.melodiesproject.eu>
- OpenCube <http://www.opencube-project.eu/>
- Plan4Business <http://www.plan4business.eu/>
- SemaGrow <http://www.semagrow.eu/>
- SmartOpenData D1.1 - Quality Assurance Plan
http://www.smartopendata.eu/sites/default/files/SmartOpenData_D1.1_Quality%20Assurance%20Plan_0.pdf
- SmartOpenData D2.2 - User requirements and use cases
- SmartOpenData D5.1 - Rationale of pilots. Evaluation set-up and test metrics
- SmartOpenData D6.1 - Evaluation plan
- SWITCH ON <http://www.water-switch-on.eu/>