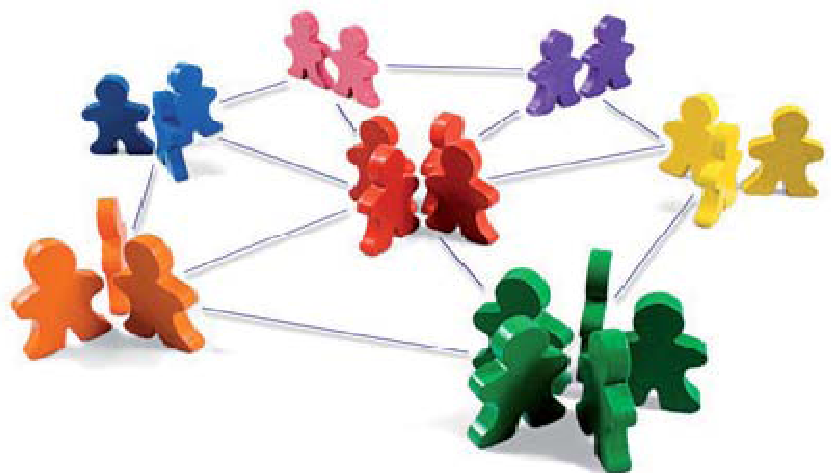




eSDI-NET+

Network for promotion of cross border dialogue and exchange of best practices on Spatial Data Infrastructures (SDI's) throughout Europe

FINAL REPORT 2010



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Preface

The Thematic Network eSDI-Net+ started its activities on September 1, 2007 and has now completed its co-funded phase. In the future the network will continue under the leadership of EUROGI, the European Umbrella Organisation for Geographic Information in particular the series of the European SDI Best Practice Awards will be continued in the next years. The main goal of the network is to promote the cross-border dialogue and exchange of Best Practices on Spatial Data Infrastructures (SDIs) throughout Europe.



In accordance to the network objectives and milestones, the network activities in the last project year focussed on the organisation of the European SDI Best Practice Awards 2009 event on November 26-27, 2009 in Turin, Italy, the promotion of SDI Best Practices and planning of the sustainable network continuation.

In this context, the consortium partners and experts, the Advisory Board and the Award Jury worked together to finalise an SDI assessment scheme. This assessment framework was used to analyse and evaluate more than 200 sub-national SDIs and to select twelve highly commended SDIs as European Best Practices. A database containing more than 100 categorised SDI good practices was completed and published online.

In my role as Project Coordinator, I would like to express my gratitude to the European Commission, the Advisory Board and the experts as well as to all associated partners and consortium members for their enormous effort, their advice and active support in reaching the project goals during its runtime as well as to the organisers of the local workshops, the teams developing the methodology and defining and implementing the SDI evaluation process with its culmination point at the Turin Award. Special thanks go to our stakeholders and the SDIs who contributed to the successful accomplishment of the SDI analysis and selection process and helped to disseminate the project results at the local level.

Joachim Rix
eSDI-Net+ Coordinator

1 eSDI-Net+: Network for cross border dialogue and exchange of SDI Best Practices

Technological development and increasing awareness about the use of geographical data have compelled the fast growing of digital content. This growth has not been accompanied by dissemination and accessibility measures.

Geographical data are typically clustered by application segments, and re-use of data is

often not foreseen. This impacts very negatively on the costs and on the real accessibility of Geographic Information (GI). The enrichment of geographical data by semantically well-defined metadata and the widespread implementation of Spatial Data Infrastructures (SDI), as foreseen, for example, in the INSPIRE initiative context, allowing extensive GI reuse, may solve today's problems.

Leveraging the accessibility and reusability of geographic information has led to numerous activities throughout Europe to create Spatial Data Infrastructures (SDI). These SDI-projects and initiatives are located from the regional level to the pan-European level, such as INSPIRE. Some projects are only intended to solve data access problems within specific application areas and by far not all of these SDI projects have got a cross border dimension. These activities and initiatives implemented to foster and promote the establishment of SDI's face a lot of obstacles – organisational, technological and legal as well as cultural and linguistic barriers.

The analysis of the existing barriers for Europe-wide use of digital GI content led to the conclusion, that an effective community debate must bring into force the available local and regional best practices' experiences in GI interoperable solutions and transfer them into coordinated dissemination actions to be spread across Europe. The increasing quality standards of geographic information must be largely demonstrated by available best practices on how to enrich GI with semantically well-defined metadata in order to allow their widespread reuse.

To learn from each other how to face these challenges and to exchange experiences made by the SDIs at the sub-national level, is the aim of the eSDI-Net+ initiative (www.esdinetplus.eu).



eSDI-Net+ European Network on Geographic Information Enrichment and Reuse
Network for promotion of cross border dialogue and exchange of best practices on Spatial Data Infrastructures (SDIs) throughout Europe.

eSDI-Net+ At a Glance

- Bring together SDI key players and target users in the Thematic Network established as platform for communication and exchange between stakeholders involved in creation and use of SDIs;
- Promotion of high-level decisions and bottom-up technical discussion, and information exchange;
- Help GI stakeholders realise full potential of digital GI for content providers and users and increase awareness concerning importance of GI enrichment and SDIs for GI reuse;
- Allow integrated view of experts and foster creation of integrated guidelines, standards, and implementation of best practices;
- Establish communication mechanisms between European and local levels to maximize benefits of INSPIRE, GMES and GALILEO and e-government programmes in order to establish more sustainable e-communities;
- Develop solutions for multicultural and multilingual access, exploitation, use, and reuse of digital GI content in Europe;
- Stimulate aggregation of existing national data sets of core GI into cross-border data sets.

The eSDI-NET+ project is a Thematic Network co-funded by the eContentplus Programme of the European Commission and coordinated by the Technical University of Darmstadt, Germany. The network promotes cross-border dialogue and stimulates the exchange of best practices on Spatial Data Infrastructures in Europe. The co-funded project phase started in September 2007 and terminated in August 2010. EUROGI, the European Umbrella Organisation for Geographic Information, supports the eSDI-NET+ in its long-term perspective ensuring the continuation of the network activities after the project end.

The activities towards the identification and analysis of existing SDI solutions at the sub-national level and promotion of the best practice and knowledge exchange between stakeholders involved in the creation and use of SDIs encompassed mainly the development of a common assessment methodology, organisation of national workshops, selection of the Best Practices to be demonstrated at the SDI Best Practice Award and organisation of the Award event. The following graph provides a summary of the main achievements of the project.

Results achieved so far

- **Sustainable network**
as a platform to exchange experiences in the field of Spatial Data Infrastructures (SDI) and Geographic Information (GI).
 - **International contacts**
to SDIs, GI and SDI key players, GI associations and other related networks and projects.
 - **SDI assessment methodology**
developed by the eSDI-Net+ project.
 - **More than 200 SDIs from 32 countries analysed**
in interviews and at workshops.
 - **12 regional and national SDI workshops**
to present good examples of SDIs at local, national and regional levels.
 - **12 European SDI Best Practices**
highly commended at the European SDI Best Practice Awards 2009 in Turin, Italy in November 2009.
 - **Several regional and national Showcase Workshops**
to communicate the Best Practice experiences back to the national and regional levels.
 - **SDI Best Practice Database**
containing data of a subset of more than 100 sub-national SDIs from most European countries will be regularly updated and published on the project website.
 - **SDI self-assessment tool**
provided as a result of the project for an evaluation/classification tool of the own SDI status or its planning strategy.
-

All SDIs throughout Europe were invited to submit their best practice and be part of a fast growing network of SDIs. After an initial evaluation of the applications, a number of promising SDIs has been selected for detailed interviews to provide further information. Each interviewed SDI was evaluated by the national representatives of the eSDI-Net+ project, focusing on the key aspects such as:

1. Technological, innovative level and originality of the SDI
2. Implementation and/or readiness for INSPIRE principles
3. Level of fostering cooperation between different users (proof of visibility and/or user feedback)
4. Possibility of extension or transfer to other countries and regions

The identification and analysis of good practices was based on the common methodology for the evaluation of SDI solutions developed at the beginning of the project and the recommendations for running the national workshops. The identification, analysis and selection process of good SDI practices, based on the described methodology, was developed at national or cross border level.

SDI analysis, evaluation and selection process



This Final Report gives a concise overview of the different project stages, following the steps towards the eSDI-Net+ Best Practice Award in Turin and the subsequent showcase workshops. The last chapter, finally, provides an outlook to the future development of the eSDI-Net+ Network under the leadership of EUROGI, the European Umbrella Organisation for Geographic Information.

2 Common SDI assessment methodology

The eSDI-Net+ methodology to identify, analyse and assess SDIs described below was developed as a guideline for interviews of sub-national and thematic SDI officials and for recording the results of the national workshops, which were held in the framework of the eSDI-Net+ project.

The need of an operative definition of SDI

The starting point, of course, is a clear definition of what a SDI is. Literature provides numerous definitions. The first institutional definition (US 1994) was:

“National Spatial Data Infrastructure” (“NSDI”) means the technology, policies, standards, and human resources necessary to acquire, process, store, distribute, and improve utilization of geospatial data” (Executive Order 12906, April 13, 1994, <http://www.fgdc.gov/publications/documents/geninfo/execord.html>). This definition focuses on overall goals of SDI.

“Infrastructure for spatial information” means metadata, spatial data sets and spatial data services; network services and technologies; agreements on sharing, access and use; and coordination and monitoring mechanisms, processes and procedures, established, operated or made available in accordance with this Directive” (Directive 2007/2/EC of the European Parliament and of the Council of 14 March 2007 establishing an Infrastructure for Spatial Information in the European Community, INSPIRE, Art.3, <http://www.ec-gis.org/inspire/>). This second definition, given in the context of the INSPIRE Directive, describes the components of SDI instead.

Spatial Data Infrastructures are formal arrangements with the main goal to increase access and availability of geographic data across a given area. The goal is to share experiences, analysis or data between the organisations involved, to realise or to foster their services, to reduce costs, and to enhance the diffusion of public data to other stakeholders, especially private companies and citizens.

SDI differs from, for example, a complex geographic information system of a territorial body as an SDI cannot operate without catalogues, assign key role to metadata and serve data to external users. It requires solving issues related to integration and harmonisation of data from different owners and data producers. Similarly Web services and Web-GIS differ. The former is a mechanism over the Web offering services regarding data where the latter offers the usual GIS functionalities (mainly analysis functions) over the Web.

Extended goals of an SDI include the enablement of easier GI development, use, and collaboration between participants (individuals and organisations) in order to enhance the knowledge of the area and its shared comprehension. Thematic communities and communities of practice are often organised in an SDI. The SDI is meant to be used at the user level.

Following issues related to the definition of an SDI were raised during the eSDI-Net+ workshops, meetings and discussions about the SDI identification and analysis:

SDI good practice: A first general conclusion made during the performance of the SDI analysis and assessment campaign is that a mature SDI is difficult to find. For instance, in France most of sub-national SDIs created are less than 3 years old but are almost operational SDI. But if you consider components of an SDI not only at a technical level, mature components do exist, e.g. in all French regions and in some Italian areas as well.

SDI: Some SDI solutions, e.g. in Italy, used the term GIS to identify their name. This fact highlights an interesting issue: these regions look at SDIs as an evolution of their GIS. In France or in UK they even did not use the term SDI to qualify their SDI.

Geoportal: The lack of understanding of the definition of a Geoportal is evident. Most regions are advertising their systems as geoportals, but apparently these systems are only Web-GIS, publishing locally managed resources.

In many countries, spatial data infrastructures are developed at a sub-national level. In the context of eSDI-Net+, sub-national meant NUTS 1, NUTS 2, NUTS 3 levels or any of their aggregations according to the administrative structure of the countries, referring to the nomenclature defined by the European statistical office EUROSTAT¹. It means that SDIs developed at lower levels (NUTS 4 or NUTS 5) were not considered unless they are recommended as real good practice in the national context. In some countries NUTS 4 were considered when they play effectively a stronger role than NUTS 3. Sub-national SDIs that are not fitting within the administrative structures of a country may also exist. They have also been considered if they have either a large extension (at least as wide as a NUTS 3 area) or have a trans-national nature. Nonetheless, the methodology is applicable at any level of government notwithstanding the fact that INSPIRE applies to the lower level of government when the law assigns them a data responsibility.

¹ http://ec.europa.eu/eurostat/ramon/nuts/home_regions_en.html

Contents of the SDI analysis

The ID Card

First of all, a list of basic information to be collected was defined. This list was called Identity Card and included following information:

- Country name
- NUTS level
- Sub-national entity name
- SDI name
- Mission and objective
- Legal status
- Funding mechanisms
- Human resources of the permanent team (if any):
- Legitimacy (that means: there is an official act establishing the SDI, e.g. a Regional Law?)
- Year of creation:
- Partners in the SDI (who pays, who benefits from)
- Binding mechanisms for the partners
- Development status (inception, in development, in operation)
- URL

Detailed information

The following list includes issues to be investigated and criteria that may be used in analysing sub-national SDIs:

Qualitative Analysis:

This tackles the quality of data, metadata and services. In particular, compliancy to standards and INSPIRE Implementing Rules (IR) needs assessment.

Quantitative Analysis:

Quantitative aspects of data, metadata and services include information about the number and percentage of information layers as well as services provided with metadata that is compliant with the INSPIRE Metadata Implementing Rules. Furthermore, the availability of discovery, view or download services is important in this context. This information can be gathered during direct interviews but requires verification by analysing the geoportal.

SDI usage assessment:

This set of questions intends to analyse SDI usage based on user requirements and satisfaction. The basic information to acquire is whether the SDI development has been based on clear and well defined

user requirements. The definition of the users in each specific context (and their classification) is left to the interviewed persons. Existing actions to verify user satisfaction need further investigation. Direct interviews with users might be necessary.

Social impact:

The SDI workflows, its influence on the relationships between citizens and Public Administration and SDI impact in comparison with GIS impact makes the core of the social impact analysis.

Networking and consensus building:

This set of questions intends to understand the networking issue the sub-national SDI has to face in order to create a climate of opinion, to identify common interest, shared interest, and to build consensus. It relates to the humaneness and tries to identify what exists beyond the digital façade (the emerged part of the iceberg visible on the net).

Socio-economic impact analysis:

This set of questions intends to evaluate whether the sub-national SDI has undertaken socio-economic impact analysis, e.g. cost benefit analysis, and cost avoidance. The objective here is to collect results, if any, and identify innovative methods.

Organisational aspects:

This set of questions intends to assess the place of the sub-national SDI in the overall organisation of the territory. Questions in the area of administrative area governance, funding and responsibility and other organisational aspects are raised.

Coping with legal aspects:

Legal aspects of sub-national SDI are two fold. On the one hand it copes with the laws and regulations that the SDI has to comply with and on the other hand what is the legal status that the SDI should have to reach sustainability.

General remarks:

General remarks about the future perspective and sustainability of the SDI may be made.

Geoportal evaluation:

These questions are related to visibility, multilingualism, consistency in the nomenclature and effectiveness of the view service. This section may not be part of the interview. It may be filled in back-office after appropriate analysis on the web.

The Evaluation Framework for describing sub-national SDIs

A great deal of thought was given to the criteria for selecting SDIs and their evaluation in the eSDI-Net+ project and the following open invitation was issued by the project organisers in early 2008:

eSDI-Net+ network invited all types and sizes of stakeholders in charge of SDI developments from any region of Europe and at any level, from local through regional to national. The application should be submitted by organisations facilitating access to geographical content or providing geo-information services to end-users.

SDIs to be considered had to meet the following criteria:

1. They must have been operating for at least the last one year;
2. They should meet the overall profile outlined in the current invitation;
3. The SDI application must also be web-based;
4. The application must include an accessible web address.

With these considerations in mind the partners in the eSDI-Net+ project were asked to identify SDIs in their areas and set up interviews with key officers of the SDIs using an agreed questionnaire. These considered the administrative context of each SDI, the extent of SDI usage, the user networks that had been created by the SDIs as well as their socio-economic impacts, and their legal, organisational and technical characteristics.

In order to manage the interviews and the analysis of sub-national and thematic SDIs, it was derived a more simple process and document, titled "Evaluation Framework for describing sub-national SDIs." Its purpose was exactly to be an operative guideline for interviews of SDI officials.

The Evaluation Framework is not supposed to be a questionnaire to be blindly sent out and filled in. The role of interviewers is substantial with regard to the aim of assessing sub-national SDIs, and also with regard to the overall goal of eSDI-Net+ project.

The interviewer activity consisted of five steps:

- Identifying the sub-national officials, i.e. the person that chairs the "executive" committee of the SDI and the person that is responsible for the day to day running of the SDI;
- Undertaking a direct interview of the identified officials (and invite them to participate in the national workshop). If possible, interviewing also some politician in charge of or interested in the SDI;
- Compiling any written materials from the SDI officials that relate to the assessment;
- Performing control using the internet and analysing the SDI geoportal;
- To minute the interview and producing an assessment sheet by elaborating a synthetic report written in a homogeneous and comparable way.

While many interviews were carried out personally, some of them were performed by phone. The Evaluation Framework summarizing the interview was sent to interviewed persons to confirm its contents and to integrate eventually missing data and information.

Some partners, such as Italy, have supplemented the analysis of the SDI with an Internet-based performance control of the SDI geoportal.

In some cases, e.g. in Spain, it was not necessary to arrange personal interviews with SDIs officials since the necessary information was already available, due to advanced development of the country in the SDI area.

If there was the need of translating the Evaluation Framework, it was suggested to also have the original version in English available during the interview as some specific terms used by the GI community do not have proper translations in the national languages.

Applying the Evaluation Framework in practice, we clearly realized that it better refers to mature SDIs, yet most sub-regional SDIs are still in an inception or development phase.

Some difficulties experienced by the partners occurred due to following factors:

- the extension of the Evaluation Framework, which took in average two hours to complete;
- the subjectivity of some questions that are more based in the manager's personal opinion;
- the non-applicability of some questions to the interviewed person and the evaluated SDI (complicating the direct comparison with other evaluated SDIs).

In any case, while discussing and compiling the Evaluation Framework, interviewed people were led to rethink their experiences and they used the Evaluation Framework as a check list of what was done or had to be done.

Nevertheless, it has to be highlighted that considered sources of information were officials in charge of SDI and, only in some cases, evaluations of SDI geoportals done by interviewers. No direct analysis of SDI users and user's satisfaction was planned and done.

The eSDI-Net+ methodology to identify, analyse and assess SDIs described above was a guideline for interviews of sub-national and thematic SDI officials and for recording the results of the national workshops, which were held in the framework of the eSDI-Net+ project.

Within the SDI analysis and selection process, the assessment criteria list has been continuously revised in order to create a strong evaluation basis for the SDI Best Practice Award 2009. For the assessment of the SDIs, the eSDI-Net+ consortium and the Jury gathered information regarding five main criteria:

Evaluation criteria and indicators

| Five main criteria | 32 weighted indicators |
|--|-------------------------------|
| 1. SDI «size» (quantity) | 6 |
| 2. SDI «quality» (meeting user requirements) | 7 |
| 3. Co-operation and subsidiarity | 7 |
| 4. Sustainability | 4 |
| 5. Users usability | 8 |

In the framework of these five major criteria groups, indicators have been defined to obtain detailed information about the SDIs. Each SDI provided answers on altogether 106 questions illustrated in the figure below.

Information to describe an SDI (106 questions)

| | |
|---|--------------|
| Sub-national SDI identity card | 15 questions |
| SDI usage assessment | 14 questions |
| Networking people assessment | 10 questions |
| Socio-economic impact analysis | 9 questions |
| Organisational assessment | 12 questions |
| Coping with legal aspects | 6 questions |
| Technical functionalities-facilities-components | 28 questions |
| Geoportal assessment | 12 questions |

All collected and categorised information about the SDIs was documented in a common SDI Best Practice database containing the data from all national and regional sub-databases gathered within the SDI analysis process.

The public version of the database is available at the project website:
www.esdinetplus.eu/best_practice/database.html.

The database allows data interpretation in various ways. A possible result can be e.g. a radar graph on 5 axes (see example in chapter 4, p. 27).

In general, the SDI assessment methodology and process applied have been considered as suitable to be introduced in the governmental work during the implementation of INSPIRE. The methodology considers the cultural, technical and legal differences in European countries and provides a common evaluation framework applicable for SDIs in Europe.

3 Identification and analysis of SDI Best Practices – national perspective

In 2008 and 2009, twelve national and regional SDI Best Practice workshops were organised throughout Europe. The workshops focused on common issues, usability and socio-economic impact of SDIs and addressed the integration between SDIs and e-government policies. They brought together stakeholders, and showed use cases and questions.

Significant results were achieved towards characterisation of existing SDI implementations throughout Europe. In this period, the network identified more than 200 working, accessible and intelligible solutions. The SDI assessment methodology developed by the eSDI-NET+ consortium was used to analyse and assess these solutions. This methodology as described in the previous chapter, considered the cultural, technical and legal differences in different European countries and provided a common evaluation framework applicable for SDIs not only in Europe.

The 12 national and regional SDI Best Practice workshops organised by the eSDI-Net+ network were the most important communication mechanism between the European and local levels, implemented to maximise the benefits of INSPIRE, GMES and GALILEO, regarding digital GI content. The national and regional workshops were held during one or two days, a period appropriate to represent some SDI solutions and to exchange experiences.

Some partners combined the eSDI-Net+ workshops with other GI conferences and events in order to foster the participation of SDIs which attracted more interested stakeholders and allowed further presentations in the context of INSPIRE and GMES. The goal was to intensify discussion and exchange of experiences in the national and regional context.

The eSDI-Net+ network invited all types and sizes of stakeholders in charge of SDI development at any level, from local through national to regional. Organisations facilitating access to geographical content or providing geo-information services to end-users were invited to participate too.

The table below illustrates the timeline and strategy of the activities towards the selection of SDIs good practices for the European SDI Best Practice Awards.

National and regional SDI workshops

| EUROPEAN REGION(S) REPRESENTED AT THE WORKSHOP | WORKSHOP LOCATION | DATE |
|---|----------------------|----------------------|
| France | Strasbourg, France | June 5-6, 2008 |
| Hungary | Budapest, Hungary | August 29, 2008 |
| Czech Republic, Slovakia | Brno, Czech Republic | September 10, 2008 |
| Italy | Rome, Italy | September 25, 2008 |
| Romania | Bucharest, Romania | December 11-12, 2008 |
| Poland | Krakow, Poland | January 29, 2009 |
| Portugal, Spain | Lisbon, Portugal | February 5, 2009 |
| SE Europe: Bulgaria, Cyprus, Greece, Romania, Slovenia, Albania, Bosnia, Croatia, FYROM, Montenegro, Serbia, Turkey | Thessaloniki, Greece | February 4-6, 2009 |
| United Kingdom, Ireland | Liverpool, UK | February 11, 2009 |
| Germany, Switzerland | Darmstadt, Germany | February 12-13, 2009 |
| Belgium | Brussels, Belgium | April 28, 2009 |
| Scandinavia: Denmark, Finland, Iceland, Norway, Sweden | Stockholm, Sweden | April 27, 2009 |
| France | Lille, France | June 29-30, 2009 |

The workshop programmes included the presentation of survey results and good practices referred to various topics of the methodology, and the organisation of a panel for discussion of key topics, such as:

- Communication and cooperation between sub-national SDIs and with the national SDIs: key features that differentiate an SDI and a complex corporate GIS, main drawbacks in sub-national SDI implementation, dealing with INSPIRE Implementing Rules and managing geographic data licensing issues, management of sub-national SDIs/national SDIs relationship, etc.

- Subsidiarity among regions and municipalities in producing topographic databases; building a shared data model for structural urban planning; management of Intellectual Property Rights in an SDI; technological aspects. These issues were specifically addressed in the workshop organised by Italy.

The German and Swiss workshop was organised in collaboration with three key players in the GI field in Germany, InGeoForum, GDI-DE and DDGI, in order to attract the key audience and speakers and to increase the visibility of the workshop results. In the workshop preparation phase, it was an obstacle to obtain all information necessary for the SDI analysis and selection since the idea of a competition and the fact of publishing the information about the SDI caused sceptic behaviour in the majority of the identified and contacted SDIs. It was also mentioned by the SDI responsables, that there was a lack of available resources. This visibly decreased the feedback received from the SDIs. Nevertheless, a sufficient number of SDIs showed their interest on the eSDI-Net+ project and the workshop.

National German and Swiss SDI Best Practice workshop in Darmstadt, Germany on February 12-13, 2009



The planning of the workshops was coordinated to ensure the consistency and the comparability of the results. Local organizers assumed these inputs; however, they acted independently and adapted the methodology to their local needs. To foster coordination, the workshop organizers were asked to provide a proposal on the planning including the procedure, timeline, budget, and requested funding to the work package leader and the project coordinators were asked to contribute with their experience and knowledge on the analysis of SDI solutions. Besides this, evaluation forms were filled in by workshop participants and workshop organisers.

The activities described in the previous sections were helpful to get an overview about the state-of-the-art of SDIs, to collect experiences, success cases and obstacles in each country. It also helped to

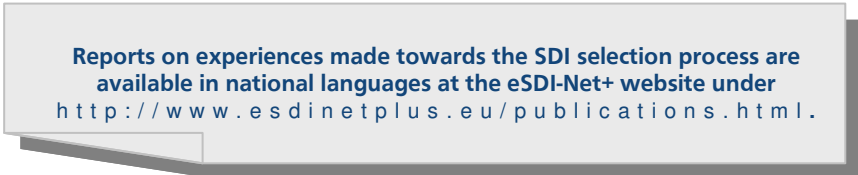
understand the different primary goals and focuses of existing SDIs (e.g. involvement of participants on communal level, technical interoperability, addressing financial/technical obstacles of participants).

In total, between 4 and 15 good practices were presented and 2 to 6 political decision makers were involved in the workshops. National workshops had between 24 and 200 participants and their average evaluation of the workshop was positive (4/5) or very positive (5/5). Generally, all workshop organisers have demonstrated great commitment to disseminate information about the event and the eSDI-Net+ project, which is shown by the elaboration of press releases considering the GI and other publications.

For the identification of promising existing SDIs, the following methods were used:

- Common SDI selection methodology;
- Partners' background knowledge of existing SDIs in the region and existing contacts of the partners with GI networks;
- Collection and analysis of presentations related to SDI experiences and proceedings in conferences, such as the annual ASITA National Conference in Italy or the “Rencontres des Dynamiques Régionales” in France;
- GI printed/on-line newspapers' articles;
- Keywords searched on the internet were SDI, portal, map, region etc.

Generally speaking, the approaches were quite specific in various countries.



Reports on experiences made towards the SDI selection process are available in national languages at the eSDI-Net+ website under <http://www.esdinetplus.eu/publications.html>.

Some SDI solutions identified were mainly related to the daily work of municipalities and utility services developed locally. Its thematic is defined by the application used. This was the case of Hungary, where preference in identifying promising SDIs was given not only to local SDI service providers but also to a balanced representativeness of diverse thematic applications.

In Poland, the method for identifying promising SDI solutions was based on the methodical approach described above. Such information sources as contacts obtained at conferences, scientific articles, news groups and internet were used to search for SDIs. 19 sub-national SDIs have been identified.

In France, due to previous workshops organised in Poitiers 2005 and Marseille 2006, the pre-selection of promising sub-national SDIs was done based on AFIGÉO knowledge of the French stakeholders. So nearly 50 SDIs have been identified and selected for following enquiry.

In UK and Ireland, there is a lack of consistent regional administrative arrangement. Therefore the identification of sub-national SDIs was not as straightforward as in more regionally organised countries, although the UK now (from early 2009) has a UK SDI programme at national level, and in late 2008 the Irish Organisation of Geographic Information (IRLOGI) was contracted to encourage registration of SDIs in Ireland and to conduct interviews and run the workshop. In this joint workshop 12 sub-national SDIs participated.

In Portugal and Spain, each country adopted different strategies to identify existing promising SDIs. The Spanish identification process of SDIs was based on workshops that are organized each 3 months to follow up the development of the SDI strategy, while Portugal followed more strictly the methodology developed by the project. In the joint workshop, 20 sub-national SDIs participated.

For the South-East European workshop, each of the 11 countries represented at the workshop (Albania, Bosnia-Herzegovina, Bulgaria, Croatia, FYROM, Greece, Kosovo, Romania, Serbia, Slovenia and Turkey) identified a responsible expert to identify the promising existing SDIs.

Following remarks were reported by the organisers of eSDI-Net+ National Workshops:

SDI data and services – qualitative and quantitative analysis:

- Data accessibility: some of the SDI solutions, e.g. in Hungary, have dual accessibility, intranet-based for internal use, extranet for authorised external users, and open website to ensure the widest possible public access. The content of this latter should be gradually enhanced.
- Metadata availability and services as well as visualisation should be further enhanced.

SDI Usage assessment:

- Users: the target users are generally internal within a sort of contractual agreement, i.e. only “authorised” users have access to the SDI;
- User requirements: while data policy is regulated by the national legislations, metadata availability at free of charge is a high priority requirement. An imperative requirement is to adopt and use relevant standards.

Cooperation and subsidiarity, networking and consensus building:

- Principle of subsidiarity: it is often applied by sub-national regions in supporting Public Administrations at lower administrative level that do not have enough resources and capacity to implement their own systems for publishing and sharing spatial data. According to this principle of subsidiarity, which is often regulated by a national law, a Public Administration at a higher administrative level, often a region operates on behalf of administrations at a lower

level when these have not the possibility to fulfil a specific task. This has happened to traditional GIS, and is happening today to SDIs, e.g. in Italy;

- Agreements on data sharing: they may exist in relation to the mentioned subsidiarity, but not explicitly dedicated to the SDI.

Socio-economic impact:

- Data policies: there is heterogeneity of data access possibilities and costs. Possibilities for the private sector to access data and build value added services on them have seldom be mentioned;
- Readiness for EU and INSPIRE: there are SDI solutions at the national and sub-national levels, which are appropriate to be registered on the EU level, among others 6 SDIs presented at the Hungarian workshop.

Organisational aspects:

- Funding schemes: sub-national SDIs have very heterogeneous funding, normally including national and European funding, e.g. in France;
- Coordination: only in some cases there is a dedicated coordination committee, while most of the sub-national SDIs claim that such a structure is not needed at local level, but at the national level.

Legal aspects:

- Legal status: there is evidence that the majority of SDIs operates informally, although issues on legal structure are more and more on the agenda. As an example, sub-national SDIs representing 9 in 26 NUTS 2 regions in France do not have formal legal structure, and in Italy, only one region was identified as having a law explicitly dedicated to SDIs.

Technical functionalities and facilities:

- Technological aspects: there was a growing attention to the INSPIRE Directive, but at the time of the eSDI-Net+ project, the Implementing Rules (IR) were still in their infancy. There was at that time a lack of understanding of its technological implications. With the adoption of the IR it will be easier to assess the INSPIRE compliance.

Summarising the results of the workshops, promising solutions from different European regions have been recommended for further assessment with the final goal to present their developments at the European SDI Best Practice Award. The overall competition based on the SDI evaluation criteria and indicators which were defined during the process of SDI analysis. This event was a significant step towards the promotion and dissemination of SDI Best Practices at the European level.

More information on these national and regional Best Practice Workshops is available at <http://www.esdinetplus.eu/assessment/workshops.html> as well as in the publicly available deliverable D2.2-2 Documentation of identified problems and good practices at local, regional and national levels which is also available at the eSDI-Net+ project website. There you can also find detailed information about the regional points of contact.

4 SDI Best Practice database and SDI assessment indicators

The information listed in the Evaluation Framework collected for all analysed SDIs at the end of the process were organised in a database. An indispensable step was building, from collected information, a set of indicators, easy manageable in a database, useful for summarizing descriptions of analysed SDIs of various European countries and for running the SDI Best Practice Award².

These indicators had to be tightly characterized with reference to the eSDI-Net+ project vision on what are key issues in establishing successful SDIs, and also to collected information included in the Evaluation Framework. The process of defining these indicators started in September 2008 and took about six months.

Shared definition process of SDI good practice indicators

The indicators definition process begun with focusing on these 5 macro-criteria:

- Quantity
- Quality
- Co-operation and subsidiarity
- Sustainability
- Users/Usability

In the framework of these five macro-criteria, 32 indicators were defined. The whole process of macro-criteria and indicators definition has been shared and intensively discussed among all partners and the Advisory Board. These indicators have been harmonized and integrated, as far as possible, in order to increase the value of cultural, normative and technical differences.

The following list summarizes the 32 indicators:

Quantitative aspects (6 indicators):

- Number of information layers
- Percentage of information layers provided with visualisation or download services (WMS)
- Percentage of information layers and services provided with standard metadata (ISO19115, INSPIRE IR, Dublin Core, etc.)

² Indicators (and indexes) are defined in different context in various ways. In eSDI-Net+ Project OECD definitions, often quoted, were assumed. See: OECD Organisation for Economic Co-operation and Development, 2003, OECD Environmental Indicators. Development, Measurement and Use, <http://www.oecd.org/dataoecd/7/47/24993546.pdf>

Data and service quality (7 indicators):

- Importance of precision and quality
- Promotion of value-adding services (spatial analysis, cartography, indicator computation, etc.)
- Availability of geoportal facilities to support data sharing
- Availability of discovery or view services
- Availability of a metadata catalogue with a search engine
- Availability of Web-GIS for view functions

Co-operation and subsidiarity (7 indicators):

- Information on parties responsible for the SDI development and implementation
- Handling of costs
- Information about structure and networking
- Provision of users training

Sustainability (4 indicators):

- Socio-economic impact
- Sustainable business model and specific budget
- Legal status and dealing with legal aspects (IPR, PSI, DBP)

Users and usability (8 indicators):

- Multilingualism
- Consideration of user requirements
- Level of openness (access, payment)
- Target users (public or private sector)
- Consideration of SDI usage and user satisfaction
- Availability of service performance measurements

Database of SDI Best Practices

The results of the SDI analysis and selection process are summarised in the SDI Best Practice database. The database contains all collected data of the SDIs analysed. European SDI Best Practices were documented and categorised according to the criteria and indicators described above. Following the approval of the SDI owners the publicly available SDI Best Practice database contains a subset of the entire database information.

The complete database constituted the starting point of the assessment process for the SDI Best Practice Award. This database version is not published because of the lack of explicit authorizations for publication from the interviewed SDIs.

In addition to the indicators, the database structure also includes ID card information. The database encompasses 52 fields. At mid September 2009, this database included information on 135 SDIs across Europe. The following table shows the distribution of analysed SDIs per country.

Distribution of analysed SDIs per country

| | |
|------------------------------|------------|
| Albania | 1 |
| Belgium | 1 |
| Bulgaria | 2 |
| Czech Republic | 7 |
| Denmark | 1 |
| Spain | 5 |
| Finland | 3 |
| France | 49 |
| UK | 5 |
| Germany | 6 |
| Croatia | 3 |
| Hungary | 6 |
| Iceland | 1 |
| Italy | 17 |
| Republic of Macedonia | 1 |
| The Netherlands | 2 |
| Norway | 1 |
| Poland | 9 |
| Portugal | 6 |
| Spain | 1 |
| Sweden | 3 |
| Slovak Republic | 1 |
| Slovenia | 2 |
| Turkey | 2 |
| TOTAL | 135 |

As you can see, the distribution is quite unequal. In our opinion these numbers are only partly correlated with the actual distribution of SDIs in various countries: other factors, some of them casual, influenced this result. For instance, there are 49 French SDIs in the database: this partly depends on the fact that AFIGÉO, the French national contact point, is a national GI association well rooted in the French context.

Public SDI Database

The SDI Best Practice database is certainly one of the most important results of eSDI-Net+ project. In order to make this information available and to publish it, officials in charge of the included SDIs, were contacted and asked to check and update the information in the database and to provide an official permission for publishing. Taking into consideration the experience collected, some slight changes are introduced in database structure:

- Some fields of minor significance were dropped;
- Some numerical fields were transformed in classified fields, in order to simplify and stabilize the completion of them.

While the confidential database contained 52 fields, the public database now only has 32. The results of this database restructuring are quite positive: the number of gaps and unfilled fields was significantly decreasing.

The users of the online database have the opportunity to view the SDIs according their search criteria, e.g. SDIs in different European countries, thematic/not thematic SDIs, by NUTS level (region, province or department, district...) etc. Following search criteria are possible:

- Country
- NUTS
- Thematic/not thematic (i.e. general purpose SDI)
- Legal status
- Leading partner (Coop_1)
- Number of partners (Coop3_5)
- Workforce
- Numbers of datasets

The public database of SDI Best Practices is available at the eSDI-Net+ website under
http://www.esdinetplus.eu/best_practice/database.html.

Online SDI Database

eSDI-Net+ Database of SDI Best Practices goes public! Register your SDI now! - eSDI-NET+ - Windows Internet Explorer

http://www.esdinetplus.eu/best_practice/database.html

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eSDI-Net+
Network for promotion of cross border dialogue and exchange of best practices on Spatial Data Infrastructures (SDI's) throughout Europe

eSDI-Net+ Database of SDI Best Practices goes public! Register your SDI now!

Welcome to the SDI Best Practice Database! The database summarises the results of the SDI analysis and selection process performed by the eSDI-Net+ Network during the last three years. This public version of the database contains a subset of the collected data of the SDIs analysed, approved by the SDI owners. European SDI Best Practices are documented and categorised according to the criteria and indicators based on the common [methodology](#) for the evaluation of SDI solutions.

The experiences with the SDI assessment show that "each spatial data infrastructure is a special case" (Franco Vico, European SDI Best Practice Awards 2009). To single out and to follow a successful implementation path in developing an SDI it needs understanding of its own strengths and weaknesses. Self understanding implies comparisons and measuring against others. The SDI Database and the [SDI Self-Assessment Framework](#) are intended to facilitate comparison among various SDI good practices, and consequently to foster networking and sharing experiences among similar SDIs.

All SDIs in Europe are invited to submit their data. If you are interested to become part of the public SDI Database, please [register here](#).

If you have any questions regarding the use of the database or the registration procedure, please contact the [eSDI-Net+ Coordinator](#).

-- Any Country -- -- Any Thematic -- -- Any NUTS level --
-- Any Legal Status -- -- Any Leading Partner -- -- Any Number of Partners --
-- Any Workforce -- -- Any Number of Datasets --

select

This Website is part of the eSDI-Net+ project, co-funded by the Community programme eContentplus

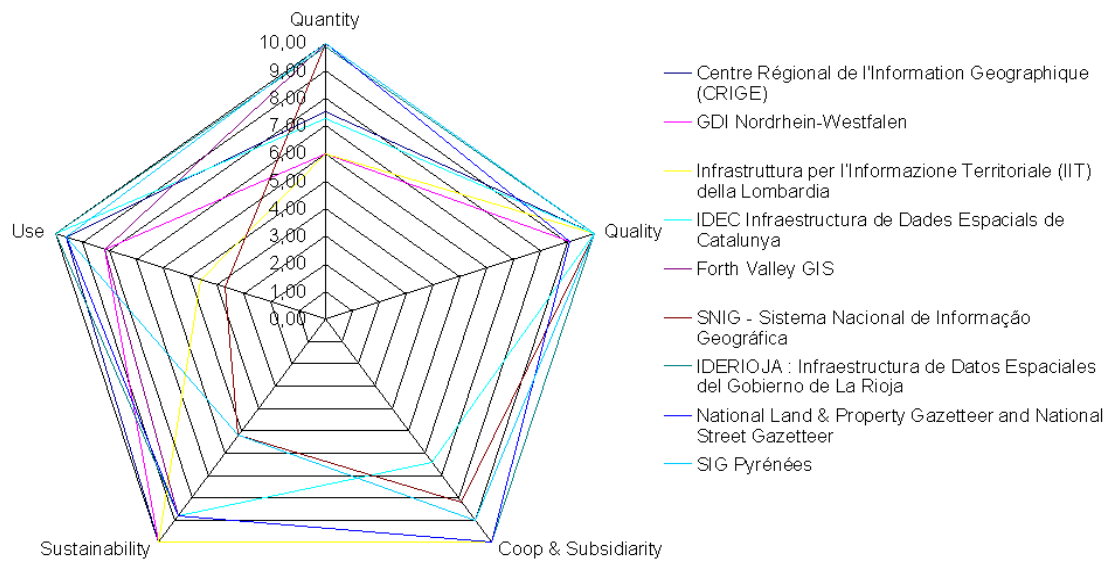
The online database allows comparisons between several SDIs. Besides the facts describing the SDIs, a radar graph is added in order to visualise comparisons among a small number of SDIs.

Indicators are graded or normalised in a scale 0-10 and summarised in 4 weighted indexes:

- Technology & INSPIRE compliance: first group of indicators, in light grey in the table
- Cooperation & subsidiarity: second group of indicators, in light yellow in the table
- Sustainability: third group of indicators, in light grey in the table
- Uses/users: last group of indicators, in light yellow in the table.

The radar graph depicts these 4 weighted indexes for selected SDIs. Meanwhile this graph includes two more axes for characterizing the "size" of SDIs referred to fields "number of datasets" and "workforce".

Radar graph example referred to the awarded SDI Best Practices



At the website, the SDIs not yet registered in the database have the opportunity to fill in an online registration form and to insert their data. After the submission of new SDI data, the system automatically generates an email to the network coordinator. The coordinator reviews the entry and releases it for the publication in the online database. Authorised persons in charge of SDIs have the opportunity to update their data online at any time. The data updates have to be confirmed and released by the network coordinator as well, in order to avoid misuse of the database. The confidential contact data of the submitting person do not appear in the public database and are only visible for the coordinator.

Currently more than 100 SDIs are referenced in the public version of the eSDI-NET+ database containing information about good practices in the SDI field in Europe.

This SDI reference database will also manage the information that will be collected on the base of the SDI self-assessment framework and will be maintained by EUROGI in the future.

All sub-national and thematic SDIs are invited to self-assess themselves using the eSDI-Net+ SDI self-assessment framework and to feed the reference database.

Register your SDI now at

http://www.esdinetplus.eu/best_practice/register.html!

Joining it incurs no costs or obligations. Even partial information about an SDI will still enable users to find similar operations in their own or other countries. The database facilitates the exchange of information about common issues even though applications or levels of administration may be very different.

5 From indicators to weighted indexes

Derived from the general SDI assessment methodology, additionally, an SDI self-assessment framework has been developed. This SDI self-assessment framework is intended to help SDI officials or SDI steering committees in characterising and describing their SDI. It can be seen as a check-list useful to better focus key issues in developing an SDI.

For the promotion and dissemination of SDI good practices in Europe, the most important event planned by eSDI-Net+ project was the European SDI Best Practice Award 2009, held in Turin on November 26 -27, 2009. The overall competition was based on the SDI indicators as defined during the process of SDI analysis. A six person jury was set up and was in charge of the final assessing process. The six persons were three from the project partners and three from the project's Advisory Board. This final assessment step consisted in synthesizing indicators and in building weighted indexes.

Some remarks about indicators and assessment

Not all indicators involve obvious evaluation criteria and a univocal value hierarchy, or better, the majority does not. Some examples: "Number of information layers" or "Level of openness" issues are to be related with SDI objectives: in fact, a "good" SDI can include a limited number of layers, because this is its aim, or can be not open for general public on purpose, because e.g. sensitive information are managed.

Some indicators are not univocal in measuring "goodness" in an even more complex way: For example, the indicator "Legal status" and related issues. With reference to Italy we could say that a clear institutionalization (likely) means the involvement of politicians, a more clear definition of cooperation agreements among various parties and a more stable budget. With reference to the UK on the other hand, a less defined legal status could be considered a key strategic factor since it could relate to a much higher flexibility.

In summary it can be stated that these indicators are useful for describing SDIs, yet they are less useful in assessing them. Therefore, these indicators were not considered in the assessing process.

Sub-setting the assessment process

In analyzing and evaluating SDIs, as highlighted by the French experience, two issues proved to be quite important: for general purpose SDIs, its territorial level (the NUTS level) and the fact of being a thematic SDI. These two issues are addressed in the database structure.

Considering that at the present time the majority of SDIs (or all of them) are still not mature, looking to SDI components, not only at a technical level, and not as a whole, resulted to be an effective and fertile

approach. With reference to Italy, for example, we can say that the Piemonte region can be considered as a good practice in relation to the data policy issue, the Lombardia region in relation to the subsidiarity issue, the Sardegna region in relation to technological aspects and the Friuli Venezia Giulia region in relation to the legal status.

Building weighted groups of indexes from indicators

Originally quantitative indicators were normalized on common scale, from 0-10, in order to make them comparable. Qualitative indicators were graded. Since this is a highly subjective step these grades were revised several times during the process.

Indexes resulting from previous steps were weighed and aggregated in order to build synthetic indexes. Firstly, five aggregated indexes were created with reference to the five focused macro-criteria. A further step was to aggregate macro-criteria 1 and 2 (quantity and quality) and 3 and 4 (cooperation and subsidiarity, sustainability).

This assessing process was applied to general purpose SDIs (85 SDIs out 135). Thematic SDIs were dealt separately: an overall index was created for this category. The described assessing process was performed against analysed SDIs: grades, weights, how far to go in building aggregated indexes were discussed in front of real data, considering the sensitivity of results to tentative change the jury was inserting.

The jury always kept clearly in mind that establishing indexes does not mean an automation of assessment but a clarification of the process. Weights and indexes do not transform intrinsically subjective processes in objective ones, but were useful in order to clarify assessments of various components and aspects of SDIs and to give an overall comparative coherence to assessments.

Weights and indexes are highly debatable, questionable; in the sense they are useful for debating and reasoning. This was exactly what happened inside the jury. Various factors influencing the creation of an SDI and its implementation trajectory have been considered in the self-assessment framework. Some of them are structural, “hard” factors, like favourable legislation, strength of local authorities, overall technological development of the country, the economic situation etc. Others are “soft” factors like attitudes of involved people and their willingness to cooperate.

The experiences with the SDI assessment show that “each spatial data infrastructure is a special case” (Vico 2009). To single out and to follow a successful implementation path in developing an SDI needs understanding of its own strengths and weaknesses. Self understanding implies comparisons and measuring against others. The second aim of SDI self-assessment framework is strictly linked to this issue. The SDI self-assessment framework is intended to facilitate comparison among various SDI practices, and consequently to foster networking and sharing experiences among similar SDIs.

6 SDI Best Practice Awards 2009 – sub-national SDIs in European context

A six person jury was set up during the eSDI-Net+ project to evaluate the 135 submissions of sub-national (i.e. regional and local) level SDIs that were collected as a result of the workshops that were held throughout Europe during the last half of 2008 and the first half of 2009. The six person jury consisted of three members selected from the project partners (Danny Vandenbroucke, François Salgé and Franco Vico) and three from the project's Advisory Board (Max Craglia, Bastiaan van Loenen and Ian Masser). The Jury carried out a rigorous evaluation and selected 12 SDIs from total number of submissions for the Best Practice Awards ceremony that was held in Turin on November 27th 2009.

The Jury recognised that such an event would have been hard to imagine twenty years ago when only four or five national SDIs were in being. Even ten years ago there were probably as many as twenty throughout the whole world. The eSDI-Net+ Award ceremony was the outcome of two momentous developments that have taken place in recent years in the SDI field. The first of these developments is the accelerated diffusion of SDIs throughout the world during the last ten years. As a result, most countries in Europe have now taken steps to implement at least one component of a national SDI. The INSPIRE initiative has played an important role in promoting this diffusion process in Europe but similar developments have taken place throughout the whole world.

The second momentous event is the shift in emphasis that has taken place in the SDI field from national (strategic) SDIs to sub-national (operational) SDIs. Whereas a great deal of the discussion in earlier years revolved around talking about (national) SDIs much more time is currently being spent on discussing different ways of doing (sub-national) SDIs and success at the sub-national level has become a crucial yardstick of overall success.

The presentations at the eSDI-Net+ conference highlighted the diversity of current practice at the regional and local level in Europe and raised some important questions about the nature of SDIs. While some presentations dealt with the classic case of an SDI that has been translated from national level of the administrative hierarchy to the regional level, most of the others did not easily fit this model. This was particularly the case with respect to the thematic SDIs that are often limited to key aspects of national SDIs. For this reason the jury found that comparing sub-national SDI submissions was like trying to compare apples and pears. This led Franco Vico to argue that 'each SDI is a special case,' notwithstanding the strenuous efforts that have been made during the eSDI-Net+ project to develop quantitative indicators for evaluation purposes.

Organisational and institutional aspects

The best way of illustrating this diversity is to consider some of the main features of each of the SDIs presented during the Awards ceremony. The first session consisted of three presentations of SDIs that were primarily selected as Best Practices with respect to their treatment of organisational and institutional aspects in terms of cooperation and subsidiarity as well as sustainability.

The presentation by staff of the Centre Régional de Information Géographique for the Provence-Alpes-Côte d'Azur (CRIGE-PACA) described the development of an SDI for the public sector in a large region extending over six departments in south east France where one job in every five is in the tourism industry. The strong thematic dimension to this SDI is evident from the twelve different applications that have been established and the staff sees one of its main objectives as coordinating communities of practice within the region.

The second presentation about the development of the SDI for the state of North Rhine-Westphalia in Germany also covered a large area. Its population of about 18 million is more than that of many European Union member countries. An important feature of this SDI was the strong link that exists between the state organisation and the municipalities in the region because the lower level authorities are responsible for the collection and maintenance of cadastral information. The information that is held in this SDI is made widely available to private as well as public sector bodies and more than a million maps are downloaded from the SDI by users every month.

Award winners

| Award Winners | Region and country |
|--|--|
| Centre Régional de l'Information Géographique (CRIGE-PACA) | Provence-Alpes-Côte d'Azur, France |
| Forth Valley GIS | Scotland, UK |
| GDI Nordrhein-Westfalen | North Rhine-Westphalia, Germany |
| IDEC Infraestructura de Dades Espacials de Catalunya | Catalunya, Spain |
| IDERIOJA: Infraestructura de Datos Espaciales del Gobierno de La Rioja | La Rioja, Spain |
| Infrastruttura per l'Informazione Territoriale (IIT) della Lombardia | Regione Lombardia, Italy |
| National Land & Property Gazetteer and National Street Gaze | English Regions & Wales, UK |
| Norway Digital-ND | Norway |
| Plansystem.dk | Denmark |
| SIG Pyrénées | Aquitaine, Midi-Pyrénées et Languedoc-Roussillon, France |
| SNIG - Sistema Nacional de Informação Geográfica | Portugal |
| X BORDER GDI (Cross border Geo-data infrastructure XGDI) | Province of Limburg, Netherlands |



Further information about the shortlisted SDIs as well as a detailed report of the Jury are available at the eSDI-Net+ website
www.esdinetplus.eu

The final presentation in this section was by staff from the Infrastruttura per l'Informazione Territoriale della Regione Lombardia in Italy. This SDI is strongly driven by spatial planning considerations and its main emphasis is on the creation and maintenance of a regional topographic database which acts as a platform for other applications. Information held in this database has also been made freely available to private sector users.

Chairman of the Jury Ian Masser and SDIs CRIGE-PACA (represented by AFIGéO secretary general), NRW-DE and IIT della Regione Lombardia at the Award Ceremony



User involvement

The second group of presentations at the award ceremony included two SDIs that were selected with respect to their strong user involvement. The first of these presentations of the Infraestructura de Dades Especiales de Catalunya (IDEC) in Spain described itself as ‘a network of labelled web services’ The main objectives of this SDI are to facilitate the use of geographic information and to motivate all kinds of users. As a result of IDEC’s activities more than half the municipalities in the region are actively making use of geographic information in their work and private sector users account for forty per cent of all usage.

The second presentation by staff from the X-Border GDI that is led by the province of Limburg in the Netherlands introduced another dimension into the discussions. As its name suggests this SDI is a collaborative venture which involves four Dutch province, three Belgian provinces and 12 districts from Germany. Its activities are very much problem oriented and user driven, with particular reference to emergency management and spatial planning in a densely populated border region.

EC Project Officer Krister Olson, SDIs IDEC and X-Boarder GDI, and Project Coordinator Joachim Rix at the Award Ceremony



Technological aspects

Technology, with particular reference to quantitative and qualitative aspects of data and service quality was the dominant theme in the third category of three SDIs that were presented at the awards ceremony. The first presentation from the Forth Valley GIS in Scotland described the evolution of the present local authority public company from an informal collaborative agreement between three local authorities in 1993 to combine their GIS activities. This company has been driven by business needs to develop a wide range of applications in many different parts of Scotland as well as the components of a SDI for its three main shareholders. Its success in meeting these needs was recognised in a recent survey of local authority services in Scotland as a whole when it was described as the ‘most frequently mentioned example of good practice’.

The second presentation of Portugal’s Sistema Nacional de Informação Geográfica (SNIG) discussed the resurgence of one of the oldest SDIs. SNIG was set up by law in 1990 and played an important role during the nineties in modernising local government in Portugal. In recent years issues of affordability and sustainability together with education have been central to its latest phase of development.

The last presentation in this group considered the work of IDERioja, the SDI that has been developed for the autonomous region of Rioja in Spain. With a population of only 300,000 Rioja is a relatively small region. Its SDI has evolved over the last ten years into a neat example of centralised GI management which has won awards in Spain with respect to both good practice and eGovernment.

SDIs Forth Valley GIS, SNIG and IDERioja at the Award Ceremony



Thematic SDIs

The last group of thematic SDIs raised important questions about the nature of SDIs. Some participants felt that they should have been disqualified on the grounds that they were not ‘proper’ SDIs at all but Bastiaan van Loenen pointed out that 43 out of the original 135 submissions fell into this category and that many of them contained good examples of best practices. The latter is evident from the four shortlisted examples.

The first presentation discussed the creation of the National Land and Property Gazetteer and the National Street Gazetteer in England and Wales. The initial stage of this project took ten years to complete and required the active participation of nearly 500 local authorities to create databases to a common set of standards. This highly decentralised initiative provides a consistent platform for local authorities to develop a wide range of thematic applications.

There was also a strong applications emphasis in the second presentation from the French SIG Pyrenees staff. This SDI recognised the different needs of five main groups of users from agriculture, forestry, climate, economy and spatial planning respectively and created bespoke solutions for each of them using open source software and content management systems platforms such as “Joomla!” as well as conventional GIS software.

The main objective of the Danish Spatial Planning System, the third presentation in this group, is to eliminate duplication in the reporting of the 30,000 local plans that have been prepared by the 98 municipalities in Denmark. The basic philosophy of this system is summarised by the slogan ‘data are available in one and only place.’

Unfortunately, no one from the staff of the fourth group, Digital Norway, was able to attend the awards ceremony. This nation-wide program for co-operation with respect to the establishment, maintenance and distribution of digital geographic data has attracted a great deal of attention in international circles in recent years. Its main objective is to enhance the availability and use of quality geographic information among a broad range of users, primarily in the public sector.

SDIs NLPZ/NSG, SIG Pyrenees and Plansystem.dk at the Award Ceremony



Given the differences between the selected SDIs that have been highlighted above the jury decided that all the selected SDIs were winners in terms of their own best practices and that it would be invidious to select overall winners from such a diverse group. Consequently all eleven presented SDIs and Digital Norway were presented with a Best Practice Certificate at the end of the conference which stated that they had been highly commended by an international jury as one of twelve examples of Best Practices in the whole of Europe.

7 Showcase workshops: transfer of experiences back from European to sub-national level

The consortium has promoted good practices of existing, working, accessible and intelligible solutions and communicated the purpose and aims of the INSPIRE Directive back to the local and regional levels. The goal of these activities was to improve the overall knowledge about SDIs and to encourage local collaboration in setting up innovative solutions.

The eSDI-Net+ project recommends the awarded Best Practices as examples of successful SDI developments at the project website and has published and disseminated the lessons learnt. The project partners have provided their experiences with the analysis, evaluation and selection of SDI Best Practices in local, regional and national showcase workshops, as a 'return of investment' to those who participated in the award selection process. These workshops also intended to showcase those SDIs to the GI community in order to build up further awareness about needs and opportunities that the development of Spatial Data Infrastructures will impose in the future on the regional, national and European level following the INSPIRE initiative.

Such workshops have already taken place in Bulgaria, France, Poland, Romania, Portugal and Spain. Other countries like Belgium, Germany and Hungary are currently preparing such events at the national or regional level.

Given its geographical coverage and the diversity of the project partners and stakeholders, the network has taken the opportunity to gather multiple views of experts. Their collective knowledge enables the sharing of standardised integrated approaches and implementation of Best Practices as well as the design of more efficient operational procedures.

8 Feedback and lessons learnt: network partners and participants report about the impact of the project

eSDI-NET+ impact at the national level

The biggest gain at national level was the dissemination of the SDI concept. There is greater awareness of the importance of SDI in the context of an organisation and the activities within the eSDI-Net+ project contributed much to it. It increased also the visibility of national projects.

The results of the project have been continuously disseminated in the local communities. In consequence, the visibility of projects activities and results has been increased at operational and political levels. Project partners were invited to present their specific experiences made during the project at national and international workshops, conferences and meetings.

Working groups composed of experts in charge of developing and discussing specific aspects of local SDI development were interested in the results carried out in the eSDI-Net+ project. E.g. the Spanish partner UJI was invited to collaborate with the Working Group of the Spanish SDI Observatory. This working group aims to describe specific indicators and criteria for Spanish SDI projects at regional and local scales. Obviously, this invitation was stemmed from the results obtained in eSDI-Net+ project.

One of the most relevant aspects was the survey that was sent to organisations in the context of applications for the "SDI Best Practices Award". The questions "forced" the SDI leaders to reflect about organizational aspects and to (re) organize ideas and strategies on their own SDI strategy.

The information which circulated within the project made it possible for each SDI to learn from the mistakes and successes of other similar SDIs, has helped increase the know-how and provided technical guidance and important strategies for those who want to develop a good SDI project. Furthermore, the visibility and motivation of existing SDIs led to a willingness to "take the train" by other organisations.

eSDI-Net + had a very positive impact especially in terms of the visibility of the theme of Spatial Data Infrastructure. Various partners, e.g. from USIG Portugal, reported that the situation existing before the emergence of the project was very different from the current situation. Even if Portugal had already some notions about SDI (the national SDI is one of the pioneer projects in Europe), the concept was still not highly publicized and perceived by the organizations. The recognition grew with the transposition of the INSPIRE Directive into national legislation and the consequences that the Directive had and still has, but at the level of concrete projects and awareness of the "state of the art" in the countries in Europe, there is no doubt that the eSDI-Net + project brought other visibility to this area.

A further consequence of the project is that various partners started collaborations among each other, e.g. AGISEE and the University of Rome "La Sapienza", on GIS/SDI training and the definition of a European certificate for SDI in the framework of the ECDL. The studies and work done and that will continue to be developed in this area is valuable and can be used in learning environments, such as universities and SDI training courses and workshops.

The organisers and participants of the regional and national workshops reported following about the impact of the participation in the interviews, workshops and the European SDI Best Practice Award:

- Realisation of the level of knowledge and expertise an SDI has in managing a special type of data
- Identification of common 'problem' areas – collating user requirements, use of standards
- Opportunity for SDIs to self-assess them and their work, particularly in terms of national data-set management, overall governance and degree of innovation
- Promotion of the the SDIs involved
- Awareness of other related initiatives
- Experience, that there are many different interpretations of an SDI

In summary, the experiences of the partners and SDIs being involved in the eSDI-Net+ Network programme have been positive. The workshops were considered as interesting and stimulating. The key outcomes for the partners included:

- Gaining further internal recognition for the SDIs involved in workshops
- Gaining further external recognition for the involved in workshops and 12 selected Best Practices
- Rewarding the hard work carried out by the data creators, through publicity from the eContentplus programme and the project
- The opportunity to meet and network with other SDI peers
- The structure of the project made the project team evaluate what each partner has achieved also, in a new and different way and this was also very beneficial
- The financial support with travel was particularly useful at a time when budgets are very tight and this also made the programme very accessible to all, which was very good

The project eSDI-net+ is part of a global trend towards the establishment of spatial data infrastructures on all levels. Much awareness has been created on local level and interest has been demonstrated. The delegates who have participated in the national and regional workshops were very satisfied that they were invited. In consideration of the fact, that INSPIRE is nearly exclusively dealt with on national level, the project activities contributed to knowledge and awareness of spatial data infrastructures and INSPIRE on local level.

Many municipalities are building up web portals, and the project partners could notice that in tender specifications for such portals requirements for using INSPIRE and OGC specifications appear. It is without any doubt that this project has contributed to this kind of awareness. However, we have to admit that the impact is difficult to measure and INSPIRE has had a major effect in the European regions. Therefore, in all presentations and dissemination actions, a link to INSPIRE has been established.

eSDI-NET+ impact in the international context

At European level, it's important to highlight the visibility of national projects abroad, especially of the twelve SDI awarded as best practices in Turin in 2009, and the possibility to learn from the good examples of others european SDI. However, perhaps the greatest gain is the importance that the eSDI-Net+ project had on the dissemination and deployment of European SDI and in the technical legacy and increased knowledge that the project leaves for the future.

Within a broader context, the expertise achieved carrying out the methodology to assess SDIs as well as that coming out from the SDI assessment activity are very important values of eSDI-Net+ for SDI community. Such a methodology will need to be updated while INSPIRE process is going on; it will need to be improved regarding criteria and indicators to take into account changes of technologies, organisations, (geo) culture, user perspectives and so on.

On this line, the SDI self-assessment tool, carried out starting from the methodology used within SDI Best Practice award, is a first step in that direction. It may aid SDI stakeholders and people in charge of SDIs to understand the strengths and weaknesses of their organisation themselves and their SDIs as well as to find other SDIs with similar characteristics or features or even for comparable thematic areas.

In the same way, also the methodology carried out in order to have a tool to measure a confidence degree of an SDI with respect to the European Interoperability Framework could be suitable. It could allow SDI managers/stakeholders to auto-verify strengths and weaknesses on which to take actions in order to improve the interoperability of their organisation, in tune with the definition of such a characteristic given in the EIFv2.0, hence orienting its services towards Pan-European eGovernment services.

Another goal of ESDI-Net+ has been, thanks to the Best Practices award, that of putting in network organisations both well-known ones, e.g. Catalunya in Spain, North-Rhine Westfalia, Germany and less-known ones, e.g. IDERioja in Spain, X-Border-GDI (NL, BE, D). That is a useful wealth for other SDI or Public Administrations that aim at creating similar organizations, also in terms of availability of those SDIs managers' expertise. For instance, whilst the promotion of Best Practices (by means of workshops, magazine articles, etc.) pushes the dissemination of SDI experiences and the improvement of awareness, at the same time an external expert could help a staff to improve and speed up (to pull) an SDI creation or further development process, thanks to his previous experience achieved "in the field".

Absolutely, eSDI-Net+ network can be seen – within the international SDI community – as a first nucleus of a mutual aid organization able to help the solving of different kinds of urgencies arising in the context of an SDI development process and during an SDI management activity.

9 Sustainability and future perspective: eSDI-NET+ a network to be continued

“...there is no doubt that the richness of technical work, the contacts established and above all the value of each partners are precious aspects that surely will continue to bear fruit in the future. It was a constant learning and challenging, but overall very positive.” Rui Manuel Dias, USIG, Portugal

Creating a sustainable network

The creation of a long-term sustainable network for the partners of the eSDI-Net+ project, for the users of its network and its stakeholders is one of the project's objectives. This is also the reason for the strategic involvement of all groups of stakeholders, since it allows the establishment of strong synergistic partnerships which will continue after the project end.

The long-term sustainability of the project beyond the project period will be under the leadership of EUROGI, the European Umbrella Organisation for Geographic Information (www.eurogi.org). This ensures a long-term perspective for the investment of the European Commission towards the implementation of a European Spatial Data Infrastructure (ESDI).

EUROGI envisages continuing the update of the database of SDIs as well as the series of showcase workshops. The SDIs and the partners of the network will be involved in essential activities of thematically related projects of EUROGI. Personnel will be allocated to support the development of the eSDI-Net+ network and PR measures. The current eSDI-Net+ website will be integrated in EUROGI's website and will be maintained by EUROGI, showing the ongoing developments of the network.

Dissemination and awareness raising activities will also be continued, in order to address not only the sub-national SDIs, but other stakeholders and decision makers in this context. The establishment of strong links to e-Government projects, institutions and key players, such as Spatial Data Interest Communities (SDICs), Legally Mandated Organisations (LMOs) and the Joint Research Centre (JRC) will be fostered. Creating further synergies with international and European GI communities and decision makers is also envisaged.

The eSDI-Net+ project has a strong focus on Europe and the INSPIRE implementation process. Its results related to the SDI assessment methodology and the experiences in evaluating SDI Best Practices can also be useful as a model for an international discussion. A long-term perspective of the project is therefore to create a platform for the discussion and exchange of experiences which will be of considerable interest not only for the SDI developers and users of sub-national, national or regional SDIs in Europe, but also for the dialogue in other regions of the world, working on similar developments.

Generation of impulses at the European level

An ongoing activity will be to strengthen the linkages to related projects and initiatives in order to facilitate better outcomes in terms of integration and dissemination. All projects with related goals and activities are invited to contact the project coordinator to identify and discuss possible synergies and potential fields of collaboration.

The establishment of communication mechanisms between the European and the sub-national level is one of the main objectives of the eSDI-Net+ project. To maximize benefits of INSPIRE and GMES, the consortium has collaborated and exchanged information with JRC as the agency that is technically responsible for INSPIRE and EUROSTAT. JRC has been regularly informed about project results and has been sent invitations to relevant project meetings, conferences and workshops. This is a substantial support for the project to build up an integrated view of experts and foster creation of integrated guidelines, standards, and to implement best practices.

There also is substantial added value in European collaboration within the Network as none of the possible players has the critical mass in human or financial terms to undertake the work alone. As a result the networking co-operation process during the project they now complement one another: In this way European collaboration increases access to pooled resources and technology transfer and emulates the 'global' marketplace. The Network adds a wider dimension to this work within a collaboration and technology transfer between new and old EU countries. The final eSDI-Net+ results are of mutual benefit to old and new EU countries collaborators, trading in both directions.

The existence of multi-cultural and multi-thematic interest groups within the Network has stimulated consensus on standards, methods and best practices and helped to overcome some of the language, knowledge and cultural barriers that presently affect the accessibility and usability of Geographical Information and the establishment of SDIs.

The harmonisation of spatial data, as a result of the INSPIRE Directive, involves organising thematic data (such as administrative units, transport networks, buildings and land parcels, land cover, etc.) in a coherent model. At the data level coherence ensures that different data sets can be joined together. At the data set level metadata must also be defined to allow discovery and searching using terms which can be understood in different languages and by different user communities. Improving the interoperability of data and services, hence optimising the data and information flows, is one of the main objectives of the INSPIRE Directive. Only a European wide network can reach these goals.

The eSDI-Net+ network is becoming a powerful tool that contributes to Europe's ability to face new challenges and threats through open access to information which is of strategic importance for the prosperous development of nations and regions. Its impact also favours an awareness, knowledge of and usage of INSPIRE principles. Being conceived as a "Network of Networks", eSDI-Net+ is

progressively evolving into a fully integrated network where the benefits of sharing stand-alone data and information from heterogeneous sources, selecting, aggregating and translating them, are widely understood and appreciated within stakeholders and user communities, together with the opportunity of adopting common standards and specifications. This also facilitates the adoption of current environmental EC policies that have a strong territorial impact where good quality geographic information plays a fundamental role.

Influence on the development of potential markets

The network has mainly had an impact on knowledge and awareness, which guarantees that much of the project output will be intensively reused. The transferred project knowledge has a high economic potential that is mainly represented by standard technical solutions that are transferable to other regional contexts, as well as being exploitable by commercial stakeholders or further developed by the network through other funded projects.

The eSDI-Net+ project catalyses the collaboration of many GI market players and fosters the development of a Single Market and the achievement of economies of scale. In this way eSDI-Net+ moves forward the development of digital content in the GI area, one of the most important areas of public interest in Europe. This development would occur at a much slower pace, if left to market forces alone.

Fostering experience exchange at the national and sub-national level

The framework used to analyse sub-national and thematic SDIs proved to be effective in assessing them but complex to operate. It involves a lot of work for the organisation responsible for each identified SDI and for the SDIs officers themselves. On the other hand, SDI officials are keen to identify possible targets and opportunities for their own endeavours as well as to compare themselves with other SDIs. Lack of resources for such tasks is often quoted and budget restrictions may limit the ability to travel abroad and physically meet other SDIs. Nevertheless, if benchmarking is considered to be an important issue, then some form of additional competition to identify Best Practice SDIs may be necessary.

In order to overcome such limitations, it may be important to provide tools that will enable each SDI to self assess its operation, identify its maturity level and timeline and find equivalent SDIs or SDIs that are ahead. The concept will involve the development of a web-based questionnaire that each SDI can fill in, including mandatory code lists that enable comparisons throughout Europe. The responses to each of these questionnaires will populate a database and a system, starting from the present database, which will also provide contacts of the closest SDIs according to the scores. Having done the assessment once, the SDI staff may repeat this process at a later stage. This will enable them gradually to develop their own trajectory and compare it to the trajectories of similar SDIs.

Such a system may also generate reports that will describe how the SDI situation is developing in different European countries, and provide information on how INSPIRE is being implemented at the sub-national level, thus complementing the national reports that the Directive asks each country to regularly provide.

Related projects and initiatives

The eSDI-Net+ project partners are working on the linkage to other projects and initiatives in the field of GI/GIS for better outcome integration and to identify possible synergies and potential fields of collaboration.

INSPIRE Directive

<http://inspire.jrc.ec.europa.eu/>
eSDI-Net+ works in close collaboration with the INSPIRE DT for monitoring and reporting through its co-chair Danny Vandembroucke (eSDI-Net+ partner K.U.Leuven R&D) in order to define the criteria which are necessary for assessing the sub-national SDI's in view of the selection of good practices. Practically, the approach of eSDI-Net+ took into account the on-going INSPIRE State of Play study, the deliverables of the INSPIRE DTs, as well as the discussions within the broader INSPIRE community as reflected through the INSPIRE conference.



GMES

<http://ec.europa.eu/en.htm>

In 2008, GMES pre-operational services were launched, with the objective to move into the operational phase in 2011. The definition and setting up of these pre-operational services have been assigned to projects financed through the Research and Development Framework Programmes of the European Union. eSDI-Net+ project collaborates with several GMES projects.



GMES project



HUMBOLDT

www.esdi-humboldt.eu

The EU project Humboldt contributes to the implementation of a European Spatial Data Infrastructure (ESDI) that integrates the diversity of spatial data available for a multitude of European organisations. It is the aim of this project to manage and advance important parts of the implementation process of this ESDI. The partner Fraunhofer IGD as the Co-ordinator of the HUMBOLDT project and the eSDI-Net+ coordinator, the Technical University of Darmstadt as Dissemination WP Leader in HUMBOLDT consortium have established a strong relationship between these two projects in order to promote synergies and to complement the dissemination activities of the both consortia. GISIG, who is responsible for the training activities within HUMBOLDT, communicates user requirements and stakeholder needs among the participants of both of the projects.

eContentplus projects



GIS4EU

<http://www.gisig.it/gis4eu/>

The project aim is to provide base cartography datasets (administration units, hydrography, transportation networks and elevation themes) for Europe and to ensure its cross scale, cross language and cross border interoperability and accessibility according to standards and to requirements of INSPIRE Directive (2007/2/EC). The approach consists in the development of a common data model as well as of harmonization, aggregation and data exposition rules and guidelines in order to



enable the access to the consistent and homogeneous reference data provided by cartographic authorities from different countries and levels (national, regional and local) without building one central database and service. After GIS4EU full implementation, there will be a significant progress noticed of accessibility, usability and exploitation of reference data through Europe. The eSDI-Net+ partner GISIG established a connection between the projects eSDI-Net+ and GIS4EU.

Nature-SDIplus

www.nature-sdi.eu

Nature-SDIplus Network aims, through state-of-the-art methodologies and best practice examples, to improve harmonisation of national datasets and make them more accessible and exploitable. Therefore, it contributes to the INSPIRE implementation with specific reference to a cluster of data themes on nature conservation (as per the INSPIRE Annexes). Both networks, eSDI-Net+ as well as Nature-SDIplus combine dissemination and awareness efforts in order to reach the GI community and increase exchange of experiences in topics related to INSPIRE and SDI best practices. Especially the partner GISIG being responsible for dissemination and awareness work package provides the necessary link between the projects. Further partners are involved in both projects and foster information exchange.



EURADIN

http://www.eurogi.org/pooled/articles/BF_NEWSART/view.asp?Q=BF_NEWSART_304387

EURADIN is a Best Practice Network co-funded by the EC eContentplus Programme, which aims to promote the European Addresses harmonisation. The emphasis is in defining how access to existing address data should be made to ensure the interoperability of existing address data and working out a strategy on how to build up access services to national or regional addresses infrastructures. The projects main result is the proposal for the European Addresses Infrastructure and its implementation, testing, and validation. The results shall be used as a

reference for all European Member States to fulfil the INSPIRE recommendations with respect to addresses.

The EURADIN partnership gathers 30 partners from 16 different European countries, covering 59% of the EU Member States. After a long time commitment to the Addresses issue, the eSDI-Net+ partner and WP2 leader EUROGI strongly supports EURADIN since its very beginning, being one of the partners and the leader of Work package on Networking &

Dissemination.



One Geology Europe

www.onegeology-europe.eu

OneGeology-Europe is a large ambitious project to make geological spatial data further known and accessible. The OneGeology-Europe project develops an integrated system of data to create and make accessible for the first time through the internet the geological map of the whole of Europe. The elaboration of several data sets owned by the national European geological survey is carried out in accordance with the requirements of INSPIRE, the recent European Directive which sets guidelines for the elaboration of territorial data. OneGeology-Europe has 29 partners within the consortium from 20 nations. There are 20 Geological Surveys (data providers), 7 representatives of the users community, and expert on legal aspects of geographical data access and umbrella organisation for all the Geological Surveys of Europe. The goals and partners of the project make it relevant for eSDI-Net+ especially being a link to the users and stakeholders of the network.

Plan4all

www.plan4all.eu

Plan4All is a European Network of Best Practices for Interoperability of Spatial Planning Information. The harmonisation of spatial planning data according to the INSPIRE Directive based on the existing best practices in EU regions and municipalities and the results of current research projects is the main focus of the eContentplus project Plan4all. The expected results are European forums for SDI in spatial planning, a database of best practices and analysis of best practices in terms of organisation, sharing, harmonisation and SDI recommendations for spatial planning. The whole sector should profit from the availability of understandable and more transparent planning information across Europe. Although there are basically the same ideas and concepts behind urban and spatial planning across Europe, the legal situation is completely fragmented. Current planning laws are disjointed and even experts from one country might have difficulties to understand the planning regulations of a neighbouring country. For

investors and decision makers it is almost impossible to compare planning regulations across Europe. Plan4all will significantly contribute to improve this situation.

Other related projects



CASCADOSS

www.cascadoss.eu

The CASCADOSS Project aimed at building up a critical mass of Open Source users within the GMES (Global Monitoring for Environment and Security) society to support each other in finding open source solutions for environmental related problems. eSDI-Net+ collaborated with CASCADOSS in following areas: GIS and Remote Sensing Open Source Software Evaluation and best practices in GIS and Remote Sensing Open Source Software.

consequent to the always increasing importance of GI in the new European dimension, that dramatically changes the way of working of the GI experts, GI operators, end-users, educators, developers etc. Within this project, the eSDI-Net+ partner GISIG is responsible for the training framework and the VESTA "certification". He established a connection to this project.



SPATIALIST

www.spatialist.be

Spatialist is a research project on SDI for public sector innovation financed by the Flemish Government. eSDI-Net+ partner K.U Leuven is directly involved in the activities of the project SPATIALIST contributes actively to the establishing of a synergistic relationship between these projects. A link to the eSDI-Net+ project on the website of the SPATIALIST project has been created for dissemination and awareness raising



reasons.



VESTA-GIS

www.vesta-gis.eu

The VESTA-GIS Network intends to set up a favourable context for enhancing professional skills at European level in the changing labour market



NESIS

www.nesis.eu

NESIS is a Network to enhance a European Environmental Shared and Interoperable Information System. The NESIS aim is to promote the uptake of ICT solutions by public authorities in providing information for the monitoring and reporting of environmental impacts and threats. By supporting a shared vision towards an interoperable information infrastructure, the Network fosters the creation of the Shared Environmental Information System (SEIS) and a coherent frame for existing best practice. The Network grounds on the experience of the EIONET Community, a Network of some nine hundreds experts from over three hundreds national environment agencies and other bodies in 38 European Countries. The Network Consortium is composed of partners from among 14 EU and Associated Countries, most of them as aforesaid EIONET National Focal Points, thus guaranteeing the involvement and commitment of the SEIS main actors. The thematic Network approach allows bringing together stakeholders through workshops, exchange of best practice, and a dedicated website linked to the EIONET and INSPIRE portals. The leading criterion is to evolve towards a distributed, standards-based infrastructure for spatial and non-spatial environmental information, grounded on the principle of shared access rather than centralised reporting. NESIS is co-funded by the Competitiveness and Innovation framework Programme (CIP) - Information and Communication Technologies (ICT) - Policy Support Programme (PSP) of the European Commission.

Glossary



INSPIRE

<http://inspire.jrc.ec.europa.eu/>

In Europe a major recent development has been the entering in force of the INSPIRE Directive in May 2007, establishing an infrastructure for spatial information in Europe to support Community environmental policies, and policies or activities which may have an impact on the environment.

INSPIRE is based on the infrastructures for spatial information established and operated by the 27 Member States of the European Union. The Directive addresses 34 spatial data themes needed for environmental applications, with key components specified through technical implementing rules. This makes INSPIRE a unique example of a legislative “regional” approach.

Directive 2007/2/EC of the European Parliament and of the Council of 14 March 2007 establishing an Infrastructure for Spatial Information in the European Community (INSPIRE) was published in the official Journal on the 25th April 2007. The INSPIRE Directive entered into force on the 15th May 2007.

To ensure that the spatial data infrastructures of the Member States are compatible and usable in a Community and transboundary context, the Directive requires that common Implementing Rules (IR) are adopted in a number of specific areas (Metadata, Data Specifications, Network Services, Data and Service Sharing and Monitoring and Reporting). These IRs are adopted as Commission Decisions or Regulations, and are binding in their entirety. The Commission is assisted in the process of adopting such rules by a regulatory committee composed of representatives of the Member States and chaired by a representative of the Commission (this is known as the Comitology procedure).

GMES

http://ec.europa.eu/gmes/index_en.htm

The European Earth Observation Programme (GMES) provides data useful in a range of issues including climate change and citizen's security. Land, sea and atmosphere – each Earth component is observed through GMES, helping to make our lives safer.

The purpose of GMES is to deliver information which corresponds to user needs. The processing and dissemination of this information is carried out within the "GMES service component".

The thematic areas within the GMES service component comprise:

- Land, marine and atmosphere information – ensuring systematic monitoring and forecasting the state of the Earth's subsystems at regional and global levels;
- Climate change information – helping to monitor the effects of climate change, assessing mitigation measures and contributing to the knowledge base for adaptation policies and investments;
- Emergency and security information – providing support in the event of emergencies and humanitarian aid needs, in particular to civil protection authorities, also to produce accurate information on security related aspects (e.g. maritime surveillance, border control, global stability, etc.)

The GMES service component depends on Earth observation data, collected from space (satellites), air (airborne instruments, balloons to record stratosphere data, etc.), water (floats, shipboard instruments, etc.) or land (measuring stations, seismographs, etc.). These facilities are called the GMES infrastructure component; non-space based installations in the GMES infrastructure component are generally referred to as "in situ component".

Spatial Data Infrastructure (SDI)

Formal definition: The technology, policies, standards and human resources necessary to acquire, process, store, distribute and improve utilisation of geospatial data' (Source: GSDI Cookbook).

Informal definition: The basic arrangements for combining, processing and making available spatial data in forms and ways which meet user needs and capacities. (Source: Francois Salge, European SDI Best Practice Awards 2009, International Conference, November 26-27, Turin, Italy)

An SDI differs from:

- WEB GIS: GIS facilities over the Web
- GIS with Web facilities: desktop GIS that connects to web servers

eSDI-Net+ consortium

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www.ge.imati.cnr.it

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www.eurogi.org

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www.igd.fraunhofer.de www.fokus.fraunhofer.de

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www.gisig.it

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A detailed description of the consortium members is available at
www.esdinetplus.eu/partners.

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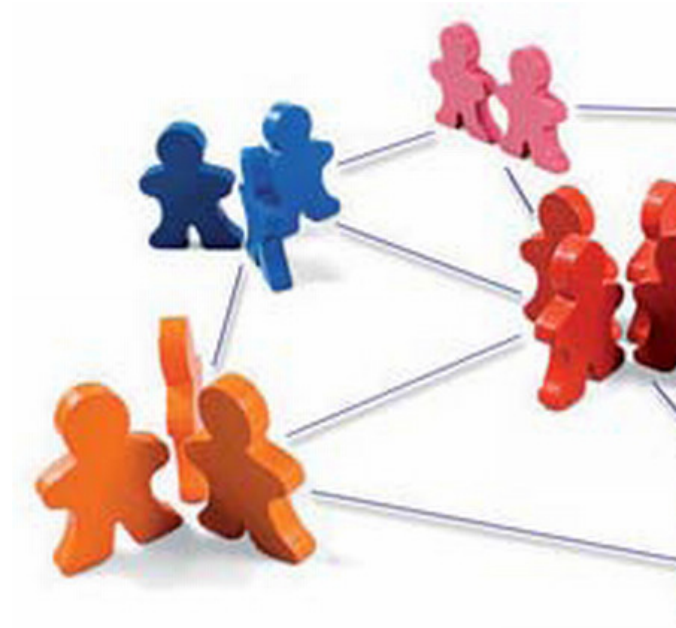
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