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Implementing SDIs: the sub National Dimension

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The spatial data infrastructure (SDI) field goes back twenty years but it did not really take off until about ten years ago. Since then it has been transformed by two momentous developments. The first of these 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 second generation of SDIs from national (strategic) SDIs to sub national (operational) SDIs (Masser 2009). Whereas a great deal of the discussion in earlier years revolved around talking about (national) SDIs much more time is currently being spent of discussing different ways of doing (sub national) SDIs and success at the sub national level has become a crucial yardstick of overall success.

These two developments have been recognised in a number of recent European initiatives. These include a workshop on Advanced Regional SDIs that was held at the Joint Research Centre in Ispra in May 2008 (Craglia et al 2009) and the series of workshops organised throughout Europe as part of the eSDI-Net+ project (<http://www.esdinetplus.eu/>), a thematic network co-funded by the eContentplus Programme of the European Commission.

The ESDI-NET+ project

This project is coordinated by the Fachgebiet Graphisch-Interaktive Systeme from the Technische Universität Darmstadt in Germany. It aims to bring together key European SDI stakeholders to share knowledge and to provide a platform for communication and knowledge exchange at all levels, from local to global. The Network identifies working, accessible and intelligible solutions, as it communicates the purpose and aims of INSPIRE; it also encourages local collaboration in setting up innovative solutions.

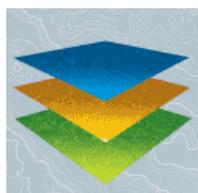
SDIs throughout Europe were invited to submit their best practice and be part of a fast growing network of SDIs (see for example Salge et al 2009). After an initial evaluation of the applications, a number of promising SDIs has been selected for detailed interviews to provide further information. Each 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 project
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

A total of 135 submissions were received from SDIs in 26 different European countries as a result of the workshops that were held throughout Europe during the last half of 2008 and the first half of 2009. The project coordinators created a six person jury consisting of three members selected from the project partners (Danny Vandenbroucke, Francois Salge and Franco Vico) and three from the project's Advisory Board (Max Craglia, Bastiaan van Loenen and Ian Masser) to evaluate these submissions.

The jury selected twelve outstanding Spatial Data Infrastructures (SDIs) from 9 European countries. These were invited to make presentations at an International Conference on November 26th and 27th 2009 in Turin, Italy. The event sought to highlight promising SDI solutions in Europe, to exchange experiences and to learn from each other. The conference was organised by the European project eSDI-Net+ and hosted by Regione Piemonte. It attracted an international audience of about 130 professionals engaged in SDI and related GI activities at the European, national, regional and local levels.

The presentations at the eSDI-NET+ conference highlight the diversity of current practice at the regional and local level in Europe and raise some important questions about the nature of SDIs. While some presentations dealt with



the classic case of a 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.

This diversity can be seen from the main features of each of the SDIs. The presentations were grouped into four categories:

- Technology, with particular reference to quantitative and qualitative aspects of data and service quality
- Organisational and institutional aspects including cooperation and subsidiarity as well as sustainability
- User involvement, and
- Thematic SDIs

Technological Aspects

Three presentations were made in this category. The first of these 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 Informacao Geografica (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.

Organisational and Institutional Aspects

Three presentations were made of SDIs that were primarily selected as best practices with respect to their treatment of organisational and institutional aspects. The presentation of the Centre Regional de Information Geographique for the Provence-Alpes-Cote d'Azur (CRIGE-PACA) described the development of a SDI for the public sector in a large region extending over six Departements in south east France where one job in every five is in the tourism industry. The strong thematic dimension to this SDI was evident from the twelve different applications that had been established and the staff saw one of their main objectives as coordinating communities of practice within the region. The second presentation about the development of the SDI for the state of Nordrhein-Westfalen in Germany also covered a large area. Its population of more 18 million is more than that of many European Union member countries. An important feature of this SDI is the strong links that exist between the state organisation and the municipalities in the region because the lower level authorities were 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. The final presentation in this section was by staff from the Infrastruttura per l'Informazione Territoriale della Regione Lombardia in Italy. This SDI was strongly driven by spatial planning considerations and its main emphasis was on the creation and maintenance of a regional topographic database which acts as a platform for other applications. Information held in this database was also made freely available to private sector users.

User Involvement

Two SDIs 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 were 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 provinces, three Belgian provinces and 12 districts (Kreis) 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.

Thematic SDIs

This group 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 it was 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, was 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.

Everyone's A Winner

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 practice in the whole of Europe.

The next stage of the eSDI-Net+ project will promote these best practices as examples of successful SDI developments through its website and further publication. The project partners will also provide those experiences made with the analysis, evaluation, and best practices in national and regional workshops, as a return of investment to those, who participated in the award selection process and to showcase those SDIs to the community to build up further awareness about needs and opportunities the development of Spatial Data Infrastructures will have in the future on the regional, national and European level following the INSPIRE initiative.

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Website of the project eSDI-Net+ www.esdinetplus.eu/

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