



# Spatial Data Infrastructures in Europe: State of play Spring 2005

Summary report of Activity 5 of a  
study commissioned by the EC  
(EUROSTAT & DGENV) in the  
framework of the INSPIRE initiative

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# 1. EXECUTIVE SUMMARY

This report summarizes the findings of the last update of the INSPIRE – State of Play study of the European Commission which started in August 2002 and ended in August 2005. Early 2005 the 32 countries studied were contacted to provide input on the status of the (N)SDI (92 experts). Feedback was received from 24 of them. Based on this and through the visit of the most pertinent websites, the review of a limited number of new publications and the consultation of other SDI-experts, we were able to improve and update the state of play reports of 2004 regarding the NSDI in 32 European countries. Based on the 32 updated country reports we compiled an overview table displaying the major characteristics of the NSDI in spring 2005 and compared it with the situation of 2004 and 2003. As was the case for 2003 and 2004, the overview table was summarized into a simple classification of the NSDI, which again was compared with the similar classifications for 2003 and 2004.

The country reports and hence the overview table compiled for the 32 countries is more complete than it was in 2003 and 2004. In addition a number of errors or doubtful interpretations were corrected. Countries for which most new or more correct information was collected are: BE, DE, ES, FR, PT, SE, UK, CZ, EE, LT, PL, SK, SI and LI. Most changes occurred in the categories 'Organisational Issues', 'Metadata' and 'Access Services'. For the former category, especially the level of operationality has changed or – and this can not be seen in the change matrix - intensified. A lot of web mapping, data catalogues and related services, and portals saw light or were further developed. A lot of work was also done in the field of standardization and interoperability (often through projects).

As a result of the changes which occurred and the corrections which were integrated, the typology of NSDI was slightly modified: ES and SK shifted one operational level, while BE (national level) entered the typology since this level was not described before. The small shifts in the typology could be expected since several countries were already classified in 2004 as operational or partially operational, since most of the activities were not new, but rather an intensification of existing activities or since in some cases countries stated that during the year nothing changed fundamentally even if a lot had happened (some of them waiting further development of the INSPIRE Implementing Rules, other in the process of reviewing their NSDI). It should also be noted that in some countries like NL or IT, it is known that a lot of things are going on, but this is not yet reflected in the country reports and hence not in this summary report neither.

The updated country reports reveal that the INSPIRE initiative and its proposal for a Directive has a considerable impact, especially with regard to the organization and coordination efforts in each country and the preparation or modification of legislation. In addition, there is also a clear impact on the technical activities: focus on standardization, development of catalogues and catalogue services, mapping services. This influence can also be seen through different (EU) projects that are referring to- or are based on the INSPIRE principles. This summary report also gives some recommendations which are based on the practices and concerns in the countries studied and which could be useful for (the preparation of) the implementation phase of INSPIRE.

In parallel, the country reports were analyzed to extract all the information regarding the legally mandated organizations (LMO). The Call for Expression of Interest of March/April 2005, launched by the Commission in view of the preparatory phase of the implementation of the INSPIRE proposal for a Directive, generated also some additional information on the LMO and their activities. Based on this material, a complete table for the 32 countries was drafted. One of the conclusions that can be drawn from this list is that clear mandates for building (parts) of the components of the NSDI are often lacking or that some mandates are rather fuzzy in relation to the NSDI. Often the legal reference for this mandate could not be found. Nevertheless, the list can be used as a starting point for further collecting this information and it can be modified in later stages to reflect changes.

It was also decided to extract the information of all the points of contacts of the National, Regional and Local SDI into one table for reference: the 'who-is-who' on SDI in Europe.

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### 3. ABBREVIATIONS AND ACRONYMS

The following list presents the abbreviations and acronyms commonly used in this report. Abbreviations and acronyms used in the annexed country reports are listed in those reports.

EC	European Commission
EFTA	European Free Trade Association
ESDI	European Spatial Data Infrastructure
EU	European Union
FOI	Freedom of Information
GI	Geographical Information
GII	Geographical Information Infrastructure
GIS	Geographic Information System
GMES	Global Monitoring of Environment and Sustainability
GSDI	Global Spatial Data Infrastructure
INSPIRE	Infrastructure for Spatial Information in Europe
ISO	International Standards Organisation
JRC	Joint Research Centre of the European Commission
LSDI	Local Spatial Data Infrastructure
NA	Not Applicable
NDP	National Data Producer
NMA	National Mapping Agency
NGO	Non Governmental Organisation
NIA	No Information Available
(N)SDI	(National) Spatial Data Infrastructure
PPP	Public-Private Partnership
PSI	Public Sector Information
RSDI	Regional Spatial Data Infrastructure
TEN	Trans European Network
TSDI	Thematic Spatial Data Infrastructure

## 4. INTRODUCTION

In 2001, the European Commission initiated the INSPIRE initiative. It was based on the observation that the accessibility, interoperability and affordability of spatial data and information systems were limited. It was generally recognised that this situation prevents society to fully benefit from the potential of the technology to improve the relevancy, accuracy, impact and public control of territorial policies and related decisions at all scales and to involve citizens, businesses, non governmental and research organisations in a participatory information society.

With the INSPIRE initiative, the European Union – in collaboration with all the relevant stakeholders - intends to establish an infrastructure for spatial information in Europe that will allow the public sector users at the European, national, regional and local levels to share spatial data from a wide range of sources in an interoperable way for the execution of a variety of public tasks at conditions which do not restrain its use. Moreover, users in private, research and NGO-environments and the citizen will be offered services to discover, access and view these spatial data sources. Environmental policies, for which the spatial dimension constitutes an important component, have been chosen as the starting point to establish this spatial infrastructure.

To reach these objectives, the European Commissioners of Environment, Economic and Monetary affairs and Research agreed in 2002 about a Memorandum of Understanding, not only recognising the problem but also indicating the steps to be taken to develop such an infrastructure. One of the key elements in the MoU was the need for a legislative framework. In order to develop the INSPIRE legislation, all GI stakeholders were mobilised in relevant working groups in order to prepare the drafting process of the proposed INSPIRE proposal for a Directive. Mid 2004, the proposal for a Directive of the European Parliament and of the Council - *Establishing an infrastructure for spatial information in the Community (INSPIRE)* - saw light.

The EC, the INSPIRE expert group and all the stakeholders recognised that the building blocks for a European spatial information infrastructure consist of the operational or emerging national, regional and local SDI. However, in 2002, the Commission had only a partial view of what was going on in Europe.

Therefore, the EC launched a study, *“Status of the National Spatial Data Infrastructures in Europe, a State of Play”* covering the period mid 2002- mid 2005, to describe, monitor and analyse the activities related to the national spatial data infrastructures in 32 European countries: 25 EU Member States<sup>1</sup>, 3 Candidate Countries and 4 EFTA countries. The major activity of this study is to collect and structure all the relevant information on the status of the 5 components which form together an SDI: legal framework and funding, reference data and core thematic data, metadata, access and other services, and standards. It was decided to study a sixth component, i.e. thematic environmental data.

This report presents the state of play in Spring 2005 of SDI and their building blocks in these 32 European countries. The report is conceived as an annex to the State of Play, spring 2003 and 2004 reports. Especially changes which occurred between 2005 and 2004 and between 2005 and 2003 regarding the state of NSDI are highlighted.

Alike for spring 2003 and 2004, focus is on the state of play of the general purpose SDI-efforts which are ongoing or planned at the national public sector level.

The report is conceived as follows:

- The next (fifth) chapter recalls the objectives of Activity 5 of the State of Play study of which this report is a deliverable;

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<sup>1</sup> At the time the study started, there were 15 Member States and 10 Accession Countries.

- The sixth chapter relates to the 'materials and methods' for this study. The approach and methods are presented used to (i) collect the relevant information and process it into updates of the country reports and (ii) update a simple typology for the studied SDI, SDI-components and SDI-likes.
- The results are summarized in chapter seven. It provides an overview table of the state of play of SDI for each of the 32 countries in spring 2005 but also includes a matrix highlighting changes which occurred between 2003, 2004 and 2005. Also the outcome of the typology exercise for 2005 is presented and compared with the one elaborated for 2004 and with the status in 2003.
- Chapter eight contains observations on how the INSPIRE proposal for a Directive affected (affects) the development of the NSDI and gives some recommendations on how the development of the described SDI could help in implementing the INSPIRE proposal for a Directive once it will have been adopted.
- In separate volumes, annexed to this report, the 32 updated country reports are presented. Two templates are annexed as well: the first one summarizing all NSDI contact points in Europe ('who-is-who'), the second one giving an overview of the legally mandated organisations regarding the (N)SDI in the respective countries.
- An executive summary, which can also be read in terms of a number of conclusions of the study, is available as the first chapter.

## 5. OBJECTIVES OF AND ASSUMPTIONS FOR THE STUDY (ACTIVITY 5)

### 5.1 Objectives of Activity 5

An SDI consists of several components (GSDI Cookbook, v2) and most European countries are in the progress of developing or have made plans to develop some -but not necessary all- of these elements. Most of the players are continuously producing or updating data and metadata, improving procedures and standards, changing national and international collaborative agreements, copyright or data access policies. With this in mind, it was judged useful to not only describe the state of play of NSDI in Europe at one moment in time (i.e. spring 2003) but also to monitor the dynamics of the NSDI over a period of 2 more years. Activity 4 of the study was devoted to the first update, valid for spring 2004. A second update, valid for spring 2005, has been carried out between December 2004 and June 2005 and covers Activity 5 of the study. In order to be able to enable comparison and change assessment of the status of the SDI between 2003-2004-2005, the approach and reporting format for both Activities 4 and 5 are similar.

Additional objectives for Activity 5 were:

- To assess the current impact of the INSPIRE proposal for a Directive.
- To analyse the measures taken by the MS after the adoption of the INSPIRE proposal for a Directive for the work to be done in the Preparatory Phase.
- To assess the financial benefits (incl. an indication of winners/losers if any).

### 5.2 Assumptions for the study

Throughout all activities of this study, the emphasis is on general purpose SDI-initiatives, i.e. SDI for which the promotion of the sharing and re-use of reference and core thematic data is the core activity. In all countries this type of SDI is developed mainly by public sector players, in most cases in collaboration with the private sector. SDI focusing on thematic environmental data have also been considered but other types of thematic SDI have only been mentioned. Secondly, attention was focused on initiatives focusing the national scale, i.e. NSDI, rather than lower level initiatives.

However, when a national SDI is clearly lacking and regional SDI are strongly developed we also focused on either the most important, best developed or the most representative lower level SDI in that country. Especially in decentralized countries regional SDI are often pertinently present. For example, although efforts are made in Spain to develop a NSDI, we included a description of the more advanced regional SDI-initiative of Catalunya. In the case of Belgium the three regions (Flanders, Wallonia and Brussels) are each independently developing their own SDI and these initiatives are hence described.

Comparison of NSDI is done for the national level only in order to guarantee comparability.

Only freely accessible resources and known contacts are used to describe the state of play spring 2005.

## 6. APPROACH

### 6.1 Update of the identification and description of (N)SDI-initiatives in 32 countries

Activity 5 clearly builds upon the results of Activities 1 to 4 of the study. And especially the update 2004 was used as a starting point for the analysis in 2005. The regular country reports presented as one part of the results of Activity 4 were used as the basis for the 2005 update. They were made available to NSDI-experts and the wider public through the INSPIRE website in the fall of 2004 (<http://www.ec-gis.org/INSPIRE>). In March 2005, a selected number of experts were contacted in person and invited to provide input for the update of the State of Play of 2005 (by e-mail). They were asked for particular additions, comments and corrections before the end of May 2005 (50 e-mails were sent to 97 people). A reminder was sent out in May 2005. From the 32 countries contacted, 24 have sent material that could be used for updating the country report, for the other 8 countries we received indirectly some feedback/information or we could rely on information collected through review of documents and/or websites. Additional material was also collected during GI events like GIS-Planet (Estoril) and the EC GI&GIS workshop (Alghero).

For the sake of completeness, we repeat below the way in which the Spring 2003 and 2004 version of the 32 country and summary reports have been elaborated:

- From the reference characteristics of the five components of an ESDI (Legal Framework and Funding Mechanism, Geographic data (i.e. Reference and Core Thematic Data, Thematic Environmental Data), Metadata, Access Services, Standards) as identified in the final version of the Position Papers of five of the INSPIRE working groups<sup>2</sup> we compiled late 2002 an exhaustive list of items according to which the (N)SDIs could be described. This resulted in a so-called check-list based on which the relevant elements could be extracted from the consulted information sources. After rearranging, the list was used as the template for the description of the (N)SDI in the country reports;
- The description was performed in two stages, resulting in a first and a second version of the country report. Compared to the structure of the first version, the second was extended by sections containing report meta-information, an executive summary and a section on the method used to compile the report. Section titles for which no information could be found have been dropped in the second version;
- In the first stage (September – December 2002), the country reports were compiled based on the consultation of various web sites, documents and project references readily accessible. Most resources were gathered from the internet;
- Since for some countries, almost no information could be found in this way, some key persons were contacted. However this could not be done for all countries in the limited time and budgetary frame. In addition, a list of information sources has been sent to all INSPIRE Working Group members in order to get feedback about its completeness. Sporadically, new data sources could be identified that way;
- 31 country reports (Switzerland and Liechtenstein were combined in 1 report) resulted from the first stage. This means that in every country at least one NSDI- or NSDI-related initiative was found. In each of them, the consulted information sources were listed in the last chapter;
- In the second stage (April-June 2003), the country reports were submitted to experts in each of the 32 countries. The experts were identified through the INSPIRE expert committee. In some countries, the report was handed over to other organizations and persons for further update. In this way, for most of the reports,

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<sup>2</sup> The five INSPIRE working groups dealt with Architecture and Standards, Data Policy and Legal Issues, Implementation Structures and Funding, Reference Data and Metadata, Environmental Thematic User Needs)

corrections and updates were provided. The name and affiliation of the then contributing experts is still available in the present version reports which are annexed to this summary report (Annex 11.1 – see meta-information).

- Through the visits to nine countries performed in the scope of Activity 2, some extra information could be collected which, where relevant, was added to the country reports spring 2003.

The resulting country reports were used for the update of 2004 which in turn were used to produce the update of 2005 as mentioned earlier.

## 6.2 Comparative summary of the (N)SDI

As was the case in the 2003 and 2004 report, a subset of the information gathered through Activity 5 is presented by country in an overview table (Table 2 in Section 7.1). The presented items relate to a number of organizational issues and to the five generic components of an SDI, as valid for spring 2005. They can be considered as the building blocks of the SDI under study. The items or building blocks are expressed as statements (see Table 1) and the assessment of the studied SDI-initiative has been made in terms of whether it is (1) in full agreement with the statement, (2) in partial agreement, (3) not in agreement or (4) whether not sufficient information is available for assessing the level of agreement. In Annex 11.2, we also include the table as compiled for the 2003 and 2004 situation.

With this type of rating, reality is of course strongly simplified. E.g. the fact that a particular NSDI is evaluated as being in agreement with the three statements about the metadata component only means that substantial work has been done in relation to metadata. This implies that the practical meaning of these 'indicators' to assess progress made over time with respect to metadata production and implementation, is limited.

For every country a NSDI-initiative is assessed. Till 2004, Belgium was not assessed nationally since mainly the 3 regional initiatives had been developed at that time. The initiative at national level was in 2004 not yet consolidated. In the meantime, the national level has been very active and is therefore not only included in the country report but in the overall assessment of Belgium as well. In other countries (Germany, Spain), significant regional initiatives are also deployed. However, since the collected information on these regional initiatives does not cover the entire countries and since at the national level in those countries, relevant activities are ongoing or planned often aiming at interconnecting the regional projects, we have assessed the national level taking into account the regional developments.

The 2004-2005, and the 2003-2004-2005 tables are compared in additional tables highlighting the new or corrected information which has been collected and the progress some countries have made in developing their NSDI.

## 6.3 Typology of (N)SDI in 32 countries

The primary goal of the typology as elaborated for the 2003 report and repeated for the 2004 and in this report for the 2005 situation, is to recognize the different types of SDI for the assessment of their potential contribution for the development and implementation of a successful European SDI. In the typology, we emphasize the matters of coordination since it is obvious that coordination is the major success factor for each SDI and since coordination is tackled in different ways according to the political and administrative organization of the country. The way an SDI-initiative is coordinated is undoubtedly one of its more pertinent characteristics.

In order to make the typology also useful for monitoring purposes, the degree of 'operationality' of the SDI is taken into account. The latter is a rather subjective assessment of the level of the services the SDI is providing, which is based on the assessment of the building blocks of the SDI in Table 2. It does not mean that all characteristics of NSDI as can be derived from the INSPIRE-position papers are in

place. It rather means that production of GI is coordinated to at least a certain extent and that users of GI are supported in finding and re-using GI through SDI-mechanisms.

By comparing the classification of the NSDI of 2003-2004-2005, major changes in the characteristics of the NSDI can be easily identified as shifts between classes of the typology. It is obvious however that the simple and broad nature of the typology cannot lead to the detection of subtle changes.

From the more complete description of the status of SDI for 2003, it was obvious that in almost every European country (Bulgaria was an exception to this at that time), one organization of the NDP-type (NMA, Land Survey Service, Cadastral Agency) is present having the formal mandate to, a.o. maintain the national geodetic reference system, produce topographic reference data and –often- coordinate data production and dissemination with other players. As such the NDP has an implicit mandate to set up an SDI, albeit mainly from the producers' perspective. We considered this as the most basic level of SDI. User communities may or may not be active in steering committees and/or advisory boards for the NDP and NSDI. A GI-association may or may not exist, be active or not.

We distinguished countries with this type of GI-coordination from those where, of course NDP are also present, but where the NMA or another traditional data producer is not the main coordinator of the NSDI. In those countries the SDI is rather driven by a council of ministries or administrative departments, a GI-association or another type of partnership of –mainly- data users. Fundamental to this type of SDI-initiative is that the participants are willing to share each other's spatial data and those acquired from third parties and to remove the obstacles preventing this. From this perspective, participants are mainly users of GI which is acquired from the data producers. The initiative may result in a joint framework for negotiation of the SDI-participants with the data providers for optimal conditions of data characteristics, conditions or licenses for use and re-use, price, access. Such partnerships may be based on (i) a formal mandate or law, (ii) a (temporary) project agreement or (iii) voluntary contributions.

In each distinguished group, the degree of operationality as derived from the presence and accessibility of the other SDI-components was included as a further discriminating factor.

## 6.4 Observations regarding the approach

- It should be underlined that - despite the fact that a lot of INSPIRE stakeholders were involved to describe the State of Play as accurate as possible – the country reports and this summary report do not describe the complete picture of what is going on in the European countries studied. It is known for example, that the private sector is often very active as data producer or service developer. And also the regional and local level shows often a very dynamic GI and even SDI scene. It was however impossible within the timeframe and budgetary limits to describe all the details. Nevertheless, it is thought that the State of Play study gives the most complete picture of the European NSDI scene currently available.
- The country reports – and therefore also the summary report – can not be taken as the official view of the Commission, nor from the country concerned. The value judgment enclosed in the documents in annex and in this report reflects the views of SADL/K.U.Leuven R&D and cannot be taken as being endorsed by the respective authorities. At the same time, the reports do not aim at evaluating or giving an opinion about the NSDI activities or the way these are developed in the respective countries.
- It should also be stressed that different opinions and appreciations of the State of Play (can) exist in the different countries studied. SADL tried to integrate the opinions as much as possible without choosing or supporting one of them. Nevertheless, the State of Play study does not aim at giving an extensive overview of all the opinions existing but took them into account when making the overall assessment.

- The structure of the country reports was elaborated in 2002. In order to make comparison of the status of the NSDI in the different countries possible, it was decided to keep the original structure, even if it does not reflect entirely the components as they have been translated in the INSPIRE proposal for a Directive. For example tables on data availability in section 2.3 were not amended to reflect the detailed definitions that will be adopted for the geographical objects induced by the three annexes of the INSPIRE proposal for a Directive. It is clear that when entering the next phase – the implementation of the INSPIRE Directive once it has been adopted – this should be reviewed. Therefore we also refer to the work to be carried out in the framework of the Monitoring and Reporting mechanisms for the INSPIRE INSPIRE proposal for a Directive.<sup>3</sup>
- One of the problems when assessing the different parameters for setting up the typology is that it does not reflect the intensity, nor the intended or ongoing developments – it describes the only existence or not of legislation, of meta-data catalogues, etc. This makes assessment of where a country really stands more difficult. It doesn't reflect further developments in a country once it is in agreement for a certain parameter. This should be taken into account when refining the methodology for Monitoring and Reporting the implementation of the INSPIRE proposal for a Directive once it is adopted.

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<sup>3</sup> See also “INSPIRE Work Programme Preparatory Phase 2005-2006”

## 7. STATE OF PLAY OF THE SDI, SPRING 2005

### 7.1 General observations and remarks

From the updated country reports (status August 2005), we can already draw some general observations:

- The contribution of the regional and local levels for building the NSDI and activities related to it are becoming increasingly important. The national and regional/local levels are collaborating more and more and are putting agreements in place in order to do so (ES, FI, FR, DE, DK, ...).
- In general more stakeholders find their place in the NSDI and activities of National Mapping Agencies in the framework of the NSDI are becoming more prominent (or at least they communicate more on these activities).
- However, the large majority of countries do not yet have an integrated approach in which the tasks for building and maintaining the NSDI are well defined and divided amongst the different stakeholders.
- Some countries refer explicitly to the INSPIRE proposal for a Directive for modifying and further developing their NSDI (EE, PT, FI, ...). Some are waiting further INSPIRE developments while others are anticipating the implementation of the INSPIRE proposal for a Directive.
- The status of the construction of some of the core reference datasets was already mature for several of the countries studied. However, the progress reported for some of the important layers of annex 1-3 of the INSPIRE proposal for a Directive (e.g. cadastre) is slow. On the other hand, there have been a lot of activities going on related to the address data.
- There is an increasingly amount of web services being put in place (EE, PT, IS, SK, BE-Wall., ES, ...). Most of them deal with discovery of (meta)data and catalogue services. Other with the use of the data (mainly viewing).
- A lot of these services are accessible through web-portals (FR, DE, SK, ...). Access is sometimes limited to a particular target public. Sometimes it is targeting also the broader public.
- Standards are progressively being introduced, including the re-engineering of existing catalogues and/or services. ISO 19115 is clearly becoming the standard for metadata description. Also the OGC specification are used, especially WMS and to a lesser extent WFS. (FR, EE, SK, DE, ES, ...)
- There is a growing interest in the use of Open Source software and in several countries it has been applied, at least in a test environment. (FR, EE, ES, ...)
- Some countries are paying more attention to the development of GI projects and applications (SI, ...). Although these projects are important and valuable, and they often try to apply the INSPIRE principles, they are not to be confused with the development of the SDI as such. Sometimes the development of an integrated SDI is confused with a simple sum of all the activities of the most important stakeholders.
- The transposition of Directive 2003/4 on access to environmental information and Directive 2003/98 on the re-use of PSI have been transposed or are in the process

of being transposed to national legislation in several countries (PL, SE, SK, NO, ...). Although these Directives are not specifically on geographic data they will be the basis for elaborating access policy to GI data in several countries.

- Several countries refer to the link- or integration of the NSDI with the e-government policy (NO, SK, BG, ...).

## 7.2 Summary overview of state of play spring 2005

Table 2 contains a summary of the information compiled for the (N)SDI in 32 European countries as valid for spring 2005. Colors indicate whether the studied (N)SDI are in large, partial or no agreement with the statements about the SDI-building blocks introduced in Section 6.2 and presented in Table 1 of this Section. The summary table for spring 2003 and 2004 is presented in Annex 11.2. Table 3 and 4 are change tables. Table 3 highlights the SDI building blocks for which the assessment in 2005 is different from the one in 2004. Table 4 highlights the differences between 2005 and 2003 (the complete period of the study).

I. Organisational issues		
Level of SDI	1	The approach and territorial coverage of the SDI is truly national
Degree of operability	2	One or more components of the SDI have reached a significant level of operability
Coordination	3	The officially recognised or de facto coordinating body of the SDI is a NDP, i.e. a NMA or a comparable organisation (Cadastral or Land Survey Agency, i.e. a major producer of GI)
	4	The officially recognised or de facto coordinating body for the SDI is an organisation controlled by data users
	5	An organisation of the type 'national GI-association' is involved in the coordination of the SDI
Participants	6	Producers and users of spatial data are participating in the SDI
	7	Only public sector actors are participating in the SDI
II. Legal issues and funding		
Legal framework	8	There is a legal instrument or framework determining the SDI-strategy or -development
Public-private partnerships (PPP)	9	There are true PPP's or other co-financing mechanisms between public and private sector bodies with respect to the development and operation of the SDI-related projects
Policy and legislation on access to public sector information (PSI)	10	There is a freedom of information (FOI) act which contains specific FOI legislation for the GI-sector

Legal protection of GI by intellectual property rights	11	GI can specifically be protected by copyright
Restricted access to GI further to the legal protection of privacy	12	Privacy laws are actively being taken into account by the holders of GI
Data licensing	13	There is a framework or policy for sharing GI between public institutions
	14	There are simplified and standardised licences for personal use
Funding model for the SDI and pricing policy	15	The long-term financial security of the SDI-initiative is secured
	16	There is a pricing framework for trading, using and/or commercialising GI
<b>III. Reference Data &amp; Core Thematic Data</b>		
Scale and resolution	17	Geodatasets exist which provide a basis for contributing to the coverage of pan-Europe for the INSPIRE-selected data themes and components
Geodetic reference systems and projections	18	The geodetic reference system and projection systems are standardised, documented and interconvertible
Quality of reference data & core thematic data	19	There is a documented data quality control procedure applied at the level of the SDI
Interoperability	20	Concern for interoperability goes beyond conversion between different data formats
Language and culture	21	The national language is the operational language of the SDI
	22	English is used as secondary language
<b>IV. Metadata for reference data and core thematic data</b>		
Availability of metadata	23	Metadata are produced for a significant fraction of geodatasets of reference data and core thematic data
Metadata catalogue availability + standard	24	One or more standardised metadata catalogues are available covering more than one data producing agency
Metadata implementation	25	There is a coordinating authority for metadata implementation at the level of the SDI
<b>V. Access and other services for reference data, core thematic data and their metadata</b>		

Metadata	26	There are one or more on-line access services for metadata on reference data and core thematic data
Data	27	There are one ore more on-line access services for reference data and core thematic data
Web mapping	28	There are one or more web mapping services available for reference data and core thematic data
VI. Standards		
Standards	29	The SDI-initiative is devoting significant attention to standardisation issues
VII. Thematic environmental data		
Thematic Environmental data	30	Thematic environmental data are covered by the described SDI-initiative or there is an independent thematic environmental SDI

Table 1: Selected building blocks for an SDI

As can be seen from the table, most of the countries studied are developing a truly national SDI. In a lot of cases, this is going hand in hand with the development of regional initiatives. Furthermore, it is clear that for the legal issues there remains, even in 2005, a very fuzzy situation. Mostly because there is no clear information available, or the legal status of the SDI has not been clarified yet in the respective countries (there exists a lot of legislation, but not directly related to the NSDI). On the other hand, data, metadata and services are quite developed, especially in the EU-15. The new Member States and candidate countries are working hard in this field too.







In 2003, apart from Turkey, significant information has been compiled for all investigated countries. Organisational issues and items related to metadata and access services were well covered. Although legislation on freedom of information, copyright and protection of privacy has been reviewed, few elements have been found pertaining specifically to GI. For issues of data quality and interoperability, information was lacking for most countries. In 2004 additional information could be found and Turkey could be completed (the sheets are printed in annex). Since in Portugal, the NSDI-project was taken over from the National Centre for GI by the in 2002 created Portuguese Geographic Institute already in 2003, a change towards 'in less agreement' was registered regarding the involvement of an organization controlled by data users (statement #4).<sup>4</sup>

For a significant number of statements for which in 2003 and 2004 no assessment could be made, information has been collected enabling their assessment in 2005. The degree of completeness of the information is indeed significantly higher in 2005 than it was in 2003 and 2004. In addition a number of errors have been corrected and some doubtful appreciations of 2004 adjusted.

From the change table 2004-2005 it can be concluded that most NSDI-initiatives are rather stable while for some of them (ES, FR, EE, SI, SK) progress seems to have been made. Indeed the changes pertain almost exclusively to the 'in better agreement' rating. The change matrix also shows that most of the changes occurred in the field of meta-data and access services. Also, a number of countries like UK, ES and BE are taking more initiatives to strengthen the NSDI, although the regional initiatives and activities remain very important or are strengthened as well. Over the two years, similar conclusions can be drawn.

## 7.5 Typology Spring 2004

The classification rules set out in Section 6.3 lead, for 2003 and 2004, to the typology presented in Annex 11.3. Based on the updated information for 2005, Table 5 is obtained.

Like for 2003 and 2004, countries are divided over two distinct groups. In countries of the first group, a NDP (NMA or a similar type of agency like a National Land Service, Cadastral Agency, ...) is the officially mandated or de facto leading organization for the establishment of the NSDI. At a second level, the further involvement of associations or communities of data users in the coordination activities is taken into account. Involvement in this respect means that user organizations are present in bodies defining the mandate of the lead agency for the NSDI and/or advising upon the NSDI-projects. Finally the degree of operability of the SDI-initiative, i.e. whether one or more of its components are operational or whether the NSDI is rather in the planning stage, is considered.

The second group of countries have NSDI-initiative(s) led by a council of ministries or administrative departments, by a (non governmental) GI-association or other type of partnership of mainly data users. This group is further subdivided according to the presence or absence of a legal or otherwise formal mandate for the SDI-coordination. At the third level, the operability of the initiative is used as a discriminating factor.

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<sup>4</sup> Already reported in the Summary Report of 2004.

Level I	Level II	Level III	EU-15	EU+10	CC-3	EFTA-4	Class
NDP-led	users involved	operational	DK, FI, SE, <b>PT</b>	HU, <b>CZ</b>		IS, NO	1,1,1
		partially operational	AT, <b>GR, LU, BE</b>	PL			1,1,2
		not operational					1,1,3
	users not involved	operational		SI, SK			1,2,1
		partially operational		LT		LI	1,2,2
		not operational		EE, LV, MT, CY	RO, BG, TR		1,2,3
not NDP-led	formal mandate	operational	BE-VL, DE, IT, <b>IE</b>			CH	2,1,1
		partially operational					2,1,2
		not operational					2,1,3
	no formal mandate	operational	NL, UK, <b>BE-WA</b>				2,2,1
		partially operational	<b>FR, ES</b>				2,2,2
		not operational					2,2,3

Table 5: Classification of countries according to type of NSDI

The situation in 2005 has not been changed dramatically. Some countries shifted to a status that is more operational: this is the case for SK, ES. BE is entering the scene since there are some initiatives taken at the national level.

## 8. IMPACT OF INSPIRE

### 8.1 Assessment of the impact of INSPIRE

For the 2005 update, countries were asked to give information/input regarding the impact of the INSPIRE proposal for a Directive on the current and future development of the NSDI. Eleven countries referred explicitly – in one or another way – to this impact. On the other hand, the impact of the INSPIRE proposal for a Directive can also be seen indirectly.

Let's first have a look at the 'indirect' impact. The existence of the INSPIRE proposal for a Directive and the activities related to it are clearly influencing the GI and NSDI activities in most of the countries studied. This can be seen from the multitude of initiatives and projects in which components of the NSDI are being built according to INSPIRE principles: set-up of data catalogues and services, development of geoportals, WMS and WFS services, set-up of coordination bodies and procedures for collaboration, etc. Some of the European projects in which several countries are involved also refer to or are based on the INSPIRE initiative: ORCHESTRA, Geoxygene, SDIGER, GiMoDig, etc.

The most important elements of impact as described explicitly by the countries can be summarized as follow:

- In some countries, (new) coordinating bodies received the task to report about the potential consequences of INSPIRE for the national GI and PSI policy to the Government, to report organisational issues like the review of responsibilities and tasks amongst GI stakeholders or simply to follow-up the INSPIRE activities in order to assess its impact. (PL, PT, SE, DK, IE, ...)
- In addition, it is recognised that INSPIRE is influencing the ongoing legislative work or that amendments and/or new legislation is needed in order to reflect INSPIRE requirements (FI, ...). In some of the countries this is being prepared already (LT, PL, ...).
- Most of the countries mention the decision to mobilise all the NSDI and GI stakeholders at the different levels in order to successfully prepare the implementation of the INSPIRE proposal for a Directive (through meetings, workshops, conferences, portal).
- Some countries underline that INSPIRE will hopefully (partially) resolve the problem of funding of the (N)SDI or at least indicate solutions for it. Reference is made to the impact of the INSPIRE requirements on the funding needed. *“Special attention will be paid to balancing the financial issues such as return of investment compared to benefits of public access to data aiming a win-win situation”*.
- In one case the development of a database on the national GI market is mentioned in order to support the INSPIRE developments (PT).
- One of the countries mentions that no major investments in the NSDI will be decided until the INSPIRE proposal for a Directive will be adopted: *“Anticipation of INSPIRE Directive inhibits major investments in SDI as Implementing Rules details are expected”* (CZ). It is also expected that the Implementing Rules will resolve a lot of the open questions and will guide the Member States in implementing the INSPIRE proposal for a Directive.

- Finally, the INSPIRE proposal for a Directive is clearly influencing the technical work: prioritisation of data described in the annexes of the proposal, use of standards, building of INSPIRE compliant services and portals, etc.

## 8.2 Recommendations regarding the implementation of the INSPIRE proposal for a Directive

- The status of the development of the NSDI in the different countries studied shows the importance of the collaboration between the different authorities, horizontally, as well as - and maybe even more important – vertically (national, regional, local). Successful implementation of the INSPIRE proposal for a Directive will largely depend on this successful collaboration. In addition, the regional and local level is becoming more important as a data producer (basic reference data, updates) and data user. It is recommended to put in place coordination procedures or enhance these when they already exist between these different levels of authority.
- There are diverse - but all of them rich – experiences in implementing components or parts of components of NSDI. Besides the already existing initiatives like the EC-GIS workshop where experiences are shared and discussed, there should be a maximum of exchange between the different countries and their regions in order not to re-invent the wheel. We can learn from the bilateral collaboration between countries (and regions) or think about a more formalized forum for exchanging experiences.
- Although several countries and regions have developed or are developing coordination mechanisms, there is still a lot of fuzziness about the roles and mandates for building the NSDI. This should probably further be enhanced, whether it be through (modified) legislation or more informal procedures for collaboration and division of tasks.
- There have been a lot of new initiatives for developing technical parts of the NSDI: geo-portals, data catalogues, data services, etc. Some of them are or could/should be similar in the respective countries and regions. Sharing of these resources is advisable in order to gain some time for those countries that are a little bit behind in the development of their components. This is especially feasible where Open Source software is used (although also in other cases it should be envisaged).
- There is a clear demand to have more guidance for the implementation of the INSPIRE proposal for a Directive. This will be resolved by the Implementing Rules. However, while awaiting these, there could be already some very practical recommendations for implementing parts of the NSDI (e.g. on how to implement existing standards). There is already a lot of interesting material out there which could be very useful for that (technical guidelines).
- There is still clarification necessary regarding the Annexes I, II and III. Some stakeholders ask for this right away. It is however advised to wait the elaboration of the Implementing Rules for the data in order not to restart a theoretical discussion on what reference and core thematic data are. The annexes together with the rules should define the missing pieces.
- Collection of information on what is going on in the NSDI, RSDI, ..., at the national, regional and local level remains a key element. Therefore, it is recommended not to stop this process while awaiting the Implementing Rules for monitoring and reporting the implementation of the INSPIRE proposal for a Directive. Collection of information should be enhanced however in the sense that stakeholders involved in legislation, data and metadata production, service development, etc., can upload new information (reference, documents, ...) themselves and that this information can be processed in new versions of the country reports.

## 9. ACKNOWLEDGMENTS

For the compilation of the update, spring 2005, of the summary report on the state of play spring 2004 of (N)SDIs in Europe and of the related country reports, the authors have been able to rely on formal and less formal inputs from various persons and organizations, whom are gratefully acknowledged:

- The EC-officials from ESTAT, DG ENV and JRC, guiding this study;
- All experts who have provided correcting and completing remarks to the country reports. Their names and affiliations are mentioned in the meta-information section of each report;
- Many of the participants to the INSPIRE-expert and other meetings, who during and after the meetings have provided valuable suggestions and information of conception and completion of this report.
- Several INSPIRE stakeholders – users of GI, as well as developers of services – have also inspired and given valuable input to this study.

## 10. REFERENCES

European Commission, INSPIRE Work Programme Preparatory Phase 2005-2006, EUROSTAT, Luxembourg, 3 February 2005

European Commission, Proposal for a Directive of the European Parliament and of the Council establishing an infrastructure for spatial information in the Community (INSPIRE), {SEC(2004) 980}, EC, Brussels, 23 July 2004

# 11. ANNEXES

## 11.1 Regular country reports

The 32 country reports are separate documents available in printed form, as .DOC or .PDF-files. The naming convention for the digital documents is the following:

Rcr05COUNTRYCODEvX.doc or rc05rCOUNTRYCODEvX.pdf

with

- Rcr05 standing for 'regular country report 2005'
- vX standing for the version number, e.g. v4
- COUNTRY CODE as in Annex 11.5





Country	Organisational issues (I)						Legal issues and funding (II)						Reference data & core thematic data (III)						Metadata (IV)			Access services (V)			Standards (VI)				
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		25	26	27	28
AT	1	2										13	14	15			18									26			
BE																													
DE																													
DK																													
ES																													
FI																													
FR																													
GR																													
IE																													
IT																													
LU																													
NL																													
PT																													
SE																													
UK																													
CY																													
CZ																													
EE																													
HU																													
LT																													
LV																													
MT																													
PL																													
SI																													
SK																													
BG																													
RO																													
TR																													
CH																													
IS																													
LI																													
NO																													

Table 4: Changes between status of NSDI building blocks between spring 2003 and spring 2004

-  In better agreement than in 2003
-  In less agreement than in 2003
-  Change due to removal of 'unknown', error correction or second opinion
-  No change compared to 2003

## 11.3 Typology for 2003 and 2004

Level I	Level II	Level III	EU-15	EU+10	EFTA-4	Class	
NDP-led	users involved	operational	DK, FI, SE	HU	IS, NO	1,1,1	
		partially operational	AT,	CZ, PL		1,1,2	
		not operational	GR, LU			1,1,3	
	users not involved	operational			SI		1,2,1
		partially operational			LT	LI	1,2,2
		not operational			EE, LV, MT, SK		1,2,3
not NDP-led	formal mandate	operational	BE-VL, DE, PT		CH	2,1,1	
		partially operational	IE, IT			2,1,2	
		not operational				2,1,3	
	no formal mandate	operational	NL, UK				2,2,1
		partially operational	BE-WA				2,2,2
		not operational	ES, FR				2,2,3

Table 6: Typology of NSDI for 2003

Level I	Level II	Level III	EU-15	EU+10	CC-3	EFTA-4	Class	
NDP-led	users involved	operational	DK, FI, SE, PT	HU, CZ		IS, NO	1,1,1	
		partially operational	AT, GR, LU	PL			1,1,2	
		not operational					1,1,3	
	users not involved	operational			SI		1,2,1	
		partially operational			LT, SK		LI	1,2,2
		not operational			EE, LV, MT, CY	RO, BG, TR		1,2,3
not NDP-led	formal mandate	operational	BE-VL, DE, IT, IE			CH	2,1,1	
		partially operational					2,1,2	
		not operational					2,1,3	
	no formal mandate	operational	NL, UK, BE-WA					2,2,1
		partially operational	FR					2,2,2
		not operational	ES					2,2,3

Table 7: Typology of NSDI for 2004

## 11.4 Country codes

EU-25	
AT	Austria
BE	Belgium
DE	Germany
DK	Denmark
ES	Spain
FI	Finland
FR	France
GR	Greece
IE	Ireland
IT	Italy
LU	Luxembourg
NL	The Netherlands
PT	Portugal
SE	Sweden
UK	United Kingdom
CY	Cyprus
CZ	Czech Republic
EE	Estonia
HU	Hungary
LT	Lithuania
LV	Latvia
MT	Malta
PL	Poland
SI	Slovenia
SK	Slovak Republic
Candidate Countries	
BG	Bulgaria
RO	Romania
TR	Turkey
EFTA countries	
CH	Switzerland
IS	Iceland
LI	Liechtenstein
NO	Norway
Non-European countries	
AU	Australia
CA	Canada
US	United States of America

Table 8: Acronyms for countries