Spatial Data Infrastructures in France: State of play 2011
### Report meta-information

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This document does not represent the position of the Commission or its services. No inferences should be drawn from these documents as to the content or form of the current and future proposals to be presented by the Commission.

Neither does this document represent the position of the Member States and countries under study.
Executive summary

In France, the production, maintenance, and coordination of geographic data is mostly in the hands of some core actors at the national level (IGN, BRGM, Ministry of Environment, Energy, Sustainable Development and Sea (MEEDDM), CNIG, Ministry of Food Agriculture and Fisheries (MAAP), and of the local authorities (regions, departments, communes). A large part of the geographic data that is produced is available against marginal costs or free of charge (e.g. local authorities, environmental agencies, BRGM), while for some data cost recovery is upheld (e.g. IGN). However, there is a general tendency towards more open availability of data.

The main challenges for the development of the NSDI lie in the subsidiary principles and the relationship between the national level and the sub-national authorities. In the past few years, the local authorities have increasingly been involved in the development of the NSDI. The dynamic that has been created by INSPIRE is seen as an opportunity to involve the sub national authorities in the NSDI, as they are important producers of spatial data. Initiatives are being taken to increase the cooperation between the national, regional and local authorities, such as partnerships between IGN and local authorities, regional initiatives, etc.

The main responsibility for organising and coordinating the NSDI lies with the Ministry of Environment, Energy and Sustainability and the CNIG. The CNIG has a mandate to coordinate the data producers’ activities with the needs of public users and with the general interest. The responsibilities for the legal transposition of INSPIRE lies with the Ministry of Environment, Energy and Sustainable Development and should be finalised by the end of 2010.

A French Geo-Portal was launched in 2006 (www.geoportail.fr): the Ministry of Environment, Energy and Sustainability is in charge of the project and IGN ((National Mapping and Cartographic Agency) and BRGM (National Geological Survey) are responsible for the implementation and operation (view services for maps, orthophotos and other data by IGN and Discovery services by BRGM). The portal provides access to view services for reference data, produced by IGN France (covering most of the themes of the Annexes I and II) but also by other producers. The geoportal gives on-line access to the public for a large number of data sets and the view service API allows other web sites and portals to embed geoportal visualization windows. The use of the API is free of charge for non-commercial use. Conditions of use are publicly available (http://www.ign.fr/partage/api/cgu/licAPI_CG.pdf). Other SDI stakeholders also have developed their own Geo-Portal (e.g. BRGM).
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Abbreviations and acronyms

ADAE Administration pour le Développement de l’Administration Electronique
/ Administration for the development of e-administration

No more existing—See DGME

ADELE Agence pour le Développement de l'Administration Electronique
Agency for the Development of the Electronic Administration

ADF Assemblée des Départements de France

AFIGéO French Association for GI

AFNOR Association Française de Normalisation

ANDSIS Association nationale des directeurs et directeurs-adjoints des services
d’incendie et de secours

ANFR Agence nationale des fréquences

API Application Programming Interface

APIE Agence du patrimoine immatériel de l'État

BD ORTHO Base de données Raster

BD TOPO Portail de l'Information Géographique

BRGM Bureau des Recherches Géologiques et Minières / French geological
survey

CADA Commission d’accès aux documents administratifs

CAP Common Agricultural Policy

CIADT Interdepartmental Committee for the Development of the Territory

CIMER Interdepartmental Committee for the Sea

CNES French Space Agency

CNIG National Council for Geographic Information

CNIL Commission Nationale de l’Informatique et des Libertés / National
commission on information technology and freedom

COGIT Conception Objet et Généralisation de l'Information Topographique

COVADIS Commission de Validation des Données pour l’Information Spatialisée

CRIGE-PACA Météo France (French Weather bureau), the Regional Centre for
Geographic Information of the Provence - Côte d’Azur Region

CSTB Scientific and Technical Building Centre

CSW Catalogue Services for the Web

CT Core Thematic Data

DBMS Database Management System

DGFiP Direction générale des finances publiques

DGI National Tax Office
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<th>Description</th>
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<td>DGME</td>
<td>Direction Générale de la Modernisation de l'Etat / General Directorate for State Modernisation created in 2006, part of the French Economy, Finance, and Industry Ministry</td>
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<tr>
<td>DIREN</td>
<td>Direction Régionale de l'Environnement</td>
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<td>DOM</td>
<td>Départements Outre-Mer / Overseas «départements»</td>
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<td>EUREF</td>
<td>European Reference Frame</td>
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<tr>
<td>FAO</td>
<td>Food and Agriculture Organization</td>
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<td>FING</td>
<td>Fondation internet nouvelle generation</td>
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<td>FOI</td>
<td>Freedom of Information</td>
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<td>GFIIE</td>
<td>Groupement français de l’industrie de l’information</td>
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<tr>
<td>GI</td>
<td>Geographical Information</td>
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<td>GINIE</td>
<td>Geographic Information Network in Europe</td>
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<td>GIS</td>
<td>Geographical Information System</td>
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<td>GMES</td>
<td>Global Monitoring for Environment and Security</td>
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<td>GML</td>
<td>Geography Markup Language</td>
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<td>GPS</td>
<td>Global Positioning System</td>
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<td>IFEN</td>
<td>Institut français pour l’Environnement / French Environment Institute</td>
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<td>IFN</td>
<td>National Forestry Inventory</td>
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<td>IGN</td>
<td>National Mapping Agency</td>
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<td>IHO</td>
<td>International Hydrographique Organisation</td>
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<td>INSEE</td>
<td>National Statistical Institute</td>
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<td>INSPIRE</td>
<td>INfrastructure for SPatial InfoRmation in Europe</td>
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<tr>
<td>ISO</td>
<td>International Organization for Standardization</td>
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<tr>
<td>LGPL</td>
<td>Lesser General Public License</td>
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<td>MAAP</td>
<td>Ministry of Food Supply, Agriculture and Fisheries</td>
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<td>MEEDDM</td>
<td>Ministry of Ecology, Energy, Sustainable Development and the Seas</td>
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<td>NGO</td>
<td>Non-Governmental Organization</td>
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<td>NSDI</td>
<td>National Spatial Data Infrastructures</td>
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<td>NSHC</td>
<td>Regional Hydrographic Commission for the North Sea</td>
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<td>OGC</td>
<td>Open Geospatial Consortium (</td>
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<td>OGE</td>
<td>Order of Chartered Surveyors</td>
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<td>ONEMA</td>
<td>Office national de l'eau et des milieux aquatiques</td>
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<td>ONIC</td>
<td>National Inter-professional Grain Office</td>
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<td>ONF</td>
<td>Office national des forêts</td>
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<tr>
<td>PPP</td>
<td>Public-Private Partnerships</td>
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<td>PSI</td>
<td>Policy and legislation on access to public sector information</td>
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<td>RDBMS</td>
<td>Relational database management system</td>
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<td>REF</td>
<td>Reference data</td>
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<td>Acronym</td>
<td>Description</td>
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<tr>
<td>RGE</td>
<td>Référentiel Géographique à grande Echelle / Large scale geographic reference data</td>
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<tr>
<td>RTE</td>
<td>Réseau de transport d’électricité</td>
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<td>SANDRE</td>
<td>Portail national d'accès aux référentiels sur l'eau</td>
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<td>SDI</td>
<td>Spatial Data Infrastructures</td>
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<td>SHOM</td>
<td>Service hydrographique et océanographique de la marine / French Hydrographic Office</td>
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<tr>
<td>SITG</td>
<td>Information Service for the Geneva Territory</td>
</tr>
<tr>
<td>SOeS</td>
<td>Service de l'Observation et des Statistiques</td>
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<tr>
<td>WCS</td>
<td>Web Coverage Service</td>
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<tr>
<td>WEND</td>
<td>Worldwide Electronic Navigation chart Database</td>
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<tr>
<td>WFS</td>
<td>Web Feature Service</td>
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<td>WMS</td>
<td>Web Mapping Service</td>
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1 GENERAL INFORMATION

1.1 Method

This report summarizes the review of the national SDI in France, and aims at reflecting the degree to which the SDI-situation is similar to the ideas set out in the INSPIRE position papers\(^1\), the INSPIRE scoping documents and the INSPIRE implementing rules.

The 2002 report resulted in a partial review of SDI in France, and aimed at reflecting the degree to which the SDI situation in France was similar to the ideas set out in the INSPIRE position papers\(^2\) and in the more recent INSPIRE scoping documents. The 2003 version of the report was further completed by the integration and consolidation of comments received from representatives of the NSDI initiatives, CNIG and IGN. The 2005 version of the report was updated taking account of views expressed by the French liaison group on INSPIRE and of IGN France, integrated and interpreted by SADL. The update for 2006 was based on the information obtained through visits of geo-portals and websites, and information obtained from IGN. In 2007, the French authorities - through IGN and the CNIG – gave input regarding data sets and services, as well as regarding data sharing practices and the organizational issues of INSPIRE.

For the 2009 update the survey report answered by CNIG and IGN was used along with the information extracted from the national geoportal, the web and the various presentations from workshops and conferences. At the same time obsolete information from the previous versions was removed, while a conclusion paragraph regarding the status of each indicator was added for each component. For the new report of 2011, new information was sought in various policy and technical documents, web sites, and conference material.

The report gives major attention to the development of the Géoportail, as it is one of the developments in the French NSDI that plays an important role as an example for other countries. Due to its structure and focus on the national SDI developments in France, it cannot fully reflect the important local and regional developments that have taken place in France over the past few years.

1.2 The NSDI-scene in France

Currently there is no explicit overall governmental initiative to develop an NSDI in France, but the national contact point and data providers are working closely together with the local authorities in the development of the NSDI, based on the incentives given by INSPIRE. Key building blocks that already exist are the RGE development by IGN and the launch of the Geoportal in 2006.

\(^1\) INSPIRE position papers, final versions: RDM, ETC, DPLI, ASF, IST, IAS (latest version).

\(^2\) INSPIRE position papers, final versions: RDM, ETC, DPLI, ASF, IST, IAS (latest version).
A multitude of NSDI-like initiatives have been undertaken. The major areas of policy that are relevant to these initiatives are policies related to agriculture and land planning; policies related to decentralization; and policies more closely linked to the development of an SDI further to the Lengagne Report of 1999 (which recommended the development and maintenance of a national framework of reference at large scale (RGE) to include relevant topographic databases, the cadastre, administrative boundaries and postal addresses). INSPIRE is considered a good structure based on which to build up the NSDI in France. INSPIRE clarifies the role of the different actors on the national and the sub-national level and enables a better division of tasks. In addition, INSPIRE is seen as a good means to increase the contribution of and participation in the NSDI of the regional and local authorities and to create cooperation and partnerships between the national and sub-national level.

One of the main challenges the NSDI in France has to deal with is the relationship between the national level and the local authorities (regions, departments, communes). The organisation and coordination of the relationship between the different levels of government to open up the access to geographic data needs increasing communication and cooperation, with no barriers to data sharing, while maintaining attention for the autonomy of the different levels. In order to stimulate this communication, the participation of the local authorities in the CNIG will be increased.
2 Details of NSDI-Situation in France

2.1 General information

The implementation of INSPIRE is being used in France as an incentive to build a broader NSDI uniting the efforts of the national government and public agencies on the one hand and the local authorities on the other hand. The main actors include the Institut Géographique National (IGN), the Bureau de Recherches Géologiques et Minières (BGRM), the regional and local authorities, the Ministry of Environment, Energy and Sustainable Development; and the Conseil National de l’Information Géographique (CNIG).

2.2 Component 1: coordination and organizational issues

The main actors on the SDI-scene in France are the Institut Géographique National (IGN), the Bureau de Recherches Géologiques et Minières (BGRM), the regional and local authorities, the Ministry of Environment, Energy and Sustainable Development; and the Conseil National de l’Information Géographique (CNIG).

Under the Decree on the role and the composition of the National Council for Geographic information (consolidated in 1999), the CNIG was responsible for advising and making proposals to the competent minister on the development of GI and on the improvement of the necessary technology, taking into account the needs of the public and private users (see http://www.legifrance.gouv.fr/texteconsolide/PKH7E.htm). The activities of the CNIG were put on hold during 2009 and 2010, until the adoption of a new decree on its role. This decree was adopted on 21 January 2011 and gives the CNIG the mission to advise the government in the domain of geographic information, notably with regard to the coordination of the contribution of the actors involved and the improvement of the relationships between the actors. Particular attention has to be paid to the needs of the users. The CNIG is also given the role of the coordinating body and structure foreseen in the INSPIRE directive.

The CNIG consists of 35 members, including:

- For the state and its public bodies in the domain of geographic information:
  - Nine members representing the ministers responsible for sustainable development, housing, the interior, the cadastre, defence, land use, agriculture, research, and culture;
  - The director of IGN
  - The director of the Hydrographic and Oceanographic service of the navy (SHOM)
  - The president of BRGM;
  - The president of the national centre of space studies;
The president of the French Institute of research for the exploitation of the sea

The commissioner for sustainable development;

- For the local authorities and public bodies of cooperation between local authorities (intercommunales)
  
  o The president of the French association of mayors;
  o The president of the Assembly of French Departments;
  o The president of the Association of French Regions;
  o The president of the Association of urban municipalities;
  o The president of the Association of mayors of large cities:
    o The president of the Federation of mayors of middle-range cities;
    o The president of the Association for small cities;
    o The President of the national Association of the representatives of the coast

- For the private sector and regulated professions:
  
  o Three representatives of GI producers, users or service providers;
  o The president of the order of surveyors;

- For the associations;
  
  o The president of the French Association for geographic information;
  o The President of the National Federation of urban agencies;
  o The President of the association of engineers;
  o A representative of an association protecting the environment;
  o A representative of a consumer association;

- For the employees: two representatives of national unions;
- An expert member.

The CNIG has a permanent secretariat and can install working groups.

Other important actors of the NSDI include:

- Ministry of Environment, Energy and Sustainable Development: this ministry is responsible for the supervision of IGN and Meteo France and is responsible for the transposition of INSPIRE. It also holds the Member State Contact Point for INSPIRE. It is the project supervisor of Géoportail, the operations being entrusted to IGN and BRGM. Previously, the DGME (Direction Générale de la Modernisation de l’État also played a role in the NSDI, as geographic data were a part of the Révision Générale des Politiques Publiques
and the Référentiel Général Interoperabilité, but the responsibility for geographic data was completely transferred to the Ministry of Environment, Energy and Sustainable Development after 2007. The Ministry has used the transposition of the INSPIRE directive as an opportunity to increase the cooperation with the local authorities, in order to develop the NSDI as an initiative carried by all levels of public authorities.

- Local authorities: the regions, departments and communes are also very important data providers. They provide over half of the geographic information, on themes that are of direct interest to the citizens. Many local authorities are currently joining in informal cooperation initiatives for sharing geographic data and they are taking up a more active role in the NSDI in France. Regions, departments, agglomerations and large cities are involved in informal regional platforms, setting up structures for exchanging data within the platform and with the national level. These initiatives are also creating geoportals.

In 16 of the 22 regions, there are regional conferences promoting cooperation and data sharing. Approximately one hundred Comités départementaux de l’information géographique (Departmental Committees for GI) were established between 1994 and 2002, but they never performed any actual activities. Therefore, the text on the basis of which these Committees were installed was abolished in order to leave the possibility to the local authorities to create their own initiatives.

Local SDI initiatives include for instance the infrastructure established for the Urban Community of Greater Lyon or Nantes métropole, departmental initiatives such as those in Vendée and Haute Savoie and regional initiatives as for example Provence-Alpes-Côte d’Azur or Nord-Pas de Calais.

- IGN: the National Geographic Institute is an independent public body next to the Ministry in charge of Public Works, with a wide range of competences: geodesy, data collection, treatment and integration, aerial photographs, databases production, commercialisation, research, higher education training…. IGN inter alia has the role of integrator for the Référentiel Géographique à grande Echelle (RGE), and is responsible for the Geo-portal, together with BGRM. It is a key player in the provision of data, providing the largest part of the data themes of Annex I of INSPIRE.

The decree defining the IGN mission, adopted on 22 November 2004, provides a mechanism for the general interest databases and cartographies it produces and distributes; widens the representation of local authorities to the management board of IGN; and requires all state services and institution to supply IGN with data necessary for producing and maintaining the RGE.

IGN cooperates with 13 national partners to maintain the RGE and improve its coverage, such as the Agence nationale des fréquences (ANFR); the Office national des forêts (ONF); the Office national interprofessionnel des céréales (ONIC); the Service de l’Observation et des Statistiques (SOeS); the Institut français de l’environnement (IFEN); the Réseau de transport d’électricité (RTE); the Direction générale des finances publiques (DGFiP); the Assemblée...
des Départements de France (ADF); the Association nationale des directeurs et directeurs-adjoints des services d’incendie et de secours (ANDSIS); the Inventaire forestier national (IFN); la Poste; the ministère de la jeunesse et des sports; the Office National de l’Eau et des Milieux Aquatiques (ONEMA); the Ordre des géomètres experts (OGE); the Service Hydrographique et Océanographique de la Marine (SHOM). Next, co operations have also been set up with local entities, nature parks, departmental fire and emergency services, etc. Since 2007, IGN has concluded more than 100 partnerships to share data.

(see http://www.ign.fr/institut/22/activites/rge%C2%AE-et-production.htm)

At IGN, the project INSPIRE@IGN (see inspire.ign.fr) has been created as a pilot for the activities linked to the INSPIRE directive. Part of this pilot is the development of an action plan in order to align the products and services of IGN with the demands of the directive and the implementing rules (see http://www.ign.fr/institut/documentArticle.do?idDoc=5653965&indexRoot=3 &indexChild=1)

- **BRGM:** together with IGN, BGRM is responsible for the French Geoportal. It was founded in 1959 as a public body with a commercial character, and reports to the Ministry of Higher Education and Research and the Ministry of Environment, Energy, Sustainable Development and the Sea. It operates on the international, European, national and regional level. BRGM has been promoting SDI concepts through the InfoTerre (http://infoterre.brgm.fr) programme since 2001. InfoTerre provides access to data sources managed by BRGM through interoperability standards (OGC and ISO), with free access to view most of the geo-scientific information available (including geological maps). In 2005, the Decree holding their mission was adapted to focus on the management and diffusion to the citizens of information on geology and the environment. BRGM has a long culture of structuring information and developing an infrastructure, continuously adopting new technologies. They currently hold 19 themes of the INSPIRE annexes.

Next to these main actors, many other actors are also involved in the development of SDI-initiatives. AFNOR, the national standardisation body, relaunched in 2009 a GI commission that liaises with ISO TC 211 groups. The Ministry of Economy, Finance and Industry is responsible for the cadastre and national statistics (DGFIP). Many ministries and related bodies are increasingly active in geo-referencing information related to their field of responsibilities, including the ministries responsible for agriculture (connected to the CAP), for environment (e.g. water or risk), for public works (road, urbanism) for culture (French patrimony), for the interior (addresses, home security). They are important users of geographic information.

Other players are the National Statistical Institute (INSEE), the National Tax Office (DGI), which is responsible for the cadastre, and SHOM in charge of the (digital) nautical charts. CNES (Centre National d’Etudes Spatiales) is the French Space Agency in charge of proposing to the French government its space policy and developing space programs at national, European and international levels. Among these programs Earth Observation for
research and innovation, for sustainable development and for security and defence, play a key role for providing images and data to be used for GI production.

Next, the *Association Française pour l'Information Géographique* (AFIGéO - French Association for GI) -established in 1987- *is a forum to coordinate activities and to promote the development and use of GI among both public and private sector organisations* (http://www.afigeo.asso.fr).

Last but not least, an issue that has received extensive attention in France is the cross border services collaboration. For instance, French and Spanish NMAs are collaborating and setting up seamless cross border services trying to fulfil the INSPIRE Implementing Rules, while taking into account their specific data policies and economic models (Rodriguez et al., 2009).

### 2.2.1 Conclusions of Component 1

The approach and territorial coverage of the SDI is truly national and a number of the SDI components have reached a significant level of operationality. Moreover, the sub-national level plays an important role. There is clear coordination but several important stakeholders play a dominant role. CNIG plays the formal role as coordinating body while at the operational level IGN and BRGM play a key role led by the Ministry of Environment, which holds the role of INSPIRE national contact point. AFIGEO plays an important role to involve the GI-stakeholders from different sectors and administrative levels. Many sub-national SDIs are in place.

Based on these conclusions we score the indicators as follows:

- **The approach and territorial coverage of the SDI is truly national**
- **One or more components of the SDI have reached a significant level of operationality (5)**
- **The officially recognised or de facto coordinating body of the SDI is a NDP, i.e. a NMA or a comparable organisation (No)**
- **The officially recognised or de facto coordinating body for the SDI is an organisation controlled by data users (partially: not controlled, but they participate)**
- **An organisation of the type ‘national GI-association’ is involved in the coordination of the SDI**
- **Producers and users of spatial data are participating in the SDI**
• Only public sector actors are participating in the SDI (partially) (private sector and NGOs are participating in the CNIG, but not really in the SDI)
2.3 Component 2: Legal framework and funding

2.3.1 Legal framework

The main legal instruments specifically relating to the NSDI and GI include:

- Law no. 2009-526 of 12 May 2009 on the simplification and clarification of procedures;
- Decree no 2011-127 of 31 January 2011 regarding the National Council of Geographic Information (CNIG);
- Ordonnance no. 2010-1232 of 21 October 2010 holding provisions adapting the law to the European law on environmental matters
- Decree no 2011-223 of 1 March 2011 implementing article L.127-10 of the environmental code;
- Arrêté of 24 January 2011 regarding the calendar for the implementation of the data specifications foreseen in article L.127-3 of the environmental code;
- Decree no. 2004-1246 of 22 November 2004 on the National Geographic Institute, consolidated in May 2005;
- Decision of 16 March 2005 stating the list of geographic data sets and cartography that has to be maintained by IGN as part of its public task;
- Decision of 19 April on the development and maintenance of the RGE;
- Decree on the role and the composition of the CNIG, consolidated on 30 September 1999.

After the Ministry of Public Works had created a first draft for the transposition of the INSPIRE directive in 2007, the responsibility for the transposition was shifted to the Ministry of Environment, Energy, Sustainable Development and the Sea. During 2008 and 2009, a draft proposal was developed, but at the end of 2009, it was decided to transpose the directive by an Ordonnance. The law that allows this was submitted to the Senate in December 2009 (see http://www.ign.fr/institut/documentArticle.do?idDoc=5653965&indexRoot=3&indexChild=1). With this law, the Parliament agreed with legislation that was still to come, so that it would not have to debate about this legislation when it would be presented.

In October 2010, an ordonnance was adopted, amending the Environmental Code to include provisions transposing the INSPIRE directive (see http://www.legifrance.gouv.fr/affichTexte.do?cidTexte=JORFTEXT000022934766&dateTexte=&oldAction=rechJO&categorieLien=id). In January 2011, this was followed by a decree defining the new composition and tasks of the CNIG (see http://inspire.ign.fr/index.php/actualites-inspire).

IGN performs its tasks on the basis of a contract with the government. This contract sets the objectives for a certain period, generally a couple of years. A new agreement was made in 2008 between IGN and the Ministry of Food Supply, Agriculture and Fisheries (MAAP) and the Ministry of Ecology, Energy, Sustainable Development and the Seas
(MEEDDM). In addition, the white paper on defence and national security published on July 31, 2008 planned a closer cooperation with the Ministry of Defence (see IGN, 2008 Activity report). Since 2010, an agreement on targets and performance between IGN and the government specifies the objectives for the period 2010-2013.

2.3.2 Public-private partnerships (PPPs)

There is no true PPP in France. For instance, geometric experts having tasks relating to the cadastre are considered to have a public mission, so they cannot be considered as private partners in relationship to the state.

The private sector is involved in the creation of value-added products, but rather as a client of the public sector data providers than as a partner. Currently, the private sector does not play a big role in the NSDI in France, but there are signs that its role will grow in the future.

2.3.3 Policy and legislation on access to and re-use of public sector information (PSI)

Law no. 78-753 of 17 July 1978 (‘Loi portant diverses mesures d'amélioration des relations entre l'administration et le public et diverses dispositions d'ordre administratif, social et fiscal’) regulates the freedom of access to administrative documents. This “CADA” law has been amended several times throughout the years. The law applies to central government, local government and the administrations of public undertakings. Requests may be refused on a limited number of grounds, such as state security, privacy and commercial secrets. Documents received may not be reproduced or redistributed for commercial purposes. Jurisprudence of this law allows the charging for data access.


The Agence du Patrimoine Immatériel d’Etat was established in 2007, under the Ministry of Economy and the Ministry of Budget, with among others the responsibility to help economic operators to access PSI for re-use and to create awareness with the public bodies with regard to the possibilities for re-use. For this, it has created model licences; it supports public bodies in developing their registers of information and has proposed to create a portal for access to all re-usable public sector information. APIE works closely with the Commission d’accès aux documents administratifs (CADA).
2.3.4 Legal protection of GI by intellectual property rights

The Intellectual Property Code of 1957 (revised several times throughout the years) includes a section on copyright. It provides a list of examples of works that may be protected which is similar to that of the Berne Convention. French courts have repeatedly decided works of GI to be subject to copyright.

Database Directive 96/9/EC was implemented into law on 1 July 1998 by integrating the new rules into various sections of the French Intellectual Property Code. The 2001 directive on copyright in the information society is transposed by the Law on the digital economy.

No copyright exists in laws, decrees, court decisions, legal texts and so on. Maps belong to the same category as books, music and other artistic creation activities results. They therefore benefit of IPR protection under French law.

Copyright is regulated by a system of licences. A licence for internal use exists, and several tariffs are in force depending on the amount of use to which the information is put. Government bodies also grant licences to private companies for the commercialisation of their data.

2.3.5 Restricted access to GI further to the legal protection of privacy

French privacy legislation can be found in Law no. 78-17 of 6 January 1978 (Loi relative à l’informatique, aux fichiers et aux libertés). Most notably this legislation provides for a priori declaration of all databases containing nominative data, and a right of access and correction for information concerning oneself. This law is more protective of private life than many other European equivalent legislations. The Commission Nationale de l’Informatique et des Libertés (CNIL - National Commission for Information Technology and Individual Liberties) is the regulatory body set up to enforce and report on application of French Privacy law (www.cnil.fr).

On 11 January 2000 the European Commission decided to take France to court for failure to notify all the measures necessary to implement Directive 95/46/EC on the protection of personal data. Article 5 of Law no. 2000-321 of 12 April 2000 already amended Law no. 78-17. However, Directive 95/46/EC is now fully transposed into French law. On 30 January 2002 the French National Assembly therefore adopted a draft implementation law (projet de loi) regarding the processing of personal data, modifying Law no. 78-17. This law has been definitively adopted by an Assemblée National vote on the 29th of April 2004.

The law of 22 June 2004 concerning the digital economy has transposed both the 1995 directive on the processing of personal data and the 2002 directive on privacy and electronic communications into French law.
2.3.6 Licensing framework

The Ordonnance of 6 June 2005 on re-use of PSI states that if charges are made for the re-use, a licence has to be available, which holds the conditions for the re-use. These conditions can only put restrictions on the re-use for the purpose of the general interest, and in a proportionate way. Model licences should be available. Such model licences are provided by APIE, which makes available some model licences for the re-use of PSI on its website, for a one-off delivery and for continuous delivery of information (see https://www.apiefrance.com/sections/acces_thematique/reutilisation-des-informations-publicques/licence-type/view).

IGN provides general conditions for the use of its products and services on its website (www.ign.fr) as well as a set of licences: standard licence, server licence, electronic representation, graphical representation, commercial exploitation, integration, etc. Specific terms are foreseen for the educational sector and the research sector. Parcel data and address data are only available for the public sector. In 2008, a framework agreement was concluded between the Ministry of Ecology, the ministry of agriculture and IGN for the access to reference data for all agencies under the responsibility of these ministries.

On the geoportal www.geoportail.fr, one can also buy IGN data online. Payment can be done by bank transfer or by credit card. Price lists and terms of use are available on the website (https://boutiquepro.ign.fr/index.php?event=DisplayInfosProduits). Over 8000 contracts have been concluded via the Geoportal.

General conditions are also provided by SHOM. These conditions have been set up in strong cooperation within the IHO Regional Hydrographic Commission for the North Sea (NSHC). Furthermore this NSHC has also established a principle of custodianship, by which a country A portraying on its charts the data owned by an other country B can authorize the re-use of the data of the country B (provided the corresponding fees are yearly paid to country B).

2.3.7 Funding model and pricing policy

Funding

France has a combined model that encompasses grants and cost recovery.

Examples of pure public funding (often with public tendering) are the rasterisation of cadastral maps, electronic nautical charts (except for physical production and for distribution), geodesy, aerial survey, research, and the GIS of local governments. The cadastre is thus 100% funded and the national statistics has a 100% itemised budget. Nautical charts also have a 100% itemised budget.

The core activities including updating to develop the Référentiel Géographique à grande Échelle (RGE) are partially funded by the government. Distribution is not subsidized at all. As a consequence, users have to bear significant cost to access to the RGE.
Partial public funding applies to all activities of IGN, which has to recover approximately half of its funding through the sale of data and services. In 2009, the annual budget amounted to €136.5 million, of which 43.6% was provided by IGN itself, through sales and other activities (IGN 2009 annual report, http://www.ign.fr/institut/documentArticle.do?idDoc=6326959&indexRoot=1&indexChild=8&currentRootSearch=&indexChildSearch=).

BRGM does not obtain any funding from central government, so it has to provide for its own funding. It does so by allowing free of charge access to the data, but charging for added-value services, advice and consultancy. Services are offered to the public (national and local) and the private sector, and to the public. For instance, geo-reports are made for the citizens, on the situation of a particular piece of land.

**Pricing**

Official French policy dictates that each public authority must recover its marginal costs. Most of the local authorities and the public bodies disseminating environmental data, provide free access to their data. For instance, free access on the Internet to statistical data is a main element of the INSEE data policy.

According to French law, access to the cadastre is provided free for citizens on-line and at the point of consultation (e.g. city hall) and is charged 9.5 € for a copy either paper or digital but not for commercial purposes.

For the IGN, the charging and pricing principles are established by the Decree of 22 November 2004. IGN’s pricing policy should encourage data use and promote transparency and non-discrimination, while ensure that the producers gather no higher income than the cost of their production and update. IGN is gradually moving in the direction of lower prices, and the availability of data free of charge or against marginal costs. For instance, since March 2010, IGN data are available free of charge for research and education purposes. They can be downloaded freely from the website, or delivered on a carrier, for which a marginal cost is charged.

IGN prices are approved by the Management Board annually and its catalogue is distributed at the beginning of each year. For instance, regarding the large scale reference database, over the lifetime of a component, what is paid by the government plus what is paid by users is equal to the production maintenance and dissemination costs. However, in December 2005, government auditors reviewed the pricing policy of IGN’s large scale reference database, and they found that the pricing policy entailed that the information was under-used. They recommended that the commercial activities would be separated from the “public good” functions, and that public data should be priced lower (see tinyurl.com/r6ajp). This report was implemented through pricing formalisation and price decrease, e.g. the price of BD Ortho (national coverage) was divided by 2.5 between 2006 and 2010. Moreover the accountancy was improved to clearly separate public service activities from commercial activities.
The model licences of IGN and the details of the price calculation can be found at http://www.ign.fr/rubrique.asp?rbr_id=1582&lng_id=FR. A difference is made in the conditions of use for internal use and commercial exploitation. A standard licence is also available for downloading and using (including for commercial purposes) environmental data from the Ministry of Ecology and Sustainable Development (Ministère de l’Écologie, du Développement et de l’Aménagement durables - http://www.toutsurlenvironnement.fr/mentions-legales).

BRGM has a strong culture of making data available to the citizens free of charge. After an internal study on the business model performed in the late 90s, BRGM decided to disseminate information freely via the Infoterre portal, with the emphasis on openness, re-use and interoperability. This was also due to the conviction that the transaction costs for charging for access were too high. Paper maps and digital harmonised datasets are still sold against marginal cost, but the digital data that is available via the web services, is completely free of charge.

### 2.3.8 Conclusions of Component 2

The INSPIRE directive has been transposed at the end of 2010, and the transposition serves as an opportunity for the entire NSDI. There is no true PPP in France nor specific funding for INSPIRE. There is a pricing framework, but only for individual organisations (e.g. IGN). The private sector is involved in the creation of value-added products, but rather as a client of the public sector data providers than as a partner. Currently, the private sector does not play a big role in the NSDI in France, but there are signs that its role will grow in the future. No copyright exists in laws, decrees, court decisions, and legal texts. Copyright is regulated by a system of licences. The Ordonnance of 6 June 2005 on re-use of PSI states that if charges are made for the re-use, a licence has to be available, which holds the conditions for the re-use. Such model licences are provided by APIE. Partial public funding applies to all activities of the IGN, which has to recover approximately half of its funding through the sale of data and services. BGRM does not obtain any funding.

Based on these conclusions we score the indicators as follows:

- There is a legal instrument or framework determining the SDI-strategy or – development
- There are true PPPs or other co-financing mechanisms between public and private sector bodies with respect to the development and operation of the SDI-related projects (No)
- There is a freedom of information (FOI) act which contains specific FOI legislation for the GI-sector
- GI can specifically be protected by copyright
• Privacy laws are actively being taken into account by the holders of GI

• There is a framework or policy for sharing GI between public institutions

• There are simplified and standardised licences for personal use

• The long-term financial security of the SDI-initiative is secured (No)

• There is a pricing framework for trading, using and/or commercialising GI
2.4 Component 3: Data for themes of the INSPIRE annexes

2.4.1 Data sets of different resolutions covering the INSPIRE and other themes

Core datasets include the RGE (large scale reference database) produced by IGN, topographic databases (BD TOPO); Cadastre (BD PARCELLAIRE); administrative boundaries; postal addresses (BD ADRESSE); orthophotographs (BD ORTHO). These objects are included in the RGE and are partly produced by IGN and partly by other parties (DGI, local governments, ...). The following geodatasets are also considered of high priority: nautical charts; maritime data: geological data; socio-economical data (NSI); agri-environmental data.

Besides the integrative work for RGE, IGN also produces other widely used ‘référentiels’:

- BD CARTO (1:50.000 – 1:100.000) first version available since the early 1990ies;
- SCAN25 (scanned version of topographic map 1:25.000), SCAN100, SCAN250, SCAN1000.

Other important INSPIRE datasets include transport networks (maintained by IGN), hydrography (IGN, BRGM, SANDRE, DIREN), land cover (BRGM), geology (BRGM), buildings (IGN), utilities (IGN), environmental monitoring facilities (REP), and natural risk zones (BRGM, DIREN, DPPR). Next, EuroGeoNames is developed in cooperation between IGN and other national cartographic agencies.

France has currently not yet assigned responsibilities for the data sets that would fall under the data themes in the annexes to the INSPIRE directive. This is also due to the complicated relationship between the national level and the local authorities. In addition, most of the public authorities accept their responsibilities with regard to the data sets they hold, so the need is not felt at the national level to enforce INSPIRE compliance for a pre-determined list of data sets. The main concerns relate to the costs of harmonisation.

2.4.2 Geodetic reference systems and projections

Spatial referencing is done by co-ordinates. IGN France has made online access available for the catalogue of Spatial Reference Systems to the general public in late 2006. This catalogue is an implementation of ISO/GML standards.

The national referencing system = RGF93 (defined in Decree 200-1276 dated 29 December 2000) is mandatory since March 2009 (Decree n° 2006-272 dated 3 March 2006) in continental France. It is compatible with ETRS89.

Geodetic Datum = EUREF.
For the reference of the elevations, IGN69 (mainland), IGN78C (Corsica), and the reference of the depths is established by SHOM. (see Decree 200-1276 dated 29 December 2000).

Overseas areas:
RGR92 (Réunion), REUN89 (height)
RGFG95 (Guyanne), GUYA77 (height)
GUAD48 (Guadeloupe - St Anne), GUAD88, GUAD88LS, GUAD88MG, GUAD92LD (height)
GUADFM49 (Gaudeloupe - Fort Marégot), GUAD88SB, GUAD88SM (height)
MART38 (Martinique - Fort Desaix), MART55, MART87 (height) MAYO50 (Mayotte), MAYO50 (height) ...

It is worth noting that for the next Geopontail release the overseas spatial reference systems will be the new GPS surveyed ones only (RGR92, RGFG95, RRAF91, MAYO04, STPM06):
RRAF91 covers the French Antilla
MAYO04 covers Mayotte island
STPM06 covers Saint Pierre et Miquelon island.

2.4.3 Quality of data

In 2008, the ministries of ecology and agriculture created the Commission de Validation des Données pour l’Information Spatialisée (COVADIS), an interministerial structure for the establishment of standards and the compatibility of existing standards with the INSPIRE directive. This structure plays a role in the improvement of the quality of the infrastructure.

BRGM and IGN have undertaken initiatives under ISO9001 to ensure quality for the Geocatalogue and the Geoportal. For the Geocatalogue, BRGM is certified by AFNOR and has a quality management system for the management, production and support of the Geocatalogue. A Quality Assurance Plan was created to guarantee the quality and functioning of the service. For the geoportal, IGN has undertaken certification for the activities linked to the portal.

SHOM complies with the S44 standard of IHO for their surveys and with the relevant publications of the IHO (M3, M4, S57, …) for the cartographic quality. This includes an internationally agreed qualification for the surveyors and the marine cartographers set by FIG, IHO and ICA.
2.4.4 Interoperability and harmonization of data

Interoperability is one of the main concerns of the main actors in the development of the French NSDI.

Since the RGE is developed from data coming from various sources, geometric and semantic interoperability is an important point of attention. Typical examples involve data from the cadastre, and data from local authorities that are to be integrated in the RGE. ADAE, with the help of CNIG, has developed a common interoperability framework that includes a GI section. IHO has developed a full set of principles for the electronic navigation charts aiming at providing the necessary interoperability for the seafarers of these ENC produced by different States (in particular the WEND (Worldwide Electronic Navigation chart Database) or the IHO S52 publication). SHOM complies with these internationally agreed principles.

Some Ministries (MEDD) and agencies (BRGM, IFN,...) have already implemented some interoperability protocols (mainly OGC/ISO WMS and WFS) on their servers. BRGM’s Infoterre portal has been completely based on OGC standards, with a view to full interoperability.

IGN has coordinated the INSPIRE pilot project called SDIGER (2005-2006), aiming at interoperability for metadata, data access and distributed systems architecture in the frame of the development of a trans-boundary inter-administration multilingual infrastructure for the Water Framework Directive on the Adour-Garonne and Ebro river basins. Next, BRGM is part of the OneGeology consortium, aiming at interoperability between the datasets held by the Geological Surveys in the world, and the OneGeology-Europe project, which acts as a pilot for the INSPIRE data specifications.

Currently the French forum for OGC (created in 2008 by BRGM and IGN) is committed in promoting interoperability among French data providers. The OGC specifications involve, CSW, WCS, WFS, and WMS (http://www.forumogcfrance.org/spip.php?rubrique24). The forum also organises a yearly workshop, the Day of the French geospatial interoperability where different organisations present their progress towards interoperability status (http://www.forumogcfrance.org/spip.php?rubrique42). The French OGC Forum is used as an intermediate between the issues of the different members, data and service providers on the one hand and OGC international on the other hand. BRGM and IGN take an active role in the forum, without holding the control over it. In addition, the Ministry of Environment, Energy and Sustainability have started a Commission for Standardisation, addressing semantic and technical interoperability.

2.4.5 Language and culture

The language is French. The geoportal is accessible in French, English, Spanish and German.
2.4.6 Conclusions of Component 3

Many datasets exist that provide a basis for contributing to the coverage of pan-Europe for the INSPIRE-selected data themes and components, while the geodetic reference system and projection systems are standardised, documented and interconvertable. Quality control procedures are in place for the Geoportal and the Geocatalogue, but there are no broader procedures. Interoperability is one of the main concerns of the main actors in the development of the French NSDI. BRGM’s Infoterre portal has been completely based on OGC standards, with a view to full interoperability. French is the operational language while more websites provide now information documents in English.

Based on these conclusions we score the indicators as follows:

- Geodatasets exist which provide a basis for contributing to the coverage of pan-Europe for the INSPIRE-selected data themes and components

- The geodetic reference system and projection systems are standardised, documented and interconvertable

- There is a documented data quality control procedure applied at the level of the SDI (Partially)

- Concern for interoperability goes beyond conversion between different data formats

- The national language is the operational language of the SDI

- English is used as secondary language (Partially)
2.5 Component 4: Metadata

2.5.1 Availability of metadata

IGN produces metadata for all its datasets but the most detailed metadata remains internal to IGN. The launch of the national geoportal and the existence of the Geocatalogue have provided an incentive for many organisations to provide metadata. Metadata are available for almost all datasets under the INSPIRE themes, and for more than 75% of the services.

2.5.2 Metadata catalogues availability + standard

BRGM has been appointed to establish the French GeoCatalogue in relationship with the French Geo-Portal and is currently available on the geoportal (http://www.rencontres-sig-la-lettre.fr/wp-content/uploads/2010/05/INSPIRE-Lagarde.pdf). As a related action, a group chaired by the Ministry of Environment is establishing a freeware cataloguing solution, called geosource based on the geonetwork initiative of FAO. Geosource is proposed as a solution for the establishment of catalogues of GI resources for use by the organizations not having the ability to develop their own cataloguing system. This is an application that is freely available for the local authorities, with which they can maintain their metadata and which can be directly linked with the Geocatalogue.

Moreover, a catalogue for coastal zone GI is available (BOSCO).

2.5.3 Metadata implementation

There seems to be no high level authority responsible for the implementation of metadata across data producing organizations (except for the maritime world where IHO commissions play an important role between the countries). However, the interministerial working group (CNIG-ADAE) recommends the use of ISO/DTS 19139 in terms of XML implementation of ISO 19115.

A tool REPORTS 2003 was available free of charge on the CERTU web site (www.certu.fr) to encourage administrations (local and national) to document their GI holdings. Currently this has been replaced by the Geocatalogue of the geoportal.

2.5.4 Conclusions of Component 4

Metadata are produced for a significant fraction of geodatasets of the themes of the INSPIRE annexes. BRGM has been appointed to establish the French GeoCatalogue in relationship with the French Geo-Portal. At the same time other catalogues exist. There seems to be no high level authority responsible for the implementation of metadata across data producing organizations.

Based on these conclusions we score the indicators as follows:
• Metadata are produced for a significant fraction of geodatasets of the themes of the INSPIRE annexes

• One or more standardised metadata catalogues are available covering more than one data producing agency

• There is a coordinating authority for metadata implementation at the level of the SDI (No)
2.6 Component 5: Network Services

2.6.1 Geoportal

The French national geoportal (www.geoportail.fr) was officially inaugurated in June 2006. It comprises two portals, the visualisation portal www.geoportail.fr maintained and operated by IGN, and the catalogue portal (ISO 19115 compliant) www.geocatalogue.fr, maintained and operated by BGRM, under the supervision of the Ministry of Environment, Energy and Sustainable Development, and supported by a panel of experts from the Geological and Mining Research Bureau (BRGM), the Navy’s Hydrographic and Oceanographic Department (SHOM), Météo France (French Weather bureau), the Regional Centre for Geographic Information of the Provence - Côte d’Azur Region (CRIGE-PACA), the Ministry of Defence, the Ministry of National Education, the Order of Chartered Surveyors (OGE), the National Forestry Inventory (IFN), the National Inter-professional Grain Office (ONIC), the Scientific and Technical Building Centre (CSTB) and the Information Service for the Geneva Territory (SITG).

IGN is responsible for the development and administration of Géoportail, in particular for the data visualisation, while the BRGM is responsible for the Géocatalogue, which lists the various sources of public geographic information. BRGM provides ISO19115 compliant metadata for its thematic datasets.

The objective of is to facilitate access to GI for public administrations and the citizens. Although photographs, maps and databases of IGN are the main data components, the viewing portal is regularly updated by many other producers of geographic data. It is developed in accordance with Open Geospatial Consortium (OGC) standards, and can be used by public administrations, private citizens and businesses.

In 2009, the Géoportail’s API (Application Programming Interface) was made available, so that the maps and aerial photographs can be imported as a background into other websites (https://api.ign.fr/geoportail/).

Thematic portals are also available, for example for water (http://webnux.rnde.tm.fr/disceau/drupal/bdd).

2.6.2 Network services

2.6.2.1 Discovery services

The Geocatalogue created by BRGM as part of the Geoportal provides discovery services for all data that are included in the geoportal. Next, discovery services are also available for the Infoterre portal of BRGM. IGN's metadata can be harvested from the geocatalogue service through the use of its CSW entry point (See http://wxs.ign.fr/geoportail/csw/soap/catalogue?SERVICE=CSW&REQUEST=GetCapabilities&). The geoportal itself has a metadata cache from viewing datasets coming from
the geocatalogue; this cache is daily updated for IGN’s metadata and is emptied for other metadata also on daily basis.

At the sub-national level, the regions, departments and communes are also starting to cooperate in the creation of geoportals to exchange geographic data. These portals are linked to the Géoportail.

Primar Stavanger can be seen as a direct portal for the HOs members of this RENC and for the distributors acting on behalf of the end users (http://www.primar.no/).

### 2.6.2.2 View services

The French geoportal through the Geoportail API gives access to various on-line services such as cached WMS, WMS. OpenLS (for geographical names and addresses searches); (see http://api.ign.fr/geoportail/api/doc/webmaster/layers.html). For performance reasons, preference is given to cached WMS. More services are to be provided such as WFS or WCS. Viewers (client applications) make use of the API (either the JavaScript API or the Flex) to access datasets. Developers can also directly use the low-level API to get access to the datasets (for instance for the mobile devices or GIS). Access to all services is controlled by a light GeoRM implementation based on the use of an API key to be given when querying services (See http://api.ign.fr/geoportail/api/doc/developpeur/geomr.html). The API not only gives access to reference datasets but also to any remote service supported by OpenLayers stack.). The Geoportal enables to co-view any external WMS fluxes.

Moreover, BRGM provides access to core geoscientific data through InfoTerre (http://infoterre.brgm.fr),(e.g. geological maps of 1 / 1 000 000 to 1 / 50 000, records of natural hazards and industrial data on groundwater). InfoTerre TM uses only international interoperability standards published by the Open Geospatial Consortium (OGC) and it is consistent with future technical requirements of EU Directive INSPIRE. A new version is released approximately every 18 months.

Next to these portals, there are also other thematic or regional portals that are being developed, such as the portal on environmental information, which had to be developed under the Loi Grenelle, or the regional portal at http://www.sigale.nordpasdecalais.fr/, or the cadastre (http://www.cadastre.gouv.fr/scpc/accueil.do).

A number of municipalities have also launched projects to share data via web services, for example the Carmen project (http://carmen.ecologie.gouv.fr/spip.php?article78) for the protection of nature and biodiversity. At the regional level, CRIGE PACA is a notable example (http://www.crige-paca.org) where thematic data, maps and aerial images among others can be viewed and downloaded for free.

A Spanish and French cross-border cooperation between the two NMCAs (Spanish IGN-E and French IGN-F) published web services from each partner on the Geoportal of the other.
2.6.2.3 Download services

With the launch of the geoportal, a consolidated service is available. Via the Geoportal services (http://www.geoportail.fr/en_UK/services/services.do?channelid=5063401) users can have access and download data from a number of services concerning leisure, education, professional use and public information. On the BRGM website, also non-geo-referenced data can be downloaded, such as 20,000 reports from BRGM.

At the regional level, the Conseil Regional Nord-Pas de Calais provides such a service on the Internet. CRIGE PACA has an Extranet-service (accessible by the members of the CRIGE only). Some departmental local governments are implementing such services as well. Another example is the GeoBretagne (http://geobretagne.fr) where users (after registration) can create simple interactive queries, edit data and maps.

A geodetic data service is available on IGN website. The OGE (chartered surveyors) are creating a new GPS service (TERRIA) compatible with IGN permanent geodetic network (based on an MOU, IGN provides corrected for TERRIA stations).

2.6.2.4 Transformation services

The EDIGéo library contains freely accessible software for coordinate transformations. Other transformation systems are on hold until more information is available with regard to the implementing rules from the European Commission.

A geodetic Windows application (CIRCEE) is freely downloadable from the IGN's website. Moreover, the geoportal’s 3D viewer became since December 2008 compatible with multiple platforms (Windows, Macintosh, and Linux).

2.6.2.5 Invoking services

The French Geoportal provides a direct access to the French metadata catalogue. The catalogue itself allows retrieval and eventually links back to the view service of the Geoportal. Metadata eventually point at their download service counterparts. The Geoportal gives access through the service menu to various services including the download service (e-boutique) for reference datasets. A special mechanism has been set for linking service metadata and datasets or series metadata.

2.6.3 Spatial data services and other services

Customers may purchase online IGN maps and aerial photographs, cadastral parcels and vector datasets. In late 2006 early 2007, the Geoportail has opened an e-commerce boutique for extracting/receiving images.

With the “map à la carte” custom-made map service, offered since June 2007, IGN internet users may order customized maps: they can personalise the boundaries of the map, the scale, the cover, the title and add on additional information.
A specific area ([http://www.professionnels.ign.fr](http://www.professionnels.ign.fr)) is reserved for professionals to subscribe to services reserved for them: downloads of technical documents, orders and downloads of digital “image” data like the BD ORTHO® or SCAN products, and soon downloads of “vector” databases. The section reserved for the public-at-large was designed for individuals, who are aficionados of land-based or airborne activities and would like to purchase maps, photographs or the Evadeo GPS navigator developed by IGN ([http://professionnels.ign.fr/index.do](http://professionnels.ign.fr/index.do)).

From the Geoportal services users have a download selection for either free or pay data such as:

**IGN data**

- **BD ALTI®**: a data repository for information on relief in France, BD ALTI® is a comprehensive range of DTMs (Digital Terrain Models) describing the shape and relief of a site at various different scales (from 1: 50 000 to 1: 1 000 000).

- **BD PARCELLEAIRE®**: the Large Scale Land Registry parcel makeup of the data repository (RGE®).

- **BD ORTHO®**: The Large Scale orthophotographic makeup of the Data repository (RGE®).

- **SCANs**: The IGN SCANs are geo-referenced digital images instantly usable to locate users information, identify operations and overlay the user data.

**Geographical Directory of communes**

IGN file containing the geographical positioning of each commune's administrative centre (town hall), as well as relevant administrative information.

**Geodesy**

IGN Online download of geodesic and levelling data sheets as contained in the IGN database.

**GEOFLA® Départements**

IGN file of vectorised data mapping the borders of all departments in metropolitan France and those of overseas departments together with administrative information useful for geo-marketing, statistical and thematic cartography applications.


**2.6.4 Use of software**

The national geoportal is developed according to OGC standards. The geoportal’s API (licensed under free BSD) is a wrapper on top of OpenLayers API from the OGC. The GI
on the portal is available in the most common formats and domain standards (kml, WMS, WFS). The Geoportal API delivers more than 40 million tiles per month with an average of 7000 visitors per day. The infrastructure is based on a hosting centre comprised of 70 servers and 12 firewalls, involves 3Gbps bandwidth and has a fast cache NAS (10k I/O per s) of 50Tb, a “slow” cache NAS of 50Tb and a storage of 100Tb. BRGM has also created components for web services that can be used by other public and private data and service providers.

IGN developers have contributed to Open Source projects: proj4, proj4js, gdal, geoserver, openscales and mapbuilder (patch for CRS registers). It is a general policy that IGN developed software packages made available as Open Source contributions under the CECILL licensing framework. The COGIT research laboratory at IGN has launched in June 2005 its “Geoxygene” platform (http://oxygene-project.sourceforge.net/). GeOxygene aims at providing an open framework compliant with OGC/ISO specifications for the development and deployment of geographic (GIS) applications. It is an Open source contribution of the COGIT laboratory at the IGN, the French National Mapping Agency. It is released under the terms of the LGPL (GNU Lesser General Public License) license.

GeOxygene is based on Java and Open Source technologies and provides users with an extensible object data model (geographic features, geometry, topology and metadata) compliant with OGC specifications and ISO standards in the geographic information domain. The support of the Java interfaces developed by the Open Source GeoAPI project is planned in a near future.

Data are stored in a relational DBMS (RDBMS) to ensure a rapid and reliable access to the system but users do not have to worry about any SQL statements: they model their applications in UML and code in Java. Mapping between object and relational environments is performed with Open Source software. At present, OJB is supported and the mapping files for the storage of geographic information in Oracle or PostGIS are provided to users.

2.6.5 Conclusions of Component 5

The Geocatalogue created by BRGM as part of the Geoportal provides discovery services for all data that are included in the geoportal. With the launch of the geoportal, a consolidated service is available. Via the Geoportal services users can have access and download data from a number of services. The French geoportal through the Geoportail API gives access to various view on-line services such as cached WMS, WMS.

Based on these conclusions we score the indicators as follows:

- There are one or more discovery services making it possible to search for data and services through metadata
• There are one or more view services available for to visualise data from the themes of the INSPIRE annexes

• There are one or more on-line download services enabling (parts of) copies of datasets

• There are one or more transformation services enabling spatial datasets to be transformed to achieve interoperability (Not clear)

• There are middleware services allowing data services to be invoked (No)
2.7 Component 6: Thematic environmental data

The major players with respect to the production and management of thematic environmental data are the Directions Régionales du Ministère de l’Ecologie et du Développement Durable (MEEDDM). IFEN (Institut français pour l’ENvironnement) is a major user of these data in the sense that it provides national government services with concatenated and validated data and analyses based on primary thematic environmental data. BRGM is mandated by the MEEDDM to manage large thematic databases and make them available on the web.

Thematic environmental data produced by these organizations mostly use IGN’s reference data. For the delineation of river basins, the creation of the hydrography and geo-hydrology dataset, BD-Carto was used to set up the BD CARTHAGE data base, which is jointly maintained by the water agencies (environment related attributes) and by the IGN (topographic part).

Important nation-wide thematic environmental geodatasets include:

- Natura 2000;
- Atlas of floodable zones;
- Water (rivers, discharges, piezometrics);
- Industrial risks (BRGM)

BRGM developed the portal to the earth sciences with 10 thematic areas such as: mapping and geoinformation; mineral resources; geothermy; geological storage of CO2; development planning and natural risks; digital information systems; water; contaminated land and waste management; post-mining and environmental metrology. It also developed the portal on environmental information for the Ministry of Environment, on the basis of the Loi Grenelle.

Some important themes of INSPIRE of annex III are not (yet) covered: e.g. habitats & biotopes, atmospheric conditions.

2.7.1 Conclusions of Component 6

Based on the information provided on the previous paragraph we score the indicator as follows:

- Thematic environmental data are covered by the described SDI-initiative or there is an independent thematic environmental SDI (partially)
2.8 Standards

EDIGéO has been adopted as the national standard in 1994. It is an exchange standard derived from DIGEST.

National actors (BRGM, IGN, SPOT Image, SHOM, ...) have all ongoing standardisation activities related to the ISO/TC 211 and OGC standards through their respective domain multi-national organisations (Eurogeographics, IHO, ...), but local actors have also investigated the use of OGC standards. The GI part of the Common Interoperability Framework established in 2005 needs to be updated in order to reflect this evolution which can be seen as a consequence of the INSPIRE initiative and more generally of the growing interest of the European GI organisation in the emerging standards. The OGC forum has been set up to address the use of standards and interoperability.

An important initiative on coordination and cooperation with regard to standards, is the Ministry of Environment, Energy and Sustainable Development working together with the Ministry of Culture, and reaching out to other ministries and local authorities to set up a Commission for Standardisation, applying INSPIRE models and developing new ones if necessary. This Commission was set up within AFNOR (French standardisation body).

SHOM complies with national rules (transliteration, National Toponymy Committee, TAAF toponymy commission...) but also with IHO publication (S23, M4, ..) and with IOC/IHO GECO SCUFN (sub-committee on the underwater features names).

2.8.1 Conclusions of Component 7

An important initiative on coordination and cooperation with regard to standards, is the Ministry of Environment, Energy and Sustainable Development working together with the Ministry of Culture, and reaching out to other ministries and local authorities to set up a Commission for Standardisation, applying INSPIRE models and developing new ones if necessary.

Based on these conclusions we score the indicator as follows:

- The SDI-initiative is devoting significant attention to standardisation issues
2.9 Use and efficiency of the SDI

An issue that has received extensive attention is the cross border services collaboration. French and Spanish NMAs are collaborating in the perspective of setting up seamless cross border services trying to fulfil the INSPIRE Implementing Rules taking into account their specific data policies and economic models. The following actions have been undertaken in the past, present and future:

- Participation in the SDIGER Project, an INSPIRE Pilot Project developed by a consortium (IGN-F, IGN-FI, UNIZAR, CNIG-E, CHE);
- Interchange of experiences, ideas and all kind of technical information about web services and INSPIRE implementation challenges;
- Translation of both geoportals to the other party's mother language;
- Implementation of the mechanisms needed to plug the Spanish WMS-C services in the French geoportal viewer;
- Implementation of the mechanisms needed to access the French WMS-C in the Spanish geoportal using an Application Programming Interface (API) specific solution;
- Cooperation to support the French initiative to develop an Open Source software for accessing datasets, OGC compliant, for European NMAs.

The first attempt has been to display Spanish maps coming for WMS and WMS-C service using IGNF API. These datasets were overlaid with IGNF maps and orthophotos. IGNE developed a prototype to display IGNE and IGNF datasets superimposed in the IGNE viewer by using the IGNF API. Also, this prototype enabled to include the access to Spanish WMS (WMS maps, scanned maps, orthophotos, and cadastre) and Spanish WMS-C (WMS-C maps, scanned maps, and orthophotos) and IGNF stack of maps (from 1:25,000 scale to 1:10,000,000 scale maps), ortho-imagery (from 50cm/pixel ortho-photographies to European wide imagery).

On the other hand, IGNF developed a prototype displaying Spanish data in the IGNF Geoportal viewer. IGNF added the access to idée-base (stack of WMS maps) and PNOA (stack of scanned maps and orthophotos) overlaid with French layers. These prototypes only address the cross-access of partners’ datasets, not the full compliance with INSPIRE View Service Implementing Rules (Rodriguez et al., 2009).
### 3 Annexes

#### 3.1 List of SDI addresses / contacts for France

<table>
<thead>
<tr>
<th>National</th>
<th>Web address</th>
<th>Organisational mailing address</th>
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<tr>
<td>IGN</td>
<td><a href="http://www.ign.fr">www.ign.fr</a></td>
<td>Institut Géographique National 136 bis rue de Grenelle 75007 Paris France T +33/0 1 43 98 82 70 F +33/0 1 43 8400 00 Mr. J.-M. Nataf Directeur pour les Activités Internationales et Européennes</td>
<td></td>
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<tr>
<td>CNIG</td>
<td><a href="http://www.cnig.fr">www.cnig.fr</a></td>
<td>136bis Rue de Grenelle, 75700 Paris 07SP Mr. F. Salgé</td>
<td></td>
</tr>
<tr>
<td>SHOM</td>
<td><a href="http://www.shom.fr">www.shom.fr</a></td>
<td>3 av O Gréard 75007 Paris Mr. M Le Gouic</td>
<td></td>
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<tr>
<td>Ministère de l’Ecologie et du Développement Durable</td>
<td><a href="http://www.environnement.gouv.fr/">www.environnement.gouv.fr/</a></td>
<td>20 Avenue Ségur, 75302 Paris Cedex 07 Mr. C. Ecobichon</td>
<td></td>
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<tr>
<td>BRGM</td>
<td><a href="http://www.brgm.fr">www.brgm.fr</a></td>
<td>3, avenue Claude Guillemin, 45060 Orléans Cedex 2 Mr. F. Robida</td>
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<tr>
<td>CNES</td>
<td><a href="http://www.cnes.fr">www.cnes.fr</a></td>
<td>2 place Maurice Quentin 75039 Paris Cedex 01 Mr. Alain Baudoin</td>
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### 3.2 *List of references for France*

Table: list of references used to compile the Country Report

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### Publications:

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<tr>
<td>GINIE: Geographic Information Network in Europe. Spatial data infrastructures: Country Reports FINAL D 5.3.2(b).</td>
<td>September 2002</td>
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<td>IGN, 2008 Activity report.</td>
<td></td>
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<td>A. Rodriguez1, S. Mas1, D. Richard, F. Chirié. IGN Spain and IGN France collaboration to set up cross border INSPIRE compliant services. GSDI 11, 15-19 June2009 Rotterdam.</td>
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