



Spatial Data Infrastructures in Ireland: State of play 2010



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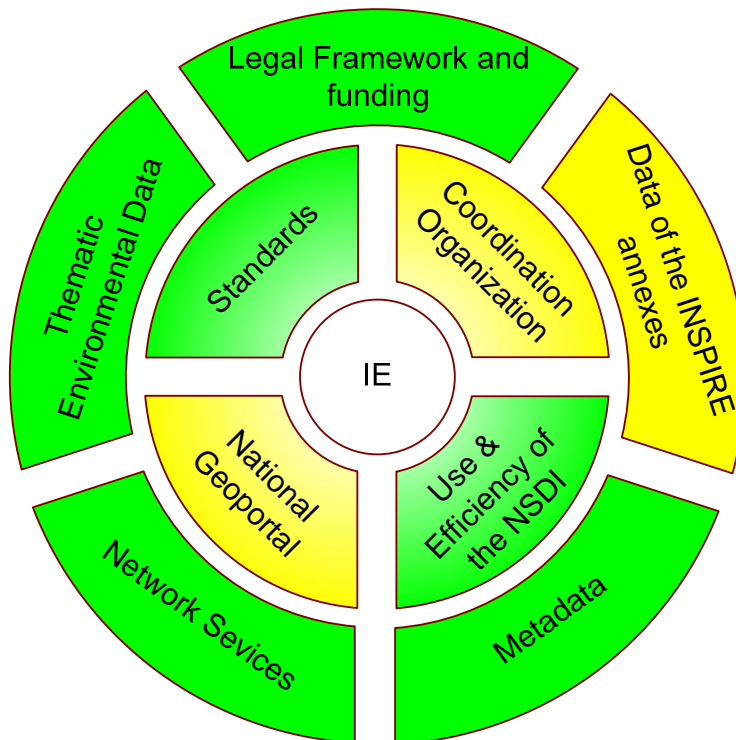
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Change matrix 2010 versus 2007

A concise graph is added to indicate changes of the various paragraphs compared to the previous report. Two colours are used: Green and Yellow indicating major and minimum changes respectively compared with the 2007 State of Play. This graph does not reflect the country situation. Merely it represents our findings/changes per section on our preparation of the desktop analysis



Executive summary

Although no SDI currently exists in Ireland, elements required to build a first rank spatial data infrastructure do exist. An ISDI (Irish Spatial Data Infrastructure) Working Group has been set up which is currently developing ISDI policy.

In the *March 2002 New Connections Action Plan* issued by the Irish Government it was stated that a National Spatial Data Infrastructure should be established for Ireland. In November 2002 the Department of Environment, Heritage and Local Government was appointed by the government to take the lead role in developing an Irish Spatial Data Infrastructure (ISDI). Since this time the Department has undertaken a number of initiatives, including establishing the above mentioned ISDI Work Group which provides specialist advice and comment, holding a seminar on ISDI for all government departments and selected government agencies, establishing reporting procedures from the ISDI Work Group through the National Spatial Strategy (NSS) Inter-departmental Implementation Committee to the Cabinet Sub-committee on Infrastructure and PPPs. The Group comprises representatives from Ordnance Survey Ireland (OSi), Land Registry, Local Government Computer Services Board (LGCSB), Central Statistics Office (CSO), the Department of the Taoiseach and academics with knowledge in the field.

The major executive institutions for the envisaged SDI are the main GI-providers: the Ordnance Survey of Ireland (OSi), the Land Registry and the Department of Agriculture. Other providers are the Central Statistical Office, the Environmental Protection Agency (EPA) and the Geological Survey. Examples of projects contributing to the NSDI are the elaboration of an OSi pricing model, a new positioning infrastructure, and the implementation of topographic identifiers.

At the same time, a number of major developments have been initiated resulting in the online availability of numerous geodatasets. These include the Irish Spatial Data Exchange which started life as the Marine Data Exchange project in 2004, and came about following experiences gained in data management programmes in the Marine Institute, the Geological Survey of Ireland and the Environmental Protection Agency. The web server of EPA is another notable example since is oriented towards open technology and international standards usage. At the same time various SDI efficient initiatives on private and public sector have emerged.

Furthermore, on 30 July 2010 John Gormley TD, the Minister for Environment, Heritage and Local Government, signed Statutory Instrument No382 which brought into effect on 1 August 2010 the transposition of the INSPIRE Directive.

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Abbreviations and acronyms

CIL	Commissioners of Irish Lights
CSO	Central Statistics Office
CT	Core Thematic Data
DCENR	Department of Communications, Energy and Natural Resources
DCMNR	Department of Communications, Marine & Natural Resources
EPA	Environment Protection Agency
ETRF	European Terrestrial Reference Frame
EUROGI	European umbrella organisation for geographical information.
FIR	Further Investigation Required
GEO-ID	Geospatial Information Directory
GI	Geographical Information
GIS	Geographical Information System
GPS	Global Positioning System
GSI	Geological Survey of Ireland
IG	Irish Grid
INSPIRE	INfrastructure for SPatial InfoRmation in Europe
INSS	Irish National Seabed Survey
IRLOGI	Irish Organisation for Geographic Information
ISDE	Irish Spatial Data Exchange
ISDI	Irish Spatial Data Infrastructure
ISO	International Organization for Standardization
ITM	Irish Transverse Mercator
LGCSB	Local Government Computer Services Board
LPS	Land and Property Services Northern Ireland
MIDA	Marine Irish Digital Atlas
NMA	National Mapping Agency
NSDI	National Spatial Data Infrastructures
NSS	National Spatial Strategy
OGC	Open Geospatial Consortium
OSi	Ordnance Survey Ireland
OSNI	Ordnance Survey of Northern Ireland
PPP	Public-Private Partnerships
PRA	Property Registration Authority
PSI	Policy and legislation on access to public sector information
REF	Reference data
RTK	Real Time Kinematic

SDI Spatial Data Infrastructures
UTM Universal Transverse Mercator
WGS World Geodetic System

1 GENERAL INFORMATION

1.1 Method

This report is summarizing the review of SDI in Ireland, and reflects the degree to which the SDI situation in Ireland is similar to the ideas set out in the INSPIRE position papers¹ and the more recent INSPIRE scoping documents.

The 2002 report was based on the analysis of various documents, project references and mainly web sites (see Section 3.2). Most resources were gathered from the Internet. The search of the Internet was via publicly available search engines (e.g. Google and AltaVista). Initial search expressions were in English.

No comments were provided were provided by the Irish GI-expert community for the update of 2004. For the update of 2005, Mr. Bruce Mc Cormack centralized contributions from different organizations which were used as input for that version of the report. For the update of 2006, websites were visited and various other sources were used. For the 2007 update, no input was received from Ireland. Some minor changes were added based on other sources.

For the 2009 update the survey questionnaire was used, along with various web sources, and publications. In this version obsolete information was removed, while a conclusion paragraph regarding the status of each indicator was added for each component.

1.2 Key-players and initiatives on the Irish SDI-scene

In the following paragraphs key-players are listed with their field of activities in relation the development of the ISDI.

Department of the Taoiseach (Prime Minister)

This department is responsible for the Information Society agenda in Ireland. SDI matters fall within the ambit of this agenda. The Department of the Taoiseach (Prime Minister) has rejuvenated Irish plans for such an SDI, seeing it as a vital part of the Information Society. The work is proceeding at two levels: the top-down creation of a national strategy; and the bottom-up development of projects to prove the concepts involved.

Department of Environment Heritage and Local Government

This department has the responsibility for advancing the Irish Spatial Data Infrastructure and for dealing with INSPIRE related matters. Met Éireann the national weather authority, is a major spatial data producer and is part of this department. The department is responsible for a range of natural, architectural and archaeological heritage matters and its heritage data base includes information on Sites and Monuments of Record, the

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

Recorded Monuments Record, Monuments in State Care, Natural Heritage Areas, Special Areas of Conservation, Special Protection Areas (Birds' Directive), Nature Reserves and National Parks. The Department is also responsible for implementation of the National Spatial Strategy. In this regard it has sponsored a variety of research projects linked to aspects of the ISDI.

Irish Organisation for Geographical Information (IRLOGI)

IRLOGI is the Irish Organisation for Geographic Information (<http://www.irlogi.ie>). It is the umbrella organisation for the geographical information industry (public and private) in Ireland and is a member of EUROGI - the European umbrella organisation for geographical information. It is an Irish Registered Company Limited by Guarantee. IRLOGI is actively promoting the development of an NSDI for Ireland. IRLOGI was formed in 1995 to represent the Irish GI community. Its mission is to stimulate the development and effective use of Geographic Information in Ireland. The organisation's strategic objectives are to act as a focus for the collection, exchange and dissemination of geographic information, to encourage the development and adoption of quality and reliable standards for GI, to represent the interests of the Irish GI community nationally and internationally, and to encourage and support education and training in GI. Its membership is drawn primarily from within Ireland, but also from outside the country.

Ordnance Survey Ireland (OSi)

The Ordnance Survey (NMA) of Ireland (OSi) is the major producer of reference data in Ireland. OSi is committed to playing a full part in the development of an Irish SDI. Its mapping data is a crucial resource for many users in the public and private sectors. OSi was established as a semi-state organization in March 2001 under the Ordnance Survey Ireland Act 2001. Ordnance Survey's legal mandate includes responsibility:

- To maintain and develop the underlying physical infrastructure to support mapping and mapping applications, including to maintain a national grid and the geodetic and height frameworks and to link these to international systems
- To provide mapping and related geographic data to the public and private sectors in support of social, economic, legislative, security, business and administrative functions and requirements.
- To advise Government and public sector organisations on matters relating to the policy and practice of survey, mapping and geographic information and on the development of national spatial database infrastructures.

Land Registry

The Land Registry was established in 1892 to provide a system of compulsory registration of title by the Registration of Title Act 1891 for all land bought out under the Land Purchase Acts. The system was later extended by the Registration of Title Act 1964. The Land Registry operates as an office of central government under the Minister for Justice, Equality and Law Reform. It is organized on a geographic basis for administrative purposes. The principle aims of the Land Registry are:

- To maintain and develop a uniform and efficient land registration system;
- To guarantee legal title on behalf of the State to interests in land;
- To provide ready access to accurate land information;
- To achieve continuously improving levels of service delivery to its customers.

As one step in the NSDI building process, OSi and the Land Registry are collaborating on work to develop closer linking between their datasets, for instance being able to use the Land Registry Folio number as an entry point to OSi data.

The Land Registry operates under the Property Registration Authority (PRA) which was established on 4 November 2006 under the provisions of the Registration of Deeds and Title Act 2006. PRA is a statutory body whose members are representative of the main users and consumers of property registration services. The PRA replaced the Registrar of Deeds and Titles as the "registering authority" in relation to property registration in Ireland. The main functions of the new PRA are to manage and control the Registry of Deeds and the Land Registry and to promote and extend the registration of ownership of land. The PRA also operates the Ground Rents Purchase Scheme under the Landlord and Tenant Acts.

Central Statistics Office (CSO)

This Office is responsible for collecting and disseminating statistical information. Much statistics have a geographical component and thus this Office is a major producer of thematic data.

Geological Survey of Ireland (GSI)

GSI was founded in 1845, is the National Earth Science Agency of Ireland. It is responsible for providing geological advice and information, and for the acquisition of data for this purpose. GSI produces a range of products including maps, reports and databases and acts as a knowledge centre and project partner in all aspects of Irish geology. It functions as a line division of the Department of Communications, Marine & Natural Resources (DCMNR) and has up to 100 staff.

GSI is responsible along with other partners for the Irish National Seabed Survey (INSS), which covers an area 10 times the size of the land area of Ireland. The survey represents one of the largest seabed mapping projects undertaken anywhere in the world.

Environment Protection Agency (EPA)

The Environmental Protection Agency (EPA) is an independent public body established under the Environment Protection Agency Act 1992. The other main instruments from which it derives its mandate are the Waste Management Act 1996 and the Protection of the Environment Act 2003. The EPA has a wide range of functions to protect the environment. Its primary activities include Licence and Permitting, Enforcement of environmental law; Environmental planning and guidance; Monitoring and reporting on

the environmental status- air, water, waste, noise, land and soil, advice and guidance Environmental Assessment and Environmental mapping (<http://www.epa.ie/whatwedo/assessment/spatial/>).

A detailed list of EPA functions is available at: <http://www.epa.ie/whatwedo/>

Marine Institute

The Marine Institute is the Irish state agency mandated by the Marine Institute Act, 1991, to undertake, to co-ordinate, to promote and to assist in marine research and development and to provide such services related to marine research and development, that in the opinion of the Institute will promote economic development and create employment and protect the environment.

Department of Agriculture Fisheries and Food

This department has significant data holdings in relation to agriculture and rural land use.

Local Government Computer Services Board (LGCSB)

The LGCSB is a public sector organisation, closely aligned with local government in Ireland. Its job is to provide local authorities with the best possible solutions to meet all their Information and Communications Technologies needs, to help local authorities develop appropriate strategies to underpin their business needs and to help them implement appropriate solutions. The LGCSB has developed a range of software products in the spatial data field for use by local authorities.

Universities and Research Institutes

A number of universities have courses that teach GIS and related matters. A number of university based research bodies are directly involved in spatial data matters, including the National Centre for Geocomputation at NUI Maynooth, the Coastal and Marine Resources Centre at University College Cork and the Urban Institute Ireland at the University College Dublin.

The major public data producers from the above mentioned list are:

- The National Statistical Office (<http://www.cso.ie>),
- The Ordnance Survey of Ireland (OSi) (<http://www.osi.ie/en/homepage.aspx>),
- The Geological Survey (<http://www.gsi.ie/>),
- The Land Registry (<http://www.landregistry.ie/eng/>),
- The Heritage Service (<http://www.heritageireland.ie/>),
- The Department of Agriculture (<http://www.agriculture.gov.ie/>) which has significant data holdings (primarily aerial photography) but these are not open to public access.

- The Environmental Protection Agency (<http://www.epa.ie/>)

The Irish Spatial Data Exchange started life as the Marine Data Exchange project in 2004, when the Marine Institute made an initial submission for funding to the Information Society Fund.

The project concept came about following experiences gained in data management programmes in the Marine Institute, the Geological Survey of Ireland and the Environmental Protection Agency. In 2004, the Marine Institute launched Marinedataonline.ie. This provided an online inventory of data holdings in the Marine Institute. It became apparent however that while this is a useful service that there is an assumption that users seeking marine related data would know where to look. While the Marine Institute holds significant amounts of marine data, so do the GSI, the EPA and 3rd level Education bodies. Similar issues exist when the EPA receives requests for 'environmental' data – it holds much of this data, but so too do the other agencies mentioned.

A refined Marine Data Exchange Proposal was submitted in March 2005 and funding for the project was approved in April 2005

Geodirectory

An autonomous company, GeoDirectory was created by the combined expertise of two of Ireland's most respected institutions, the Post and Ordnance Survey Ireland. GeoDirectory assigns each property its own individual fingerprint – a unique, verified address in a standardized format, together with a precise geocode.

To keep up with Ireland's ever-changing geography and demography, the database is updated quarterly.

GeoDirectory is now an indispensable tool used by hundreds of Ireland's leading businesses and government agencies. It consists of:

1. A distinct, verified address ID for every property- 1.86 million in total
2. An exact geographical location - a geocode- for every building
3. 196,000 individual business addresses
4. A quarterly update which incorporates all changes
5. Details of new construction underway.

(<http://www.geodirectory.ie/About-GeoDirectory.aspx>)

At the same time a number of private companies emerged that provided software and services towards SDI infrastructure.

1.3 The ISDI

As a result of the mentioned drivers, activities and projects, a nation-wide, general purpose SDI is emerging in Ireland. Further details are provided in Chapter 2.

2 Details of the ISDI

2.1 General information

In the March 2002 New Connections Action Plan issued by the Irish Government it was stated that a National Spatial Data Infrastructure should be established for Ireland.

The National Spatial Strategy 2002-2020 provides the framework for achieving a better balance of economic, social and physical development across the country as a whole, while looking forwards for an Agreement on an implementation strategy for a national spatial data infrastructure (Department of the Taoiseach Strategy Statement 2008-2010)

The Irish Spatial Data Infrastructure (ISDI) consultation document was published on 31 May 2004 and is directed mainly at people or organisations that are involved as spatial data providers or users and who have a level of familiarity with spatial data matters. More specifically it is aimed at:

- People in government departments, national agencies, local authorities and utilities who are responsible for managing data, preparing data/statistics/information strategies for their departments/agencies, organising spatial data and using such data;
- People in the teaching and research community;
- Software or hardware system providers and developers;
- Private sector data and information providers;
- Private sector data service providers (i.e. people who undertake data audits, data cleansing, data formatting etc);
- Professional bodies (planners, engineers etc);
- Data users from the public, private, voluntary, academic and research sectors.

Approximately 50 responses were received and these were analysed by the ISDI Work Group at two whole day workshops.

Although no SDI currently exists in Ireland, elements required to build a first rank spatial data infrastructure do exist. If these components can be adequately organised, combined and developed Ireland would have the ability to derive the substantial potential benefits arising from an SDI. Some of the important positive elements include:

- An increasing realisation that spatial data can play a major role in government and business;

- The realisation in government that an ISDI is necessary and the appointment of a government department to take a lead role in creating such an infrastructure;
- The fact that many organisations have a GIS capacity. For example virtually all County Councils have such a capacity and many government departments are in a similar situation;
- A number of tertiary education bodies provide education and training in GIS and related matters;
- Research bodies are building increasing competency in spatial analysis. A national centre for geocomputational analysis is to be established;
- Large quantities of data are already spatially 'tagged' in a variety of ways. However, the method of tagging of many of these datasets does not facilitate seamless integration of databases;
- The OSi has a sound and expanding digital spatial data base;
- An umbrella organisation (Irish Organisation for Geographical Information - IRLOGI) exists. This organisation is concerned specifically with spatial data matters and draws together interested individuals and organisations from a variety of sectors;
- The infrastructure exists through OSi to provide real-time GPS positioning.

However in striving for a first rank ISDI there are also difficulties and problems which need to be overcome, including:

- Lack of adequate funding arrangements;
- No coherent overall policy framework, a matter which is currently being addressed;
- Fragmented databases containing data which can not be seamlessly combined;
- Lack of an integration mechanism such as an ISDI Internet portal;
- Institutional issues and unresolved questions, including the balance between public good and the rights of the individual to privacy and suitable frameworks for protecting intellectual property rights (including copyright) while at the same time ensuring appropriate levels of access to information;
- Lack of a data sharing culture;
- Maintaining interest and support.

It should be mentioned that the Guiding Administrative Policy for an Irish Spatial Data Infrastructure has been drafted and will be finalised shortly. In addition this policy incorporates organisational issues for the implementation of INSPIRE while the technical implementation issues will be addressed separately. The Policy Framework covers issues such as vision, basic principles, the spatial area to be covered by the ISDI (land and sea areas), standards, legal, organisational, financial, consultation, research and development, education and training, and other issues. The international context for development of NSDI's (GSDA, ISO, INSPIRE, ...) is fully recognized.

[10]

2.2 Component 1: Coordination and organizational issues

In November 2002 the Department of Environment, Heritage and Local Government was appointed by the government to take the lead role in developing an Irish Spatial Data Infrastructure (ISDI). Since this time the Department has undertaken a number of initiatives, including establishing an ISDI Work Group which provides specialist advice and comment, holding a seminar on ISDI for all government departments and selected government agencies, establishing reporting procedures from the ISDI Work Group through the National Spatial Strategy (NSS) Inter-departmental Implementation Committee to the Cabinet Sub-committee on Infrastructure and PPPs. The Group comprises representatives from Ordnance Survey Ireland (OSi), Land Registry, Local Government Computer Services Board (LGCSB), Central Statistics Office (CSO), the Department of the Taoiseach and academics with knowledge in the field.

2.2.1 Conclusions of Component 1

The Irish SDI approach is truly national. SDI building blocks have reached a significant level of operationality. The major executive institutions for the envisaged SDI are the main GI-providers: the Ordnance Survey of Ireland (OSi), the Land Registry and the Department of Agriculture. Other providers are the Central Statistical Office, the Environmental Protection Agency (EPA) and the Geological Survey.

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 (4)
- The officially recognised or de facto coordinating body of the SDI is a NDP, i.e. a NMA or a comparable organisation (Not so clear)
- The officially recognised or de facto coordinating body for the SDI is an organisation controlled by data users (Not so clear)

- 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

2.3 Component 2: Legal framework and funding

2.3.1 Legal framework

The need for a legal framework is one of the issues addressed in the Irish Spatial Data Infrastructure Consultation Document mentioned above. However, until now no encompassing legal framework has been developed.

The transposition of the INSPIRE directive has been prepared. The directive will be transposed under the 1972 European Communities Act. On 30 July 2010 John Gormley TD, the Minister for Environment, Heritage and Local Government, signed Statutory Instrument No382 which brought into effect on 1 August 2010 the transposition of the INSPIRE Directive.

2.3.2 Public-private partnerships (PPPs)

The Irish Government has a policy of encouraging PPPs in certain sectors. However, no PPP structure currently exists in relation to the ISDI.

2.3.3 Policy and legislation on access to public sector information (PSI)

Access to public sector information is organised by the Freedom of Information Act 1997, as it was amended in 2003. This Act regulates access to public sector information with several exclusions. Access to publicly held information is nationally free of charge. However, government departments may charge for the time taken to extract the information requested.

Under this act, anyone is entitled to apply for access to records not otherwise publicly available. Requests have to comply with a number of formalities. They have to be in writing, although e-mails are also acceptable. If information is desired in a particular form, this should be mentioned in the application. Applications should be as detailed as possible to ensure that the staff of the Department where access is requested, is in a position to identify the records being sought.

Directive 2003/4 on access to environmental information was transposed into Irish law by the European Communities (Access to Information on the Environment) Regulations, S.I.

133 of 2007. Directive 2003/98 on re-use of PSI was transposed by Statutory Instrument no. 279 of 2005, "European Communities (Re-use of Public Sector Information) Regulations 2005". Under these regulations, there is no obligation for the public sector bodies to make their information available. If they decide to do so, they have to follow the Regulations.

2.3.4 Legal protection of GI by intellectual property rights

The Irish Copyright Act of 1963 was replaced by the Copyright and Related Rights Act 2000. It protects works that are original and expressed in a certain form. Copyright protection expires 70 years after the death of the author. No specific measures are taken concerning the protection of geographic or photographic works. The Government can also be a copyright holder, but its copyright expires fifty years after the work was made.

The Directive on the legal protection of databases was incorporated in the Copyright Act 2000. It also implemented the main terms of the then draft Directive 2001/29 on the Harmonisation of Certain Aspects of Copyright and Related Rights in the Information Society.

On 19th January 2004 Ireland transposed Directive 2001/29 into Irish law by the law enacting the European Communities (Copyright and Related Rights) Regulations 2004.

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

The Irish Government adopted the Data Protection Act in 1998 in order to transpose the European Directive on data protection of 1995 into national legislation. The Act addresses personal data in the area of information gathering, retention and use of collected personal information. It states that computer users must observe the data protection principles when using a computerised file containing personal information. Data held in hard copy is not covered by the Act. Directive 2002/58 on privacy and electronic communications has been transposed into Irish law on 6 November 2003.

Next to the Data Protection Act, the Freedom of Information Act also provides for a number of protective measures for certain categories of information. Exemptions are made to the general rule of access to records of public authorities that are not publicly available. These exemptions include personal information, information obtained in confidence, and commercially sensitive information.

The Land Registry has its own policy on privacy. Its documents can only be consulted by the registered owner of the property, any person authorized by the registered owner and a limited number of other persons authorized by the Land Registration Rules 1972. A request can also be made under the Freedom of Information Act, but when it concerns a record holding personal information, the request will only be granted with the consent of the subject.

2.3.6 Licensing framework

According to the PSI Regulations, a public sector body may allow for re-use of documents without conditions or may impose conditions, where appropriate through a license, dealing with relevant issues. Such conditions cannot unnecessarily restrict possibilities for re-use and cannot be used to restrict competition. Any applicable conditions for the re-use of documents have to be non-discriminatory for comparable categories of re-use. The Minister has to ensure that standard licenses for the re-use of documents, which can be adapted to meet particular license applications, are available in digital format and can be processed electronically.

There is no unified licensing framework. The geo-data providers have their own licensing policies. Ordnance Survey Ireland provides data to public customers via outlets throughout the country, through an agent network and via online ordering. For reproducing maps in publications such as books, flyers, academic publications, etc., an application form has to be filled out. Terms and conditions and a price list can be found on the website (<http://www.osi.ie/en/alist/copyright.aspx>). Separate annual licences are available for architects, engineers and surveyors, for auctioneers, estate agents and valuers, and for solicitors and legal firms. Finally, a separate licence is available for Internet use. For business and industry use of data sets (including government), distinctions are made between annual licences and project licences. Specific conditions apply to academic and research use (http://www.osi.ie/en/alist/digital_licence.aspx).

The Irish Geological Survey moved towards making its data freely available for any type of use in 2009. The data is delivered in a zip-file together with a data licence agreement. The data is for exclusive use of the user and cannot be passed on. The source of the data must be acknowledged and where data are used in manipulated or value-added form as a commercial product, a royalty may be owned.

2.3.7 Funding model for the SDI and pricing policy

Funding

The geo-data providers are partly funded by the government, and partly by the revenues gained by the selling of data to government institutions and private parties. In 2008, Ordnance Survey Ireland received € 22.2 million from licensing data and map sales (a 3% increase over 2007), and a grant from the Department of Communications, Energy and Natural Resources of € 5.97 million (Ordnance Survey Ireland, .

Pricing

The general pricing policy for access to information can be found in the Freedom of Information Act. Nominal fees are set in respect of the time spent and the carrier of the information. Under certain conditions, charges may be waived.

According to the 2005 PSI Regulations, a public sector body may charge for the re-use of documents. Where charges are made, they shall be calculated on the basis that the

expected total income from supplying and allowing re-use of documents shall not exceed the estimated cost of collection, production, reproduction and dissemination, together with a reasonable return on investment. Charges should be cost-oriented over the appropriate accounting period and calculated in line with the accounting principles applicable to the public sector bodies involved.

The OSi has a general framework for data dissemination and pricing. The pricing model depends on the type of use: displaying a limited number of map abstracts on the Internet, incorporate OSi material within paper publications, professional organizations wishing to make copies for use within their businesses, etc. Detailed pricing lists are available at the OSi website for annual licensing, project licensing, or one-off licences (<http://www.osi.ie/en/intro/price-list.aspx>).

2.3.8 Conclusions of Component 2

The transposition of the INSPIRE directive has been prepared. There is a final text ready but at the time of scoring this is not yet published/approved. A guiding Administrative Policy for an Irish Spatial Data Infrastructure has been drafted and will be finalised shortly. An implementation plan does not exist yet. There is no unified licensing framework. The geo-data providers have their own licensing policies. The geo-data providers are partly funded by the government, and partly by the revenues gained by the selling of data to government institutions and private parties. The OSi has a general framework for data dissemination and pricing. The pricing model depends on the type of use.

Based on these conclusions we score the indicators as follows:

- There is a legal instrument or framework determining the SDI-strategy or – development (In Preparation)
- 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 (No Information found)
- There is a freedom of information (FOI) act which contains specific FOI legislation for the GI-sector (No Information found)
- GI can specifically be protected by copyright (No Information found)
- 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 (In Preparation)
- There are simplified and standardised licences for personal use (In Preparation)

- The long-term financial security of the SDI-initiative is secured (No)
- There is a pricing framework for trading, using and/or commercialising GI (In Preparation)

2.4 Component 3: Data for themes of the INSPIRE annexes

2.4.1 Scale and resolution: European, National, Regional, Local, Other

Scale levels supported for traditional map products are:

- Very large scale : 1:1.000, 1:2.500; 1:5.000;
- Large scale (local & regional) (1:10.000; 1:15.000, 1:25.000, 1:50.000);
- Small to very small scale (regional and European) (1:100.000, 1:150.000, 1:250.000, 1:500.000, 1:600.000).

Core thematic data are kept at a variety of scales.

More information can be found at: <http://www.osi.ie/en/alist/products-overview.aspx>

2.4.2 Data by resolution or scale range for the INSPIRE themes

Ordnance Survey Ireland has national coverage of large scale mapping, available in a variety of products suitable for Urban, Suburban and Peri-urban, and Rural areas. Our 1:1000, 1:2500 and 1:5000 scale data is available in both IG and ITM, and supplied in DWG, DXF or NTF format as a vector product, and in TIFF format as a raster product.

The key completed digital topographic datasets available are:

- 1:50.000 scale for the whole country
- 1:1.000 scale for all urban areas

Other mapped core data include various administrative boundaries (DEDs :District Electoral Divisions, Counties, Townlands, Baronies).

Thematic geodatasets relate to:

- Agriculture
- Atmosphere

- Boundaries (e.g. 1:100.000 Bedrock Geology)
- Built Environment
- Climate & Weather
- Demography
- Disease
- Ecology
- Energy
- Flora & Fauna
- Forestry
- Geology
- Health
- Heritage
- Industry
- Land
- Marine (e.g. Bathing Water in Ireland Dataset)
- Remote Sensing (e.g. Corine Land Cover)
- Vegetation
- Waste
- Water

Regarding the three INSPIRE annexes addressing the 34 spatial data themes, Ireland is providing (EPA, OSi, etc) discovery and view services for most of them while a number of them can be also downloaded. A complete list will be presented in the updated report including the information provided by the country in 2010.

2.4.3 Geodetic reference systems and projections

The three coordinate systems used in Ireland are:

- The Irish Grid (IG)

- Irish Transverse Mercator (ITM)
- Universal Transverse Mercator (UTM)

	IG	ITM	UTM
Reference Ellipsoid	Airy (modified)	GRS80	GRS 80
Central Meridian	8° West	8° West	9° West
Scale on CM	1.000 035	0.999 820	0.999 600
True Origin Latitude (ϕ) Longitude (λ)	53° 30' North 8° 00' West	53° 30' North 8° 00' West	0° 00' North 9° 00' West
False Origin (metres)	200 000 W 250 000 S	600 000 W 750 000 S	500 000 W 0 S

The website <http://www.osi.ie/en/alist/co-ordinate-converter-tool.aspx> allows users online free of charge to interactively convert co-ordinate points or files of co-ordinate points between the following co-ordinate reference systems:

- WGS84 (World Geodetic System 1984) / ETRF89 (European Terrestrial Reference Frame 1989)
- Irish Grid
- ITM (Irish Transverse Mercator)
- UTM (Universal Transverse Mercator)

2.4.4 Quality of the data

The OSi produces high quality digital and hardcopy reference data. No overall evaluation of the quality of core thematic data has been undertaken.

2.4.5 Interoperability

The dominating GIS-software are ESRI-products, Intergraph MGE.

Software-related data converters are available on the Geodetic Services website.

Raster imagery are distributed in different formats (ArcInfo-GRID, ERDAS Imagine (IMG), TIFF, BMP, JPEG, PCX, ARC shapefile, DXF, DWG, ..).

2.4.6 Language and culture

Metadata and supporting documents are provided in English only, e.g. on <http://www.irlogi.ie/metadata/Template/Help/geoidhelp.pdf>

2.4.7 Data Content

Search engine available (ISDE).

Metadata systems has provision to document attribute data.

2.4.8 Geographical names

In Ireland the Placenames Commission, the Department of Community, Rural and Gaeltacht Affairs and local authorities all have a role in defining the authoritative set of place names.

2.4.9 Conclusions of Component 3

Already from the previous IE's SoP report Geodatasets existed which 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 interconvertible. The INSPIRE 2010 MR confirms the statement. 602 data sets are reported (although many of the reported data sets are the same, i.e. repeated in different themes). The three annexes are well covered. The OSi produces high quality digital and hardcopy reference data. No overall evaluation of the quality of core thematic data has been undertaken. The main language used is 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 interconvertible
- 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 (No Information found)
- The national language is the operational language of the SDI
- English is used as secondary language

2.5 Component 4: Metadata

2.5.1 Availability of metadata

Metadata are produced for all reference and core thematic data produced by OSi and the other major data producers.

2.5.2 Metadata catalogues availability + standard

No overall metadata base has been established for Ireland. However, the Irish Spatial Data Exchange (ISDE) is a discovery service for spatial data belonging to a number of authorities. Using the exchange it is possible to search meta-data catalogues operated by each of the partner organisations. This can be done either using the [ISDE Search](#) page on its site (<http://www.marine.ie/isde/isdesearch.htm>), or by selecting the global option on the individual catalogue search pages from any of the partners' websites.

The exchange architecture is distributed with a light central mediation service. The exchange is based around OGC and ISO standards, which allows it to be independent of any catalogue implementation technologies.

Development of the exchange has been funded by the [Information Society Fund](#), the DCENR Change and Innovation Fund and the [Marine Institute](#).

The current [partners](#) participating in the exchange are the Coastal and Marine Resource Centre at UCC; the Department of Communications, Energy and Natural Resources; the Environmental Protection Agency; the Geological Survey of Ireland; the Department of Environment, Heritage and Local Government and the Marine Institute.

The ISDE browser is also available from the following partners' websites:

- [Marine Institute website browser](#)
- [DCENR website browser](#)

2.5.3 Dublin core metadata standards for GI-discovery

Not in use

2.5.4 Metadata implementation

See 2.5.2.

2.5.5 Conclusions of Component 4

Metadata are produced for a significant fraction of geodatasets of the themes of the INSPIRE annexes. The 2010 MR reveals that for the reported datasets of INSPIRE (Annex I – 29%; Annex II – 93%; Annex III – 25%). The Irish Spatial Data Exchange (ISDE) is a discovery service for spatial data belonging to a number of authorities.

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 Information found)

2.6 Component 5: Network services

2.6.1 On-line access service for metadata: discovery services

The Environmental Protection Agency hosts a GIS web mapping application (<http://maps.epa.ie/>) on which they display all their data, with metadata links for the data.

The EPA web mapping viewer has been provided to enable visitors visualise environmental data and is intended as a tool for the personal investigation of environmental issues. Data portrayed on the viewer has been provided by a number of sources

- Environmental Protection Agency
- Ordnance Survey Ireland
- Geological Survey of Ireland
- Teagasc
- National Parks and Wildlife Service
- Etc.

At the same time the individual provides (e.g. the Geological Survey of Ireland and the National Parks and Wildlife) provide also their own web services such as:

<http://www.gsi.ie/Mapping.htm>

http://spatial.dcenr.gov.ie/imf/imf.jsp?site=GSI_Simple

The spatial data resides in a SQL Server 2005 database with a spatial data add-on called ArcSDE (Arc Spatial Database Engine), added to allow the SQL Server database handle and store spatial data. EPA users can access spatial data in two ways: expert GIS users access it through GIS software installed on the desktop, and non-specialist users access it through a customized EPA WebGIS. There are two key databases: AppsDB serves existing intranet WebGIS applications, and DesktopDB serves the more specialist desktop GIS users (Lawlor, 2009).

Moreover, EPA provides a metadata editor (<http://gis.epa.ie/metadata/editor/>).

2.6.2 On-line access service for data: download services

see 2.6.5.

2.6.3 Inter-linkages of on-line access services for metadata and data

Not applicable.

2.6.4 OpenSource software and access services

EPA supports the following client technologies:

- Open Layers
- ASP.NET, AJAX
- XML Technologies
- WMS, WFS, WCS request

2.6.5 Availability of viewing service(s)

The Department of Communications, Energy and Natural Resources have established its own spatial services (<http://www.dcenr.gov.ie/Spatial+Data/>). This is an initiative to present all DCENR spatial data in a usable fashion, to enhance public access to information about the Government and DCENR functions. The business datasets are presented in simple online GIS form via a browser or as a data download. Data include Petroleum Affairs Division, Geological Survey of Ireland, Exploration and Mining Division, etc).

Online Services are currently under construction, but very shortly there will be a Metadata search engine which will allow users to discover and search for Departmental data online, download or view these datasets as appropriate.

The following links are available for use with OGC compliant application

http://spatial.dcenr.gov.ie/wmsconnector/com.esri.wms.Esrimap?ServiceName=GSI_Bedrock_Geology&

This example is for use in a WMS enabled application and contains 1:1,000,000 and 1:500,000 Geology of Ireland. (http://spatial.dcenr.gov.ie/wfsconnector/com.esri.wfs.Esrimap/ONEGEOLOGY_WFS?request=getcapabilities&service=WFS&version=1.0.0).

The Marine Irish Digital Atlas (MIDA) provides a single source where coastal and marine information can be visualised and purchased. MIDA offers both digital geospatial data and information, incorporating text and multimedia elements, related to coastal and marine resources in Ireland. Integrating the latest advances in web-based mapping techniques, the atlas is built around an interactive map, which allows anyone to identify, visualise, and query those datasets relevant to their interests. The atlas displays data layers from numerous coastal and marine organisations both within Ireland and abroad, thus providing the best single resource for finding and viewing existing Irish coastal and marine data. The atlas contains geographically referenced data grouped into four main categories of information (<http://mida.ucc.ie/pages/atlas/atlas.php>).

- Management
- Physical Environment
- Biological Environment
- Socio-economic Activity

In Ireland, official statistics are those produced by the [Central Statistics Office \(CSO\)](#), along with some government departments, agencies and other state bodies. Most of these are available on the web through a variety of websites and formats. The StatCentral portal provides standard documentation on these statistics and links to where they can be found.

This portal was released on a preliminary basis on 10 March 2008 with a limited range of statistics, and was officially launched on 3 December 2008 with a fuller range of statistics.

These include:

- People and Society
- Economy
- Business Sectors
- Labour Market and Earnings
- Environment, Climate and Energy

Especially the Environment, Climate and Energy statistics are represented via webmap formats and particularly via the EPA ENVision mapviewer (<http://maps.epa.ie/internetmapviewer/mapviewer.aspx>).

2.6.6 Availability of catalogue services to regulate access

Not available.

2.6.7 Availability of catalogue services that perform payment operations

Via the OSi online shop registered users can pay online (Laser, MasterCard, Visa and American Express) and order/ download their desired map. Orthophotography, Historic Maps, Environmental Reports, Wind maps, Land Registry Compliant maps and Digital Planning Packs can be purchased at :<http://shop.osi.ie/shop/>.

2.6.8 Availability of catalogue services to extract and send data to a user application

No such applications were identified.

2.6.9 SDI user applications

This Geodetic Services website <http://www.osi.ie/en/alist/services2.aspx> has been developed by Ordnance Survey Ireland (OSi) and the Ordnance Survey of Northern Ireland (OSNI) for Global Positioning System (GPS) users in Ireland.

It will provide users with the following geodetic services:

- Passive data
- RINEX data
- Co-ordinate converter

OSi *MapGenie* is a new service (available from 30/03/2010), that provides online, immediate access to the most complete and highest quality map data available of Ireland.

MapGenie allows users to connect directly from their desktop to both OSi and Land and Property Services Northern Ireland (LPS) geodatabases via an All-Ireland Web Service, giving easy and instant access to premium map data at a variety of scales for the entire island of Ireland through a single source.

OSi's *MapGenie* can be consumed directly through any OGC compliant GIS software or web application. All map data provided by *MapGenie* is dynamically generated from OSi vector databases, and styled and cached at a number of scales. National coverage

orthophotography is provided as a raster layer. *MapGenie* is also available as a ‘Hybrid’ web service, provided a mix of orthophotography and high detail large scale map data.

MapGenie is provided as an All-Ireland web service containing both OSi and LPS (OSNI) data, and as individual web services containing only OSi or LPS (OSNI) data.

(<http://www.osi.ie/en/news/mapgenie.aspx>).

2.6.10 Availability of geo-processing services

The website <http://www.osi.ie/en/alist/co-ordinate-converter-tool.aspx> allows users online free of charge to interactively convert co-ordinate points or files of co-ordinate points (see section 2.4.3).

2.6.11 Conclusions of Component 5

There is a CSW catalogue service for metadata previously reported and INSPIRE MR lists 5 of them. There is one WMS view service from the Geological service described in the report, INSPIRE M&R lists 5 such services. The geology community reports a WFS type of service for downloading, however, it was not active at the time of scoring, so it is proposed not to make changes. Also INSPIRE MR does not report any download services. Although there exist a tool to convert coordinates on OSIs website, it does not provide enough information to do the scoring, at the same time nothing is reported under INSPIRE MR

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 ore more on-line download services enabling (parts of) copies of datasets (No)
- There are one or more transformation services enabling spatial datasets to be transformed to achieve interoperability (No information found)
- There are middleware services allowing data services to be invoked (No information found)

2.7 Component 6: Thematic environmental data

The Environmental Protection Agency hosts a GIS web mapping application (<http://maps.epa.ie/InternetMapView/MapView.aspx>) on which they display all their data, with metadata links for the data (see 2.6.1)

The Marine Irish Digital Atlas (MIDA) provides a single source where coastal and marine information can be visualised and purchased (<http://mida.ucc.ie/pages/atlas/atlas.php>) (see 2.6.5)

Moreover, OSi provides Environmental Reports as a product. These reports outline information on an area of land, based on a location users select, and covers an area with a radius of 400m, 600m, or 1000m from a specific geo-point generated from the location information provided by users. Information provided includes: Historic Flood Plains, Seasonal Lakes, Spring and Swallow holes, Historic Mill and Mines Aquifer, Bedrock, Landslides, Karst, Vulnerability, Groundwater Wells, Active Quarries, Water Catchment, IPC, Registered Waste, Sites, Soils, River Basins, Bathing water quality (<http://shop.osi.ie/Shop/Products/Default.aspx#enviro>). OSi furthermore provides Wind speed Maps; Aerial (Orthophotography maps); Land Registry Compliant maps; historic maps and Planning Packs (maps for planning permission).

Users can browse and chose all the above products via the public viewer of OSi at: <http://maps.osi.ie/publicviewer/#V1,591271,743300,0> which provides a friendly layout and a very comprehensive help file.

2.7.1 Conclusions of Component 6

The Environmental Protection Agency hosts a GIS web mapping application (<http://maps.epa.ie/InternetMapView/MapView.aspx>) on which they display all their data, with metadata links for the data. There are a considerable amount of environmental data for the themes of A.III.

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

2.8 Standards

The ISDE depends on a number of standards for its successful operation. The principal standards are:

- ISO 19115 for meta data structure

- OGC CSW 2.0 For catalogue entry exchange
- UDDI for service identification.

Moreover, the EPA metadata editor is currently on version 2.2 and supports

- Silverlight 4 (Out of the browser support)
- ISDE (Irish Spatial Data Exchange) Metadata Profile support (EPA Requirements)
- GML and 19139 .NET class serialization / deserialization
- Metadata validation against ISO 19139 schemas (20060504)
- Direct publishing metadata through accessible CS/W service (Testing)

while the ESRI metadata file support is suspended

2.8.1 Conclusions of Component 7

ISDE and EPA support numerous ISO and OGC standards.

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 SDI

No SDI currently exists in Ireland. Now that the Department of Environment, Heritage and Local Government has received the formal mandate to pave the way for a full-blown, public ISDI, incorporating private actors, it is evident that progress is quicker than in the past. At the same time major advances have occurred in terms of services and databases becoming available.

A number of case studies have been conducted via the GeoDirectory including emergency services; electricity network; recycling management, etc (<http://www.geodirectory.ie/Case-Studies.aspx>).

The launch of the landdirect.ie web portal on 28th April 2006 represents another major milestone in the development of online services in the Land Registry. The new portal brings together the services previously offered as part of the EAS and also provides additional functions and features based on the new Land Registry Digital Map. Using the available functions, account holders will be able to go directly to a location on the Land Registry digital map in a number of ways and perform a variety of spatial/map queries. These include capabilities for customers to locate folios by:

- Browsing and navigating the online map
- Searching a database of postal addresses linked to the Land Registry map

(http://www.prai.ie/eng/landdirect_ie/What%27s_Available/)

3 Annexes

3.1 List of SDI addresses / contacts for Ireland

Table: SDI contact list			
SDI Name (full)	Web address	Organisationa l mailing address	Over-all contact person: tel./fax/e-mail
Department of the Taoiseach	http://www.taoiseach.gov.ie	Government Buildings Upper Merrion Street Dublin 2	
Department of Environment, Heritage and Local Government	http://www.environ.ie	Custom House Dublin 1	
IRLOGI – Irish Organisation for Geographic Information	http://www.irlogi.ie	Museum Building, Trinity College, Dublin 2, Ireland	E-mail: info@irlogi.ie Tel: +353-1-6082544 Fax: +353-1-6773072 President IRLOGI : Tony O'Hara Bentley Systems (Ireland) Ltd., 10 Dundrum Business Park, Dundrum, Dublin 14. Tel: 296 0555; Fax: 296 0565; e-mail: tony.ohara@bentley.nl
OSi – Ordnance Survey Ireland	http://www.osi.ie	Paradigm House, Dundrum Office Park, Dundrum, Dublin 14	E-mail : custserv@osi.ie Phone +353-1-802- 5300 Fax +353-1-820-4156 Reception: +353-1- 802-5300

OSmaps – Ordnance Surveys maps	http://www.osmaps.org/		Ordnance Survey of Britain, OS of Northern Ireland and OS of Ireland
Land Registry	http://www.landregistry.ie	Land Registry Chancery Street Dublin 7	
Central Statistics Office (CSO)	http://www.cso.ie	Central Statistics Office, Skehard Road, Cork	
Geological Survey Ireland (GSI)	http://www.gsi.ie	Beggars Bush Barracks Haddington Road Dublin 4	
Environment Protection Agency (EPA)	http://www.epa.ie	Johnstown Castle Estate Co. Wexford	Fiona O'Rourke sdi@epa.ie Tel/Fax: +353 53 9170729/ +353 53 9160699
Marine Institute	http://www.marine.ie	Galway Technology Park, Parkmore Galway	
Local Government Computer Services Board (LGCSB)	http://www.lgcsb.ie	Phoenix House, Conyngham Road, Dublin 8	
Department of Agriculture and Food	http://www.agriculture.gov.ie	Agriculture House, Kildare Street, Dublin 2	
National Centre for Geocomputation (NCG)	http://www.nui.ie/ngc	John Hume Building, National University of	

		Ireland, Maynooth, Co. Kildare	
Urban Institute Ireland (UII)	http://www.urbaninstitute.net	Richview Campus, University College Dublin, Dublin	
Coastal and Marine Resources Centre (CMRC)	http://www.cmr.c.ucc.ie/	Naval Base, Haulbowline, Cobh, County Cork	

3.2 List of references for Ireland

Table: list of references used to compile the Country Report	
Web sites:	
	http://www.irlogi.ie [1]
	http://www.ec-gis.org/reports/policies.pdf [2]
	http://www.publicsectorinfo.com/summary_results/11c.html http://www.irlgov.ie/daff/areasofi.htm [3]
	http://www.geodesy.gov.sk/http://www.spatial.maine.edu/~onsrud/gsdi/EUROGI_DP_Wrkshp.pdf [4]
	http://www.publicsectorinfo.com/summary_results/01.html [5]
	http://www.osi.ie [6]
	http://www.may.ie/nirsa/ [7]
	http://www.gsi.ie [8]
	http://www.gisireland.com [9]
	http://www.irishspatialstrategy.ie/isdi/Part2ISDIBackgroundIssues/4TheCurrentSituationinIreland/ [10]
Publications:	

	ETeMII : ‘Technical report on reference data Report 3.1.1 (2001) Osi : ‘Developing Irish National Mapping’, An Information Paper , Sept 2001 National Spatial Strategy for Ireland, 2002-2020: People, Places and Potential
	Wright, D., Dwyer, N., Lassoued, Y., Longhorn, R., and Boucelma, O., 2009. The International Coastal Atlas Network: An Emerging Spatial Data Infrastructure. Initiative. INSPIRE 3/GSDI 11, 2009, Rotterdam, The Netherlands
	F., Lawlor, 2008. Implementation of the Metadata Elements of the INSPIRE Directive. A Thesis/Practicum Report submitted in partial fulfillment of the requirements for the degree of Master of Science in Software and Information Systems. School of Computer and Information Sciences College for Professional Studies Regis University Denver, Colorado.
	O., Emem, 2009. EPA Usage & Integration of Open Technology/Standards for INSPIRE Compliancy. PPT report available at: http://www.irlogi.ie/index.php?option=com_phocadownload&view=category&id=5:gis-ireland-2009&Itemid=18