Spatial Data Infrastructures in *Ireland*: State of play Spring 2004

Country report on SDI elaborated in the context of a study commissioned by the EC (EUROSTAT & DGENV) in the framework of the INSPIRE initiative

August 2004
Report meta-information

<table>
<thead>
<tr>
<th>Version number</th>
<th>Date</th>
<th>Modified by</th>
<th>Comments</th>
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<td>1.0</td>
<td>2002-12-08</td>
<td>Catharina Bamps (SADL) &amp; Peter Beusen (ICRI)</td>
<td>First version</td>
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|                |            |                                          | - Executive summary                                                     |
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Change matrix 2004 versus 2003

Paragraphs in which information is reported which deviates in a significant way from what was reported in the Spring 2003 version of this country report are listed in the below table.

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<td>Updated to reflect state Spring 2004</td>
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<tr>
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Executive summary

The early vision for the development of an NSDI in Ireland (ISDI) has been formulated by the Irish Organisation for Geographic Information IRLOGI (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. IRLOGI is also performing projects which fit in the NSDI-framework and which, at the same time, act as strong incentives for central and local government, the private and research sectors to come on board. The most pertinent of these projects resulted in a metadatabase catalogue: Geo-ID (Geospatial Information Directory). It was jointly developed by IRLOGI and the GIS Laboratory at Trinity College Dublin and was launched on 1 May 2000. The information comes from the key central government producers of geo-referenced information, the National Statistical Office, local authorities and from private data producers, even if the latter may be offering data products and services which rival with the ones from the public institutions.

IRLOGI’s vision has been picked up by the government, first by the Department of the Taoiseach (Prime Minister) and then by the Department of Environment, Heritage and Local Government which is now developing a general legal framework for development of SDI and for the dissemination of geographic information by either central or local government. The NSDI is considered to be 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.

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, 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.

A key aim during 2004 is to produce an overall policy framework for the ISDI. Therefore, a public consultation is organised by means of the Irish Spatial Data Infrastructure (ISDI) consultation document (31 May 2004) and it 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. [10]
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## Abbreviations and acronyms

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<th>Abbreviation</th>
<th>Description</th>
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<tr>
<td>CIL</td>
<td>Commissioners of Irish Lights</td>
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<tr>
<td>CSO</td>
<td>Central Statistics Office</td>
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<tr>
<td>CT</td>
<td>Core Thematic Data</td>
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<tr>
<td>EUROGI</td>
<td>European umbrella organisation for geographical information.</td>
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<tr>
<td>FIR</td>
<td>Further Investigation Required</td>
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<tr>
<td>GEO-ID</td>
<td>Geospatial Information Directory</td>
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<tr>
<td>GI</td>
<td>Geographical Information</td>
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<td>GIS</td>
<td>Geographical Information System</td>
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<tr>
<td>GPS</td>
<td>Global Positioning System</td>
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<tr>
<td>INSPIRE</td>
<td>INfrastructure for SPatial InfoRmation in Europe</td>
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<tr>
<td>IRLOGI</td>
<td>Irish Organisation for Geographic Information</td>
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<td>ISDI</td>
<td>Irish Spatial Data Infrastructure</td>
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<td>ITM</td>
<td>Irish Transverse Mercator</td>
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<tr>
<td>LGCSB</td>
<td>Local Government Computer Services Board</td>
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<tr>
<td>NMA</td>
<td>National Mapping Agency</td>
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<td>NSDI</td>
<td>National Spatial Data Infrastructures</td>
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<td>NSS</td>
<td>National Spatial Strategy</td>
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<tr>
<td>OSi</td>
<td>Ordnance Survey Ireland</td>
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<td>OSNI</td>
<td>Ordnance Survey of Northern Ireland</td>
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<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>REF</td>
<td>Reference data</td>
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<td>RTK</td>
<td>Real Time Kinematic</td>
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<tr>
<td>SDI</td>
<td>Spatial Data Infrastructures</td>
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<tr>
<td>UTM</td>
<td>Universal Transverse Mercator</td>
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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 papers\(^1\) and the more recent INSPIRE scoping documents.

The report is 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 by the Irish GI-expert community.

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

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.

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. Since November 2002, the Department of Environment, Heritage and Local Government is responsible for the top-down work.

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, however, provides but a single set of layers in what can be conceptualised as the data repository of a Spatial Data Infrastructure (SDI) for the State. This infrastructure has other key layers, for instance property registration details and local development plans. OSi is an

\(^1\) INSPIRE position papers, final versions: RDM, ETC, DPLI, ASF, IST, IAS (latest version).
Office of the Civil Service and it operates under the ministerial direction of the Minister for Finance. The Minister has appointed an Interim Board to advise him on the future strategic direction of the organization. The Interim Board operates on a non-statutory basis. Legislation is being drafted to reform the Ordnance Survey into a State Agency.

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.

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 development of an OSi pricing model, a new positioning infrastructure, and the implementation of topographic identifiers, are all other steps that will actively contribute to an Irish SDI.

Geo-ID (Geospatial Information Directory), a metadatabase jointly developed by IRLOGI and the GIS Laboratory at Trinity College Dublin, is one of IRLOGI’s contributions to the development of an NSDI. The Geo-ID aims to promote co-ordination and awareness within the Irish GI industry through the maintenance and further development of a metadatabase of available geographical information resources. It was launched on May 1st 2000. The information comes from (1) key central government producers of geo-referenced information, (2) local authorities and (3) private data producers.

The major public data producers are

- the National Statistical Office (http://www.cso.ie),
- the Ordnance Survey of Ireland (OSi) (http://www.osi.ie),
- the Geological Survey (http://www.gsi.ie),
- the Land Registry (http://www.irlgov.ie/landreg),
- the Heritage Service (http://www.heritageireland.ie),
- the Department of Agriculture (http://www.irlgov.ie/daff). which has significant data holdings (primarily aerial photography) but these are not open to public access.

It is remarkable that the Geo-ID also described data produced by the private sector since in some cases products, pricing and leasing arrangements from private data producers rival those offered by central government supplier. An example is the PinPoint product which includes geo-coded centroids for over 600.000 addresses in the main urban areas (Dublin, Cork, Galway, Limerick and Waterford). This database is marketed by IRIS Ltd.
in competition to the GeoDirectory marketed by the Ordnance Survey of Ireland (OSi) and the Post Office. While both products offer the ability to geo-code addresses, their pricing options differ.

Another initiative to be mentioned is the Geodetic Services website for GPS (Global Positioning System) users in Ireland. The active GPS network is the result of collaboration between Ordnance Survey Ireland (OSi), the Commissioners of Irish Lights (CIL), and the Ordnance Survey of Northern Ireland (OSNI) and comprises of sixteen stations distributed around the island (Ireland + Northern Ireland) [http://www.osi.ie/services/index.shtml](http://www.osi.ie/services/index.shtml).

Each of the three National Mapping Agencies responsible for mapping (1) Great Britain, (2) Northern Ireland and (3) Ireland - they share the name ‘Ordnance Survey’ - has their own portfolio of products and services, each produced to their own specifications. The web site [http://www.osmaps.org/](http://www.osmaps.org/) provides information and guidance on using mapping and data products from the three organisations. The web site is oriented towards different business types: Leisure and Education, Historical, Planning and analysis, Imagery, Routing and Transport, Backdrop and Internet mapping, Demographics, Environmental, 3D and Height Modelling, Survey and Control Information, Land use.

The extent and accessibility of data produced by local authorities vary. The Local Government Computer Services Board has made some inroads towards standardisation and best practice guidelines.

### 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.

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.

A key aim during 2004 is to produce an overall policy framework for the ISDI. It is thought that prior to developing such a framework it is necessary and appropriate for stakeholders and interested parties to make an input regarding issues or specific policies that they believe should be covered in such a framework. It is also considered to be appropriate to provide an opportunity for stakeholders to indicate the kind of contribution which they may wish to make to the ongoing process of building the ISDI.

Therefore, 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.

Responses should be submitted by 2 July 2004.

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.

The international context for development of NSDI’s (GSDA, ISO, INSPIRE, …) is fully recognized.

[10]

### 2.2 Legal framework and funding

#### 2.2.1 Legal framework and organisational issues

A general legal framework for development of SDI and for the dissemination of geographic information by either central or local government is being developed under the National Spatial Strategy Initiative. The need for a legal framework is one of the issues addressed in the Irish Spatial Data Infrastructure Consultation Document mentioned above.

#### 2.2.2 Public-private partnerships (PPP’s)

No information has been found nor provided.

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

Access to public sector information is organised by the Freedom of Information Act 1997. 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.

For example in the Department of Health the civil servants’ time is charged at approximately 21 Euros per hour so that small searches may become potentially expensive. Local authorities also produce geo-referenced material, but the extent and accessibility of these vary. The Local Government Computer Services Board has made some inroads towards standardisation and best practise guidelines. Private data producers
also exist, and in some cases their products, pricing and leasing arrangements rival those offered by central government suppliers.

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, are in a position to identify the records being sought.

### 2.2.4 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. The 2001 directive on copyright in the information society has not been transposed into Irish law yet.

### 2.2.5 Restricted access to GI further to the legal protection of privacy

In the background and supporting any specific confidentiality policy, Ireland has a general legislation concerning the processing of personal data. 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 not been transposed into Irish law yet.

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.

2.2.6 Licencing framework

There is no unified licensing framework. The geo-data providers have their own licensing policies. For example, to use information of the Ordnance Survey, a license must be obtained for which a fee may be payable. Different categories of annual licenses are available for real estate agents, engineers, and solicitors. Under certain conditions, a perpetual license is available for the use of mapping on the Internet.

2.2.7 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. The question of funding is one of the issues in the Irish Spatial Data Infrastructure Consultation Document.

IRLOGI (Irish Organisation for Geographic Information) acts as umbrella organisation with membership from the public and private sector. It is not clear to what extent IRLOGI is funded by the government.

Pricing

The general pricing policy for the 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.

The OSi has a general framework for data dissemination and pricing. The pricing of all data requests are dealt with on a case-by-case basis. E.g. 1:1.000 digital urban data are charged at £450 (571 Euros) per tile (0.48km2) + an optional £90 (114 Euros) per annum for updates. 1:2.500 digital rural data are charged at £1.000 (1.270 Euros) per tile (3km2) plus an optional £200 (254 Euros) per annum for updates. Statistical and land and property data are not available on-line beyond headline statistics

- In December 1999, an agreement was finalised for supplying base data at preferential rates to academic institutions for teaching and search use.

- From November 2002, general pricing and licensing principles for OSi products state that Ordnance Survey Ireland maps, data and publications are protected under the terms of the Copyright Acts. Anyone wishing to reproduce Ordnance Survey Ireland material, or use it as a basis for their own publications, must obtain a licence from Ordnance Survey Ireland, for which a
fee may be payable. The OSi pricing model is designed to meet the requirements of the different categories of users (e.g. Academic, research use, professional services…).

The GPS data can be accessed for free on the website. Other products can be ordered at a nominal fee. Charges for the licenses differ according to the applicant, and the amount of data requested. Charges are levied among government departments as well as requests from the public. Preferential rates are offered to academic institutions for teaching and research use.

The Land Registry charges nominal fees, which are laid down in the Registration Fees Order of 1999.

### 2.3 Component 2: Reference data and core thematic data

#### 2.3.1 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;
- Large scale (local & regional) (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).

#### 2.3.2 Reference data and core thematic data by resolution or scale range

The information included in Geo-ID is catalogued to allow access by organisation, location or theme or by a search-engine for Irish information on spatial datasets produced by the central and local government, the private sector and third level institutions in Ireland.

The key completed digital topographic datasets available are:

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

Key digital topographic datasets in progress are:

- 1:2.500 for rural developed areas
1:5,000 for rural un-developed 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
2.3.3 Geodetic reference systems and projections

Nature of the map coordinate system

- Ellipsoid: Airy Modified 1849, Spheroid major axis: 6377340.188999999
  Spheroid minor axis: 6356034.44761111
- Geodetic datum: IRL
- Map Projection: Irish Transverse Mercator, (ITM)
  Projection parameters:
  false easting: 200 000.00 m
  false northing: 250 000.00 m
  latitude of origin: 53°30’00” N
  central meridian: 8°00’00” W
  scale factor: 1.000035
- Altitudinal reference system: FIR

The website [http://www.osi.ie/services/index.shtml](http://www.osi.ie/services/index.shtml) allow 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)

2.3.4 Quality of the reference data & core thematic data

The GEO-ID metadata catalogue is based on the CEN TC287 standard and the work of the ISO TC211 Working Group for Metadata. Hence assessment and documentation of Quality is foreseen in terms of positional accuracy and precision, logical consistency, completeness of objects, temporal characteristics, quality of attribute data.

No information has been found with respect to assessing of quality, update plan, change management, portrayal standardisation.
2.3.5 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, ..).

2.3.6 Language and culture

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

2.3.7 Data Content

Search engine available (Geo-ID).

Metadata systems has provision to document attribute data.

2.3.8 Geographical names

Geographical names are managed in English only.

2.4 Component 3: Meta data for reference data and core thematic data

2.4.1 Availability of metadata for the reference data

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

2.4.2 Metadata catalogues availability + standard

The Geo-ID (Geospatial Information Directory) metadata catalogue jointly developed by IRLOGI and the GIS Laboratory at Trinity College Dublin, was brought online on May 1st 2000. It is based on the CEN/TC287 and ISO/TC211 recommendations and can be considered as exploration metadata. It provides for following information for geodatasets:
These metadata allow the user to assess fitness for use.

2.4.3 Dublin core metadata standards for GI-discovery

Not in use

2.4.4 Metadata implementation

No information has been found.
2.5 **Component 4: Access and other services for reference data, core thematic data and their metadata**

2.5.1 **On-line access service for metadata of reference data & core thematic data**

The Geo-ID service for on-line access to the centralized metadatabase containing metadata from various data producers is available on the [http://www.gis-ireland.com/](http://www.gis-ireland.com/).

2.5.2 **On-line access service for reference data & core thematic data**

Not available.

2.5.3 **Inter-linkages of on-line access services for metadata and reference data resp. core thematic data**

Not applicable.

2.5.4 **OpenSource software and access services**

No information has been found.

2.5.5 **Availability of web mapping service(s) and of a WebMap server interface**

No information has been found.

2.5.6 **Availability of catalogue services to regulate access**

Not available.

2.5.7 **Availability of catalogue services that perform payment operations**

Not available.
2.5.8 Availability of catalogue services to extract and send data to a user application

No such applications were identified.

2.5.9 SDI user applications

The Geodetic Services website for GPS users in Ireland is password protected, you must login to access the GPS data, but one can register for free.

http://www.osi.ie/services/index.shtml

Once registered, one will have full access to:

**Passive data**

This website will allow users to freely search the IRENET95 geodetic control database and print off control point station description sheets. Users can search this passive control database by inputting a rough location in Irish Grid, ITM, or UTM co-ordinates and then specify the number of nearest control points that are required or specify a given radius within which all IRENET95 control points will be identified.

**RINEX (Receiver Independent Exchange Format) data**

This website will allow users to freely download hourly RINEX GPS files from any one of the permanent (active) GPS network stations, enabling users to combine this industry standard format GPS data with their own data for GPS post-processing applications.

During the first half of the year 2002 an extensive GPS measurement campaign was undertaken to connect the sixteen GPS network stations to the European GPS co-ordinate reference framework (EUREF). The result of this campaign has provided very accurate ETRF89 co-ordinates to EUREF Zero Order Class B specification (better than 2 centimetres in X, Y, and Z) for all the network stations.

**RTK service**

Ordnance Survey Ireland has developed a Real Time Kinematic (RTK) GPS surveying service for Dublin and its environs that enables GPS surveyors to accurately position themselves in real time to RTK standards using a single GPS receiver. The Dublin RTK network comprises four permanent active GPS stations and has been designed to provide RTK coverage within a 15km radius of any of the four stations by means of GSM mobile phone communications. Testing is currently being carried out to evaluate the RTK coverage within a 25 - 30km radius of any of the four stations

2.5.10 Availability of geo-processing services

The website http://www.osi.ie/services/index.shtml allow users online free of charge to interactively convert co-ordinate points or files of co-ordinate points (see section 2.3.3)
Software-related data converters available on the Geodetic Services website (see 2.3.5).

2.6 Component 5: Standards
Incorporated in the other components.

2.7 Component 6: Thematic environmental data
It is not clear to what extent the developments towards the ISDI explicitly cover the environmental themes.

The GEO-ID metadata catalogue is used for reference and core thematic data but also for thematic environmental data. As an example, the Estuarine and Coastal Water Quality in Ireland Dataset (indirectly spatially referenced files with water quality measurements) is described through GEO-ID.

2.8 Use and efficiency of SDI
The GEO-ID metadata catalogue, the multi-stakeholder on-line data discovery and exploration service of IRLOGI (Irish Organisation for Geographic Information), is the most visible but very important element of the emerging NSDI in Ireland. Other NSDI-related initiatives are mostly developed by the major data producer OSi. 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 can be expected that progress will be quicker than in the past.
3 Annexes

3.1 List of SDI addresses / contacts for Ireland

<table>
<thead>
<tr>
<th>Organization</th>
<th>Web address</th>
<th>Organisation mailing address</th>
<th>Over-all contact person: tel./fax/e-mail</th>
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<tbody>
<tr>
<td>IRLOGI – Irish Organisation for Geographic Information</td>
<td><a href="http://www.irlogi.ie">http://www.irlogi.ie</a></td>
<td>Museum Building, Trinity College, Dublin 2, Ireland</td>
<td>E-mail: <a href="mailto:info@irlogi.ie">info@irlogi.ie</a> 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: <a href="mailto:tony.o'hara@bentley.nl">tony.o'hara@bentley.nl</a></td>
</tr>
<tr>
<td>OSi – Ordnance Survey Ireland</td>
<td><a href="http://www.osi.ie/about/index.shtml">http://www.osi.ie/about/index.shtml</a></td>
<td>Ordnance Survey Ireland, Phoenix Park, Dublin 8</td>
<td>E-mail: <a href="mailto:custserv@osi.ie">custserv@osi.ie</a> Phone +353-1-802-5300 Fax +353-1-820-4156 Reception: +353-1-802-5300</td>
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### 3.2 List of references for Ireland

<table>
<thead>
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<tr>
<td><a href="http://www.irlogi.ie">http://www.irlogi.ie</a> [1]</td>
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<td><a href="http://www.gsi.ie">http://www.gsi.ie</a> [8]</td>
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<td><a href="http://www.gisireland.com">http://www.gisireland.com</a> [9]</td>
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