



Spatial Data Infrastructures in Austria: State of play 2011



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Executive summary

In Austria, the INSPIRE Directive has to be implemented by both the Federal government and the 9 Provinces. Currently, at the Federal level, a Federal Spatial Information Infrastructure Act is in force; at provincial level, five of the nine Provinces have an SDI act in force and two have it published.

In 2009 a core team, INSPIRE/AT was established. In addition to the 'Lebensministerium' (Federal Ministry of Agriculture, Forestry, Environment and Water Management), this core team features different Federal Ministries: Transport, Innovation and Technology, Economy, Family and Youth, Interior, as well as Finance. It also includes representatives from the Federal Office of Meteorology and Surveying, the Federal Environmental Agency, Statistics Austria, the states, the Association of Austrian Cities and Towns and the Austrian Association of Municipalities. Three sub-projects were defined by the core team towards INSPIRE implementation and NSDI in general and these are dealing with: Legal Transposition, Metadata and Network Services.

In March 2010, the Geodateninfrastrukturgesetz – GeoDIG was published in the Federal Law Gazette I No. 14/2010, transposing the INSPIRE directive. It entered into force on 2 March. The law only provides a minimal transposition of the directive, without any additional measures to extend the impact of the law on the Austrian SDI. Under §12 of the Spatial Information Infrastructure Act (GeoDIG), the Federal Minister for Agriculture, Forestry, Environment and Water Management set up a Federal coordination centre featuring one representative of each Federal ministry with INSPIRE-related spatial data sets or services within its scope. With representatives of the provinces, the Austrian Association of Municipalities and the Austrian Association of Cities and Towns, this centre also serves as the National Coordination Office. The national contact point of INSPIRE is hosted by the Federal Ministry of Agriculture, Forestry, Environment and Water Management. The federal government is responsible for coordinating the SDI activities of the states. In practice coordination is rather inter-regional and limited.

The National Mapping (and Cadastral) Agency (Bundesamt für Eich- und Vermessungswesen, BEV) has the traditional mandate of maintaining the geodetic reference systems and produces nation-wide high quality digital and analogue reference and core thematic datasets, metadata and maintains discovery and other services.

In Austria, most of the geographical as well as environmental data are collected and stored under the responsibility of the Provinces. The GEO portal of the Austrian Provinces, GEOLAND.AT, offers free access to important Geodata available in Austria.

Geographic data relevant for the environment are collected by the Umweltbundesamt (Federal Environment Agency Austria) in accordance with the Federal Ministry of Agriculture, Forestry, Environment and Water Management. Together with LFRZ (Land-, forst und wasserwirtschaftliches Rechenzentrum) as key technical partner, they are responsible for more than 100 spatial datasets including themes from annexes I, II and III.

Austria does not yet have an NSDI. Currently, the only joint Spatial Information Infrastructure initiative is the harmonised geoportal established and managed by the nine Provincial Government Authorities covering the most relevant geographic data at <http://www.geoland.at/>.

The Network Services Expert Group is developing an INSPIRE/AT network services model with the aim to have all types of spatial data services required by the INSPIRE Directive (discovery, view, transformation, download...) to be available to all registered users in accordance with the geo-rights management. Under this model, the major spatial data providers implement and run INSPIRE network services for their own datasets or provide access to services that are set up by other organisations. Small data providers can deploy the network services established by the major providers and link in their own data.

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Abbreviations and acronyms

AGEO	Austrian Umbrella Organisation for Geographic Information
AGES	Österreichische Agentur für Gesundheit und Ernährungssicherheit GmbH - Austrian Agency for Health and Food Safety
AGRARGIS	GIS-based farming information system
AMA	Agrarmarkt Austria
ASCII	American Standard Code for Information Interchange
BEV	Bundesamt für Eich- und Vermessungswesen - National Mapping Agency
BFW	Bundesforschungs- und Ausbildungszentrum für Wald, Naturgefahren und Landschaft - Federal Research and Training Centre for Forests, Natural Hazards and Landscape
BGBI	Das Bundesgesetzblatt für die Republik Österreich - Federal Law Gazette
Bgld. GeoDIG	Burgenländisches Geodateninfrastrukturgesetz
BMI	Bundesministerium für Inneres - Federal Ministry of the Interior
BMLFUW	Bundesministerium für Land- und Forstwirtschaft, Umwelt und Wasserwirtschaft (Federal Ministry of Agriculture, Forestry, Environment and Water Management)
BMVIT	Bundesministerium für Verkehr, Innovation und Technologie - Federal Ministry of Transport, Innovation and Technology
BMWFJ	Bundesministerium für Wirtschaft, Familie und Jugend - Federal Ministry of Economic Affairs, Family and Youth
CEN	Comité Européen de Normalisation
CLGE	Council of European Geodetic Surveyors
CSV	Comma-separated values
DKM	Digital Cartographic Model
DLM	Digital Landscape Model
DP Act	Data Protection Act
DPLI	Data Policy and Legal Issues
EDM GIS	Elektronisches Datenmanagement Umwelt - Electronic Data Management Environment
eBOD	Digital Soil Map
EGIS	GIS application Contaminated Sites
eHYD	Hydrographische Messstellen - Hydrographic monitoring stations
ESDI	European Spatial Data Infrastructure
EULIS	European Land Information Service
EUREF	European Reference Frame
EUROGI	European Umbrella organisation for geographical information
FIG	International Federation of Surveyors
FIR	Further Investigation Required

GeoDIG	Geodateninfrastrukturgesetz
GI	Geographical Information
GIS	Geographical Information System
GmbH	Gesellschaft mit beschränkter Haftung – company with limited liability
GPX	GPS Exchange Format
GTS	Global Telecommunication System
HORA	Natural Hazard Overview and Risk Assessment in Austria
IAG	International Association of Geodesy
INSPIRE	INfrastructure for SPatial InfoRmation in Europe
ISO	International Organization for Standardization
IOCTF	Initial Operating Capabilities Task Force
ISDW	Initiative Schutz Durch Wald - Forest Protection Initiative
LFRZ	Land-, forst und wasserwirtschaftliches Rechenzentrum
L-GIG	Landes-Geodateninfrastrukturgesetz
NSDI	National Spatial Data Infrastructures
OGC	Open Geospatial Consortium
ÖNORM	Österreichisches Normungsinstitut
ÖSGN	Österreichisches Schregrundnetz
PN	Präzisionsnivellements
PPP	Public-private partnerships
PSI	Policy and legislation on access to public sector information
REF	Reference data
SDI	Spatial Data Infrastructures
StGeodIG	Steiermärkisches Geodateninfrastrukturgesetz
UBA	Umweltbundesamt (Federal environment agency Austria)
UIG	Umweltinformationsgesetz - Law on access to information on the environment
UTM	Universal Transverse Mercator
WCS	Web Coverage Service
WFS	Web Feature Service
WFD	Water Framework Directive
WGeoDIG	Wiener Geodateninfrastrukturgesetz
WMO	World Meteorological Organization
WMS	Web Mapping Service
WPLA	Working Party on Land Administration (UNECE)
ZAMG	Central Institute for Meteorology and Geodynamics
WISA	Water Information System Austria

1 GENERAL INFORMATION

1.1 Method

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

For the 2011 update the information extracted from the web and the available presentations/publications from workshops and conferences were used. In this version obsolete information was removed.

1.2 The GI and NSDI scene in Austria

The INSPIRE Directive in Austria has to be implemented by both the Federal government and the 9 provinces. To date the Federal Legislative Act is in force, 5 of the 9 provinces² have as SDI legislative act in force (Vorarlberg, Carinthia, Tyrol, Burgenland, Styria) and 2 have it published (Vienna, Upper Austria).

The Federal GeoDIG the Federal Geodateninfrastrukturgesetz (GeoDIG) entered into force on 2nd March 2010. Under §12 of this Federal Spatial Information Infrastructure Act, the Federal Minister for Agriculture, Forestry, Environment and Water Management set up a Federal coordination centre comprising one representative of each Federal Ministry with INSPIRE-related spatial data sets or services within its scope:

- Federal Ministry of Agriculture, Forestry, Environment and Water Management - Bundesministerium für Land- und Forstwirtschaft, Umwelt und Wasserwirtschaft (BMLFUW);
- Federal Ministry of the Interior - Bundesministerium für Inneres (BMI);
- Federal Ministry of Finance - Bundesministerium für Finanzen;
- Federal Ministry of Transport, Innovation and Technology - Bundesministerium für Verkehr, Innovation und Technologie (BMVIT);
- Federal Ministry of Economic Affairs, Family and Youth - Bundesministerium für Wirtschaft, Familie und Jugend (BMWFJ);
- Federal Mapping Agency - Bundesamt für Eich- und Vermessungswesen (BEV);
- Federal Statistical Office - Bundesanstalt Statistik Österreich;
- Federal Environment Agency - Umweltbundesamt GmbH;

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

² Burgenland, Carinthia, Lower Austria, Upper Austria, Salzburg, Styria, Tyrol, Vorarlberg, Vienna

This centre also serves as the National Coordination Office since it includes representatives of the provinces, the Austrian Association of Municipalities and the Austrian Association of Cities and Towns.

The National Coordination Office has the following tasks relevant to Austria's spatial information:

- coordination contributions from public spatial information centres, third parties, spatial data infrastructure users and other interested bodies or persons;
- assistance to the Federal Minister for Agriculture, Forestry, Environment and Water Management in managing the national contact point, monitoring and reporting to the European Commission;
- recommendations to public spatial information centres, third parties, infrastructure users and other interested bodies or persons for the provision of a spatial information infrastructure.

The National Coordination Office is currently supported by the Network Services Expert Group, comprising specialists from the following organisations:

- National Mapping Agency (Bundesamt für Eich- und Vermessungswesen (BEV))
- Bundesforschungs- und Ausbildungszentrum für Wald, Naturgefahren und Landschaft (BFW)
- Land-, forst- und wasserwirtschaftliches Rechenzentrum GmbH (LFRZ)
- The provinces of Carinthia and Vienna
- Österreichische Agentur für Gesundheit und Ernährungssicherheit GmbH (AGES)
- Österreichischer Städtebund
- Bundesanstalt Statistik Österreich
- Umweltbundesamt GmbH

The national contact point of INSPIRE is hosted by the Federal Ministry of Agriculture, Forestry, Environment and Water Management.

In Austria, most of the geographical as well as environmental data are collected and stored under the responsibility of the Provinces. The geoportal of the Austrian Provinces, GEOLAND.AT, offers free access to important Geodata available in Austria.

Environmental data is made available by the Austrian Federal Environment Agency, the “Umweltbundesamt” (UBA).

So, at present the leading providers of spatial information, particularly in the form of WebGIS applications, are the Austrian provinces, the Federal Ministry of Agriculture, Forestry, Environment and Water Management and the Federal Mapping Agency (BEV). BEV (Bundesamt für Eich- und Vermessungswesen or National Mapping Agency) provides a number of topographic datasets, and also acts as portal to the cadastral information (<http://www.bev.gv.at>). It is working with partners on international level (ISO, CEN, EuroGeographics, WPLA, CLGE, FIG, and IAG).

There are currently no known third parties wishing to offer spatial information under INSPIRE.

Austria does not yet have an NSDI. Currently, the only joint Spatial Information Infrastructure initiative is the harmonised geoportal established and managed by the nine Provincial Government Authorities covering the most relevant geographic data at <http://www.geoland.at/>. Also, Austria has national, regional and local spatial information infrastructures developed in the course of public administration, which are now being adapted and extended to meet the requirements of the INSPIRE Directive.

The AGEO – Austrian Umbrella Organization for Geographic Information (<http://www.ageo.at>) has been established in 1998. and is a member of the European Umbrella Organisation for Geographic Information – EUROGI. [2] The AGEO runs a vocational training working party and publishes a regular newsletter. The Austrian metadata profile PROFIL.AT was created at AGEO's initiative. The development of PROFIL.AT and the related ÖNORM ON A-2270 established a standard covering both the ISO metadata standards and the rules for INSPIRE-compliant metadata sets (www.ageo.at).

[2]

As part of the eContent Programme of the European Union, national land registries with computerised systems have started a co-operation in a project called European Land Information Service (EULIS). The European housing and real estate credit markets are still almost totally national. A broader competition in this area could give the public benefits in the form of lower housing costs. This reduction in cost could be realised on account of increased competition between international lenders. Though all participants have computerised national land information registers in operation, there are still certain barriers that have to be overcome. At present there are for example no common principles for collecting and storing information, no common legal and regulatory framework and no common principles for access to information. The participating agencies have agreed to work together to overcome these difficulties. An important part of such a development is the creation of international access to land and property registers. The EULIS project will create a demonstrator that will provide improved access to information on-line from eight national land registries. The extent to which the EULIS project would provide an SDI-like environment remains to be evaluated. The EULIS project created a live service to cross-border access to the

official land registers of different European countries through a single internet based portal. The land registers of the six countries currently fully connected to the service: Austria, Ireland, Sweden, Netherlands, and Lithuania. Other countries have a 'pending' status. <http://eulis.eu/service/countries-profile/austria/>

[7]

2 Details of the NSDI situation in Austria

2.1 General Information

The implementation of the INSPIRE Directive in Austria has been coordinated to date primarily under the BMLFUW's national INSPIRE/AT programme, involving national, provincial and municipal representatives and other public spatial-information centres. The Federal GeoDIG entered into force on 2 March 2010. §12 of this Act created the legal basis for a new national coordination structure – the National Coordination Office.

[1]

2.2 Component 1: Coordination and organization of the SDI

In 2009, the INSPIRE/AT core programme team [Programm-Kernteam] was established representing the central coordination structure for the INSPIRE/AT programme. The core programme team was responsible primarily for the following activities:

- programme planning
- designing the core content of the INSPIRE/AT programme, i.e. the total strategy for implementing the INSPIRE Directive in Austria
- commissioning (sub-) projects or task forces to draw up detailed content
- content coordination;
- communications with the programme steering committee
- communications with the European Commission via the BMLFUW National Contact Point, Unit II/10.

The core programme team included representatives of the Austrian national, regional and local authorities featuring the 'Lebensministerium', the Federal Ministries for Transport, Innovation and Technology, Economy, Family and Youth, Interior, as well as Finance; representatives from the Federal Office of Meteorology and Surveying, the Federal Environmental Agency, Statistics Austria, the states, the Association of Austrian Cities and Towns and the Austrian Association of Municipalities.

The three main projects defined towards INSPIRE implementation are dealing with: Legal Transposition, Metadata and Network Services.

The Federal Spatial Information Infrastructure Act stipulated the creation of a new national coordination structure called the National Coordination Office which includes one representative of each Federal ministry which produces and manages INSPIRE-related spatial data sets or services within its scope, and one representative of each province and each municipality.

The Federal Minister for Agriculture, Forestry, Environment and Water Management directs both the Federal coordination centre and the National Coordination Office.

Currently all Austrian Länder are particularly active in developing components of state level SDIs. The Federal government is in principle responsible for coordinating these sub national SDI activities but in practice coordination is limited. This is illustrated by the fact that since the Länder are responsible for the production, accessibility to and dissemination of a number of core geo datasets (addresses, spatial planning), the coverage of Austria by this type of data is not always uniform.

2.2.1 Conclusions of Component 1

The Austrian SDI approach is truly national. Currently all Austrian federal states are active in developing components of state level SDIs. SDI building blocks have reached a significant level of operationality. Since 2007, the Ministry of Agriculture, Forestry, Environment and Water Management is acting as the NCP for INSPIRE. Since 2009 a specific body for INSPIRE was created which includes the major data providers, as well as the major users, including the regional and local levels. Therefore, we can say that due to INSPIRE, the leading role is now shared between users and producers, with the Environmental sector playing an important role.

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 (partially)
- The officially recognised or de facto coordinating body for the SDI is an organisation controlled by data users (partially)
- An organisation of the type 'national GI-association' is involved in the coordination of the SDI (partially)
- 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

[1], [2], [11] – [14], [15]

2.3.1 Legal framework

The Surveying Act and the Metrology Act form the legal basis for the activities of the BEV as a federal agency. The emphasis of the Acts is on cadastral activities. The coordinating role BEV is playing for the federal NSDI-initiatives has no formal legal basis but is the result of a within-government agreement.

In July 2005, a Decree was issued implementing a central Address Registry (Addressregisterverordnung). The Decree organizes the technical aspects, the competences and rights of use and the division of costs between the federal level (BEV) and the municipalities. The municipality is the official “owner” of the data, while the BEV handles the administration and the distribution. For this, the BEV receives about 10% of the revenues (see <http://www.bev.gv.at/aktuelles/pdf/adressregisterverordnung.pdf>).

The Federal Environmental Agency was founded as a separate state-owned corporation by the Umwelkontrollgesetz, which lays out its responsibilities and entered into force on January 1st, 1999.

The Austrian government’s approach is to implement INSPIRE: (i) without modification of any competencies and responsibilities between federal government (“Bund”) and provincial governments (“Länder”); (ii) to stay with the decentralized data ownership and distribution; and (iii) to implement only what is strictly legally required (“no golden plating”).`

The current situation is that a federal implementation law was adopted by the Austrian Parliament and is in force, 5 of the 9 Provinces have an SDI legislative act in force and 2 Provinces have it published.

In March 2010, the Geodateninfrastrukturgesetz – GeoDIG was published in the Federal Law Gazette I No. 14/2010, transposing the INSPIRE directive. It entered into force on 2 March. (<http://www.lebensministerium.at/article/articleview/82373/1/29640>). The law only provides a minimal transposition of the directive, without any additional measures to extend the impact of the law on the Austrian SDI (Runder Tisch GIS e.V., INSPIRE, Fundamentals, Examples, Test Results, [http://www.cagi.cz/files/INSPIRE Broschuere V4 en final web 231109162434.pdf](http://www.cagi.cz/files/INSPIRE_Broschuere_V4_en_final_web_231109162434.pdf)).

The provincial legislation:

- in force:

- the Vorarlberg Landes-Geodateninfrastrukturgesetz (L-GIG): Entry into force: 14/04/2010;
- Kärntner Informations- und Statistikgesetz (Carinthian Information and Statistics Act) - Entry into force: 01/09/2010;
- Tirol: Tiroler Geodateninfrastrukturgesetz, Legal act: Entry into force: 03/09/2010;
- Burgenländisches Geodateninfrastrukturgesetz - Bgld. GeoDIG - Burgenland Spatial Data Infrastructure Act: Entry into force: 28/01/2011;
- Steiermark: Steiermärkisches Geodateninfrastrukturgesetz 2011 – StGeoDIG - Styrian Spatial Data Infrastructure Act 2011: Entry into force: 01/05/2011;

- published:

- Wiener Geodateninfrastrukturgesetz – WGeoDIG (Spatial Data Infrastructure Act – Vienna) - Publication: 31/08/2010;
 - Oberösterreich Geodateninfrastrukturgesetz: Publication date: 17/12/2010;
- Source: EUR-Lex http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:72007L0002:EN:NOT#FIELD_AT

2.3.2 Public-private partnerships (PPPs)

The project flood risk identification HORA in Austria (www.hora.gv.at) is the result of collaboration between the 'Lebensministerium' and the private sector: Life Assurance Association Austria.

It is a nationwide Risk Identification System for natural disasters with the current focus on earthquakes and flooding. The project of a cooperation between public and private sector covers more than 25.000 river miles in 4 years costing about two million euros.

HORA meets the requirements set by the European Commission in 2006, Directive on the assessment and management of floods requiring flood risk mapping, predictive assessment methods for flood risks, information and public participation and implementation and reporting schedules.

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

Article 20 of the Federal Constitution obliges the federal, provincial and municipal administration to give information on matters relating to their scope of activity, unless they are under a legal duty to maintain secrecy. This obligation is made operational by federal and provincial legislation.

The Auskunftspflichtgesetz is a Freedom of Information law that obliges federal authorities to answer questions regarding their areas of responsibility. However, it does not permit citizens to access documents, just to receive answers from the government on the content of information. If an interest can be shown, then the individual requesting information can obtain copies of the documents under the Code of

Administrative Procedures or the Data Protection Act. The nine Austrian Provinces have laws that place similar obligations on their authorities.

As far as environmental information is concerned, the Federal Law on Environmental Information adopted in 1993 implements the European Union Directive 90/313/EEC on the freedom of access to information on the environment for information held by the federal government. It was amended to implement Directive 2003/4 in the course of 2004-2005 (Bundesgesetz über den Zugang zu Informationen über die Umwelt (Umweltinformationsgesetz – UIG, BGBl. Nr. 495/1993 as amended BGBl. I Nr. 6/2005. The changes entered into force in February 2005.

By decree of the Austrian Federal Minister of Economic Affairs of 24 June 1997 everybody is granted direct access to the cadastre and the land registry database via the public services of Telekom Austria AG, Datakom Austria AG, IBM Network Services and Bundesrechenzentrum GmbH.

Directive 2003/98 on the re-use of public sector information has been transposed on the federal level and in the Länder. At the same time as the introduction of the federal legislation on re-use (Informationsweiterverwendungsgesetz), the Surveying Act (Vermessungsgesetz) was changed. The new §48 concerns the delivery of geodata and their use for other purposes. In accordance with this act, BEV has introduced new conditions on standard charges and use of the data on 1 January 2006. These general conditions can be downloaded from http://www.bev.gv.at/aktuelles/pdf/standardgelte_nutzungsbe.pdf <http://www.bev.gv.at/aktuelles/pdf/agb.pdf> .

Act of 18 May 2011, the law on the duty to provide information, documents, re-use, privacy and national statistics is amended

Legal act: state law, number: 60/2011; Official Journal: National Law Journal (LLG), number: 60/2011 Date, Publication: 05/07/2011, Entry into force: 01/08/2011; Reference: (MNE (2011) 54950)

2.3.4 Legal protection of GI by intellectual property rights

The Austrian Copyright Act (Urheberrechtsgesetz) dates from 9 April 1936 and has been amended several times since then.

Paragraphs 73 to 76 of the Copyright Act provide for special protection for photographs. Whilst original photographs are subject to normal copyright regulation, all non-original photographs are also protected for thirty years after production or publication.

Paragraph 7 of the Copyright Act stipulates that laws, decrees, judicial decisions and the like are not subject to copyright. In addition, all works of public entities produced exclusively or mainly for official use, cannot be subject to copyright. The latter provision should however be interpreted restrictively.

Paragraph 7 of the Copyright Act also explicitly states that topographic works produced by the Bundesamt für Eich- und Vermessungswesen can be subject to copyright. This is the case if they are original, destined for publication, and produced by the Bundesamt.

Austria was one of the four countries that managed to implement European Directive 96/9/EC concerning the legal protection of databases in time, i.e. by 1 January 1998. The most recent amendment dates from 2003 and adapts the Copyright Act to the 2001 Directive on copyright in the information society.

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

The Austrian Data Protection Act (called Datenschutzgesetz) was enacted in 1978, creating the Data Protection Commission and the Data Protection Council. It is concerned with all personal data, but does not specifically recognise the concept of “sensitive” data. However, personal information may not be sold and public authorities are required to institute a system of control and sanction for infractions.

[15]

There were however a number of differences between the Austrian DP Act and the European Directive, but these were for the most part addressed by the Austrian Federal Chancellery in a bill presented to Parliament in 1999, which was passed into law with effect from 1 January 2000. This Bundesgesetz über den Schutz personenbezogener Daten (Datenschutzgesetz 2000) applies to all processing by automatic means. Seven Länder have also adopted new data protection laws to implement the Directive.

The Austrian legislation is fully compliant with Directive 2002/58 on privacy and electronic communications.

2.3.6 Licencing framework

A licensing framework is in use for BEV products. Since 2008, almost all products are available on-line on the BEV portal. A distinction is made between different shops (see http://www.bev.gv.at/portal/page?_pageid=713,1576213&_dad=portal&_schema=PORTAL):

- BEV Shop Light: the user does not have to register for this and he can anonymously obtain access to Austrian Map Fly 5.0 and national maps
- BEV Shop: without registration, the user can search and order predefined products, such as Orthophotography or 1:1.000.000 vector maps.
- BEV Shop Plus: the user has to register to obtain further means to search data. All products of BEV are offered in different formats, such as aerial images, orthophotography, topographic maps, and administrative boundaries.

- MyBEV Shop: registered users can see the products and searches they have queried.
- BEV Shop APOS: registered users can download data from all APOS reference stations.
- BEV WebGIS: registered users can query and obtain attributes of selected objects in different themes.

General conditions for obtaining and using the data can be found on the website (http://www.bev.gv.at/portal/page?_pageid=713,1606946&_dad=portal&_schema=PORTAL). An overview of standard licensing charges and conditions is available at <http://www.bev.gv.at/pls/portal/url/ITEM/890D310A325C50CCE040010A1F210D3B>.

By the end of 2009, over 3.000 users were registered on the BEV-portal. During 2009, almost 80.000 orders of products took place, an increase of 30% in comparison to 2008. Most orders took place via the download service, only a limited number were delivered by CD or e-mail (BEV, *BEV Leistungsbericht 2009*, <http://www.bev.gv.at/pls/portal/url/ITEM/8A3E44FD3D063647E040010A1F216F91>)

2.3.7 Funding model for SDI and pricing policy

Standard pricing policies for data held by BEV can be found on the BEV portal (http://www.bev.gv.at/portal/page?_pageid=713,1941531&_dad=portal&_schema=PORTAL). An essential part of the pricing policy lies in the distinction between internal use and external use. For internal use, the standard charge for analogue products depends on the data layer and the size. For digital data, the standard charge is determined by the relevant data layer, the size of area or the number of cadastral properties, and the number of workstations. For services, the charge is determined by the frequency of use or as a flat rate. For external use, an additional fee may be charged to the fee for internal use, depending on the type of use that is made. Extra fees are required for web services, digitizing data and disseminating derived products. Discounts are available for educational purposes.

A programme for the production and regular maintenance of high-resolution (12.5–25 cm) digital orthophotos was founded as part of the long-standing cooperation between the Agriculture, Forestry and Water Management Computer Centre (LFRZ) (on behalf of the BMLFUW) and the provincial governments.

There are several agreements between the BEV and other local authorities at Federal, provincial and municipal level, concluded independently of INSPIRE and covering, for example, cooperation in data collection or mutual data use.

Several provinces have an institutionalised exchange of spatial data with municipalities and other public geodata centres.

2.3.8 Conclusions of Component 2

INSPIRE was transposed in national legislation, Geodateninfrastrukturgesetz – GeoDIG, but it is a minimal transposition without any additional measures to extend the impact of the law on the Austrian SDI. Austria was one of the four countries that managed to implement European Directive 96/9/EC concerning the legal protection of databases in time, i.e. by 1 January 1998. The most recent amendment dates from 2003 and adapts the Copyright Act to the 2001 Directive on copyright in the information society. There is a licensing framework in use for BEV products. Since 2008 almost all products are available on-line on the BEV portal through different kind of ‘data-shops’. The conditions for obtaining and using the data are described and publically available.

Based on these conclusions we score the indicators as follows:

- There is a legal instrument or framework determining the SDI-strategy or – development
- There are true 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 (partially)
- There is a freedom of information (FOI) act which contains specific FOI legislation for the GI-sector (In Preparation)
- GI can specifically be protected by copyright
- Privacy laws are actively being taken into account by the holders of GI (No)
- There is a framework or policy for sharing GI between public institutions (In Preparation)
- There are simplified and standardised licences for personal use
- The long-term financial security of the SDI-initiative is secured (No)
- There is a pricing framework for trading, using and/or commercialising GI (partially)

2.4 Component 3: Data for themes of the INSPIRE annexes

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

BEV is producing topographic GI at European, national, regional and local scale levels:

- 1:2 000 000 raster A-Map
- 1:500.000 vector, raster KM500V, KM500R
- 1:200.000 raster KM200R
- 1:250.000 vector KM250V
- 1:50.000 vector, raster KM50R, KM50V (partly)
- 1:25 000 vector, raster V BMN
- 1:25 000 vector, raster UTM
- 1:1.000 raster, vector OP, DKM, DLM
- 1:2.000 raster, vector OP, DKM, DLM
- 1:5.000 raster, vector OP, DKM, DLM
- 1:10.000 raster, vector OP, DLM

In Austria core data sets include those created for public interest or those required by law. Examples include land information, topographic maps, addresses and environmental information, the latter being freely available after the implementation of the 1990 EC Directive. Other information exists including more extensive coverage of planning information and addresses, although provision is dependent on the decisions made by the federal states and so there is not a complete coverage for the entire country.

[\[16\]](#)

Other data available:

Corine Landcover (u)

Contaminated Sites (u)

Geographic data relevant for 2000/60/EU (BMLFUW supported by u)

Geographic data relevant for soil (Provincial Government Authorities and u)

Geographic data relevant for agriculture (BMLFUW supported by AMA, Agrarmarkt Austria)

Geographic data on conservation areas (Provincial Government Authorities)

Federal Ministry of Agriculture, Forestry, Environment and Water Management (Lebensministerium) and its partners are responsible for more than 100 spatial datasets

including hydrography (Annex I), geo-references image data (Annex II), soil, bio-geographical regions, natural risk zones (Annex III). Data are collected also through the WFD initiative, the Environmental Information Act, the Aarhus Convention and the Integrated Administration and Control System.

A list of all the available maps and products can be found at: http://www.bev.gv.at/portal/page?_pageid=713,1569819&_dad=portal&_schema=PORAL.

The themes included in Geoland.at are available at: <http://www.geoland.at/geoland2/%28bfcka2unnegnvx55wwynk42t%29/themenliste.aspx>

Regarding the three INSPIRE annexes addressing the 34 spatial data themes Austria is providing discovery and view services mainly for Annex I and II while a number of them can be also downloaded. All metadata are based on ISO and the main provider is BEV. The datasets are provided in a variety of scales and resolution according to their usage. A complete list will be presented in the updated report including the information provided by the country in 2010.

2.4.2 Geodetic reference systems and projections

Name and nature of the Austrian geodetic coordinate system (Austrian National System):

- Ellipsoid: BESSEL
- Datum: MGI
- Map Projection: Lambert Conic Conformal with as parameters :
 - 46 00 00 /* 1st standard parallel
 - 49 00 00 /* 2nd standard parallel
 - 13 20 00 /* central meridian
 - 47 30 00 /* latitude of origin of projection
 - 400000 /* false easting (meters)
 - 400000 /* false northing (meters)

[9]

For regional/national mapping, the following projection systems are also used:

- KM200: UTM
- KM 50: Universal Transverse Mercator

[10]

For the International Map 1:250 000:

- Universal Transverse Mercator

[\[10\]](#)

For local mapping, the following projection systems are in use:

- Gauss-Krueger, Bessel
- UTM
- And others

Height reference: Präzisionsnivellements (PN), Level Triest/Italy (Epoche 1875)

Gravimetric reference: Österreichisches Schweregrundnetz (ÖSGN)

[\[5\]](#)

The spatial referencing is done based on EUREF (European Reference Frame) of IAG (International Association of Geodesy)

[\[8\]](#)

2.4.3 Quality of the data

The BEV is obliged to follow the EN ISO 9001:2000, EN ISO/IEC 17025 and to improve constantly the Quality management.

Data content and structure consistency check is done by BEV.

[\[5\]](#)

There is a permanent updating process going on. The digital 1:50.000 topographic map is updated every 6-8 years.

[\[5\]](#)

There is no possibility for the user to access change-only information.

The symbolized geographic information is presented according to a defined Austrian Standard.

Each public spatial information centre is responsible for its own data, services and metadata.

2.4.4 Interoperability

The Network Services Expert Group participates in the Initial Operating Capabilities Task Force (IOCTF) of the INSPIRE network services and deals with questions related to the quality of network services. The services have to comply with the implementing provisions and with the (IOCTF) to ensure interoperability.

[6]

Interoperability testing experience has been gained through European e-Contentplus projects such as Nature-SDI+ and GS Soil.

2.4.5 Language and culture

Metadata and accompanying documents are provided in German and generally not translated in other languages. A data dictionary for BEV-data is available in German.

There are text explanations for attributes and for the data dictionaries.

2.4.6 Geographical names

Geographical names are managed in German. No secondary name sets are used.

2.4.7 Conclusions of Component 3

Already from the previous AT'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 2011 MR confirms the statement. 304 data sets have been reported: most of which belong to Annex I (106) and Annex III (166);. The BEV is obliged to follow the EN ISO 9001:2000, EN ISO/IEC 17025 and to improve constantly the Quality management The main language used is German while English translation is scarce.

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

- Concern for interoperability goes beyond conversion between different data formats (Partial)
- The national language is the operational language of the SDI
- English is used as secondary language (No)

2.5 Component 4: Metadata

2.5.1 Availability

There are metadata available for a significant part of the reference data and core thematic data produced and maintained by BEV. Metadata also exist for certain data at provincial and federal levels, alongside a complete metadata set for land registration. [1] .

Geoland.at offers free access to important Geodata/Metadata and it is the first step of the implementation of strategic objectives defined by Austrian Geodata politics. At the site, www.geoland.at, there is a link to metadata for each of the 9 federal states (http://www.geoland.at/index.php?option=com_content&task=view&id=16&Itemid=48).

2.5.2 Metadata catalogues availability + standard

The 9 federal states although have different portals to provide their metadata they can be found and accessed via the geoland.at portal.

2.5.3 Metadata implementation

The creation of the Austrian metadata profile, PROFIL.AT and the related ÖNORM ON A-22703 established a standard covering both the ISO metadata standards and the rules for INSPIRE-compliant metadata sets (<http://www.ageo.at/>).

2.5.4 Conclusions of Component 4

Metadata are produced for a significant fraction of geodatasets of the themes of the INSPIRE annexes. The 2011 MR reveals that for the reported datasets of INSPIRE (77% of the data sets have metadata). Geoland.at integrates data from the different provinces in one portal. Metadata implementation is coordinated within each of the data producing organisations, not among them.

Based on these conclusions we score the indicators as follows:

³ ÖNORM ON A-2270: Geoinformation-profil.AT: metadata profile for spatial information – Implementation rules for ÖNORM EN ISO 19115; Austrian Standards Institute.

- Metadata are produced for a significant fraction of geodatasets of the themes of the INSPIRE annexes
- One or more standardised metadata catalogues are available covering more than one data producing agency
- There is a coordinating authority for metadata implementation at the level of the SDI (No)

2.6 Component 5: Network services

2.6.1 Geoportal

The Austrian provinces have formed a spatial data association, GEOLAND.AT, to coordinate their GIS activities and run a joint geoportal. The Landesamtsdirektorenkonferenz (Conference of provincial departmental directors) took a decision to extend GEOLAND.AT in the future in order to meet the INSPIRE requirements above all in terms of discovery/search and view services and subsequently downloads of Austrian provincial data www.geoland.at. This Internet portal provides central access to metadata, maps, mapping services and contacts of all Austrian provinces. Up to 200 different Web mapping applications are used.

The Geodata geoportal offers a free and Austrian wide access to geodata and Services of the federal states of Austria for many purposes. The planned openness of the Geodata network – with decentralised data-management following the subsidiary principle on the basis of international standards (OGC, ISO, CEN, WMS, WFS, etc.) and national Standards (ISO EN ON) offers the possibility to include and link further Geodata. The user can access Austrian wide GIS data and visualize as well as print data. Detailed information about the project is available at: http://www.geoland.at/images/stories/Geoland/presse/folder_geoland_2007.pdf (in German). Each State has its own portal providing GI information, data, download sections as well as information about its structure, standards, visions and strategies for the future. These portals are available as links from the www.geoland.at.

All basic spatial data of the Federal Mapping Agency are made available to government and business users, and to private persons, for a wide variety of uses via the BEV geodata portal (www.bev.gv.at) inter alia.

The Austrian Map online (AMAP online) is a web application with the contents of the Cartographic Models 1:50 000, 1:200 000 and 1:500 000, the municipal boundaries and the names database GeoNames. Austrian Map online is a free service of the BEV.

The Geoportal of the Austrian Federal Ministry for Agriculture, Forestry, Environment and Water Management provides access to the geo-information data of Austria in the form of digital maps are available. <http://www.lebensministerium.at/geo-informationen>

Private geoportal: <http://www.geoportal.at/GEOPORTAL.AT> is a private geoportal comprising GemGIS geoportals which aim to provide a regional access platform for supervising civil engineers (data upload), GemGIS users with local solutions for data and software updates and project web office users.

2.6.2 Network services

2.6.2.1 Discovery services

There are several on-line discovery services for the metadata of subsets of reference data available on the Internet (in German). A generalized access service has been achieved with the geoland portal.

From geoland.at users can access metadata of:

- Metadata Lower Austria
(http://www01.noel.gv.at/scripts/cms/bd/bd5/noegis/geokatalog/suche_ssi.asp)
- Metadata Upper Austria
(<http://doris.ooe.gv.at/geoinformation/metadata/index.htm>)
- Metadata Styria
(<http://www.gis.steiermark.at/cms/ziel/3186097/DE/>)
- Metadata Tyrol
(<https://portal.tirol.gv.at/Geodatenkatalog/getThemen.do?cmd=fetchThemen>)
- Metadata Vorarlberg
(http://www.vorarlberg.at/geokatalog_internet/index.htm)

At <http://www.bev.gv.at/index.html>, BEV provides some metadata about all its data products together with limited visualization functionality.

The Federal Ministry for Agriculture, Forestry, Environment and Water Management provides an INSPIRE search application: <https://geometadaten.lfrz.at>

2.6.2.2 View services

The Federal Mapping Agency (BEV) makes digital government maps available through the successful Amap-online service.

All domains - citizens, business, education and above all public administrations (Federal, provincial, municipal) - can consult country-wide geographical data at <http://www.geoland.at>. These data can be viewed and printed as online national maps, no longer split up into individual provinces.

Via the website of BEV (www.bev.gv.at) and straight via www.austrianmap.at the Austrian Map Online service is available. This particular service allows to graphically browsing the raster versions of topographic maps at scales of 1:50.000, 1:200.000, 1:500.000 and 1:2.000.000 to locate named places.

The website <http://egis.lfrz.at> contains several maps and WMS. Most of them related to environmental data like soils, bio-geographical regions, waste management, flooding areas, but also aerial photos, etc. These services were developed in the framework of the eGIS project. LFRZ is storing the necessary data respecting the existing legal framework (so no connection to data where they are, e.g. orthophotos). The maps and services target not only own staff, but the public as well.

2.6.2.3 Download services

No information found.

2.6.2.4 Transformation services

Geoland.at offers a GPS transformation service. Data can be transformed from WGS84 into all coordinate systems used in Austria. The service is based on the open SOURCE library "proj4", while all computations take place with genuine date transition.

The data can be uploaded in different input formats (ASCII, CSV, GPX) and a visual control with WMS is possible.

2.6.2.5 Invoking services

No information found.

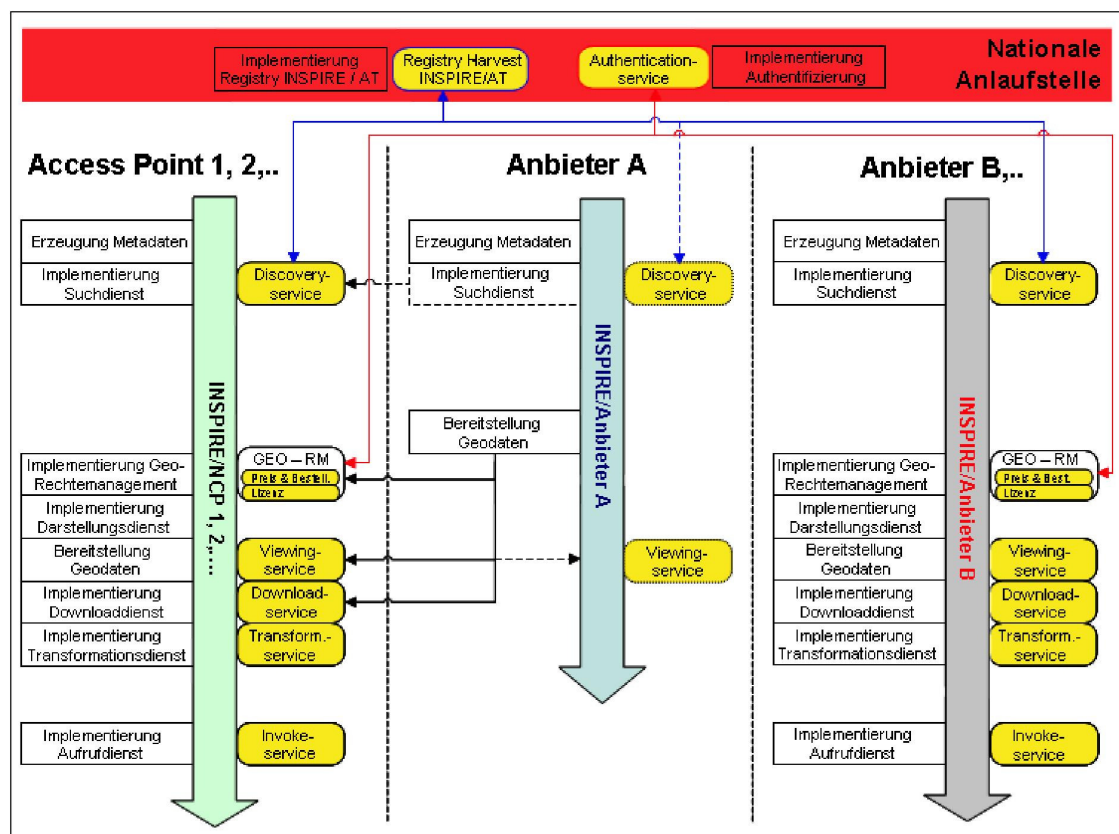
2.6.3 Spatial data services and other services

The Network Services Expert group is developing a model for INSPIRE-compliant spatial information services: INSPIRE/AT network services model. The major spatial data providers implement and run some or all of the INSPIRE network services for their

own data or give access to other organisations' services. Small spatial data providers can use the services run by the major providers and link in their own data.

This network services model ensures that all spatial data services required by the INSPIRE Directive are implemented and made available to all registered users in accordance with the geo-rights management.

- The access points (AP) implement the INSPIRE-compliant spatial data services and provide access to their data and data sets. smaller spatial data providers can also use these services to incorporate their geodata sets (interlinked resources).
- Other A providers [Anbieter A] (organisations/authorities) produce the metadata for their spatial data sets and services covered by the INSPIRE Directive and make this information available either via their own discovery service or via that of another organisation.
- Other B providers [Anbieter B] (organisations) implement and run INSPIRE Directive services autonomously and make them available to registered users free of charge or via a geo-rights management arrangement.



Source:

The surveying authorities of all countries or Länder bordering Lake Constance (Baden-Württemberg, Bavaria, Austria and Switzerland) are working together on the Bodensee-Geodatenpool project (<http://www.bodensee-geodatenpool.net/>). The aim is to store cross-border spatial data on the Lake Constance economic area in a pooled databank. The Bodensee-Geodatenpool provides grid data from the 1:50.000 topographical map, terrain elevation data, vector data on administrative boundaries and digital orthophotos with a uniform structure and uniform projection (ETRS89/UTM reference system/projection) under uniform conditions. The Baden-Württemberg Land authority handles enquiries and marketing. The Austrian contributions are made by the BEV. The Bodensee-Geodatenpool began as an Interreg IIIA project, now completed.

2.6.4 Conclusions of Component 5

The Internet portal www.geoland.at provides central access to metadata, maps, mapping services and contacts of all Austrian provinces. Up to 200 different Web mapping applications are used.

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 (Not so clear)
- There are one or more transformation services enabling spatial datasets to be transformed to achieve interoperability (partially)
- There are middleware services allowing data services to be invoked (No information found)

2.7 Component 6: Thematic environmental data

The Umweltbundesamt has been documenting the state of the environment using GIS-solutions for nearly twenty years. Umweltbudsamt provides a number of environmental (and other) data via its portal (<http://www.oerok-atlas.at/>). Data and maps about Air pollutants, NATURA 2000 sites, Water quality, Nature conservation, etc can be found. The Umweltbundesamt is – together with LFRZ (Land-, forst und wasserwirtschaftliches Rechenzentrum) as technical support centre - playing an important role as provider of data for different annexes of the INSPIRE Directive.

Under international obligations, data are regularly transmitted to the European Environment Agency (EEA), and put into the EEA's AIRBASE database, a public air quality database containing air quality monitoring information for more than 30 participating countries in Europe. A portal of all environmental data in Austria, however, does not exist yet. Meteorological and climatological data and information are collected by a federal agency, the Central Institute for Meteorology and Geodynamics (ZAMG), by the weather service of AUSTRO CONTROL, a government-owned Austrian Air Traffic Management and Control Company, and also by the environmental offices of the Austrian Provinces within the framework of their air quality monitoring networks. Some of the meteorological data is regularly put into the Global Telecommunication System (GTS) of the World Meteorological Organization (WMO) and is thus internationally available in a standardized format.

The Federal Ministry of Agriculture, Forestry, Environment and Water Management (BMLFUW) offers access to different applications:

- AGRARGIS : offers farmers real estate information for e.g. analysis of issues caused by environmental factors, environmental friendly farming practises;
- EGIS brownfields – Contaminated sites in Austria: as a guide for public administration as well as for private purposes, eg as part of planning approval process and use;
- EHYD – Hydrographic service: Hydrographic monitoring stations;
- EBOD – digital soil map
- EDM GIS – Electronic data management environment: assistant to the digital positioning of environmental sites and facilities;

available to registered users at <http://www.edm.gv.at/>;

the WebGIS assistant is a functional extension of the EDM portal and provides the user with the necessary tools for the geographical coverage to situate plants in combination with basic data (eg aerial) as digital maps depict, download, or print.

- HORA: Flood risk zoning in Austria:
 - o Collaboration between public (Lebensministerium) and private sector (Austrian Life Insurance Association)

- A nationwide Risk Zoning System for Natural Disasters;
- a digital risk map available at www.hora.gv.at ,
- ISDW –Forest Protection initiative
 - To view or use project related digital maps
- Environmental Noise Mapping
- WISA: Water Information System Austria

In Austria core data sets include those created for public interest or those required by law. This includes environmental information, which should be freely available after the implementation of the 1990 EC Directive. [16]

Geoland.at provides information about the water bodies of Austria along with visualisation of data from the different provinces

(http://www.geoland.at/index.php?option=com_content&task=view&id=50&Itemid=79)

2.7.1 Conclusions of Component 6

Umweltbudsamt provides a number of environmental (and other) data via its portal (<http://www.oerok-atlas.at>). Data and maps about Air pollutants, NATURA 2000 sites, Water quality, Nature conservation, etc. can be found.

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

AGEO launched the initiative ÖNORM A 2270 in 2007 as a contribution to building a spatial data infrastructure Austrian GDI. The project provide the metadata profile for Geoinformation rules to implement the ON / EN / ISO 19115 (<http://www.ageo.at/aktuelles/oenorm-A2270>).

The Austrian Standards Institute is a neutral and independent service organization. As a non-profit private organization (since 1920) it provides the platform for the development of norms, standards and regulations. (<http://www.as-institute.at/development/>).

Individual states provide also their standards used in their portal. For example the state of Steiermark provides standards and guidelines for the assignment and transfer of spatial data at: <http://www.gis.steiermark.at/cms/ziel/890814/DE/>.

2.8.1 Conclusions of Component 7

Although attempts exist of standard initiatives no significant attention has been devoted yet to standardisation issues.

Based on these conclusions we score the indicator as follows:

- The SDI-initiative is devoting significant attention to standardisation issues (No)

2.9 Use and efficiency of SDI

The main usage of the SDI focuses on the public use of data from the 9 federal states. Via the various interactive maps the states assists decision making and provides useful geographical and environmental information to the public authorities and citizens. A simple example is the online search and location for a doctor in Vienna: <http://www.wien.gv.at/english/viennagis/>.

The BEV already has data exchange agreements with most of Austria's neighbours, governing the mutual provision free of charge of data sets within the scope of the shared national boundary for updating and for further use. These agreements are currently being overhauled with a view to introducing uniform procedures and conditions for all neighbouring countries.

3 Annexes

3.1 List of SDI addresses / contacts for Austria

Table: SDI contact list			
Name	Web address	Organisational mailing address	Over-all contact person: tel./fax/e-mail
National			
AGEO – Austrian Umbrella Organization for Geographic Information	http://www.ageo.at/		Contact: DI Gerda Schennach Bürgerstrasse 34, A-6010 Innsbruck email: gerda.schennach@bev.gv.at Tel: +43 / 512 / 588948-60 Fax: +43 / 512 / 588948-61
BEV - Bundesamt für Eich- und Vermessungswesen	www.bev.gv.at	Krotenthallergasse 3 1080 Wien, Schiffamtsgasse 1-3 A 1025 Wien	Kundenservice Krotenthallergasse Fax: +43-(0)1-40146-463 e-mail: kundenservice@bev.gv.at
Umweltbundesamt	http://www.umweltbundesamt.at	Spittelauer Lände 5, 1090 Vienna	Felix Lux, Stabsstelle Bereichsleitung Studien & Beratung I, +43 (1) 31304 5362

3.2 List of references for Austria

Table: list of references used to compile the Country Report	
Web sites:	http://www.eurogeoinfo.eu/national-spatial-data-infrastructures http://www.earthzine.org/2010/12/10/the-geo-and-geoss-process-an-austrian-perspective/ http://www.ageo.at/ [2] http://www.bev.gv.at [3] http://www.austrianmap.at/amap/index.php?SKN=1&XPX=637&YPX=492 [4] http://www.austrianmap.at/amap/index.php?SKN=1&XPX=637&YPX=492

	<p>[7] http://www.bev.gv.at/</p> <p>[10] http://www.ec-gis.org/reports/policies.pdf</p> <p>[11] http://www.eurogi.org/</p> <p>[12] http://www.jus.unitn.it/cardozo/Review/Europeanlaw/Quinton-1997/access.htm http://www.jus.unitn.it/cardozo/Review/Europeanlaw/Quinton-1997/access.htm http://egis.lfrz.at/ http://www.geoland.at/</p>
	<p>http://gis.umweltbundesamt.at http://www.lebensministerium.at/geo-informationenhttp://www.geoland.at/</p>
Publications :	<p>M. Craglia, A. Annoni, R.S. Smith and P. Smits [Eds.]: Spatial Data Infrastructures: Country reports. Final version D 5.3.2(b). GINIE reports, September 2002. <u>[1]</u></p>
	<p>DPLI Working Group's meeting Febr. 02 <u>[15]</u></p>
	<p>GINIE - GI in the Wider Europe Complete Book, October 2003 <u>[16]</u> INSPIRE Fundamentals, Examples, Test Results 2009. available at: http://www.cagi.cz/files/INSPIRE_Broschuere_V4_en_final_web_231109162434.pdf <u>[17]</u></p>