

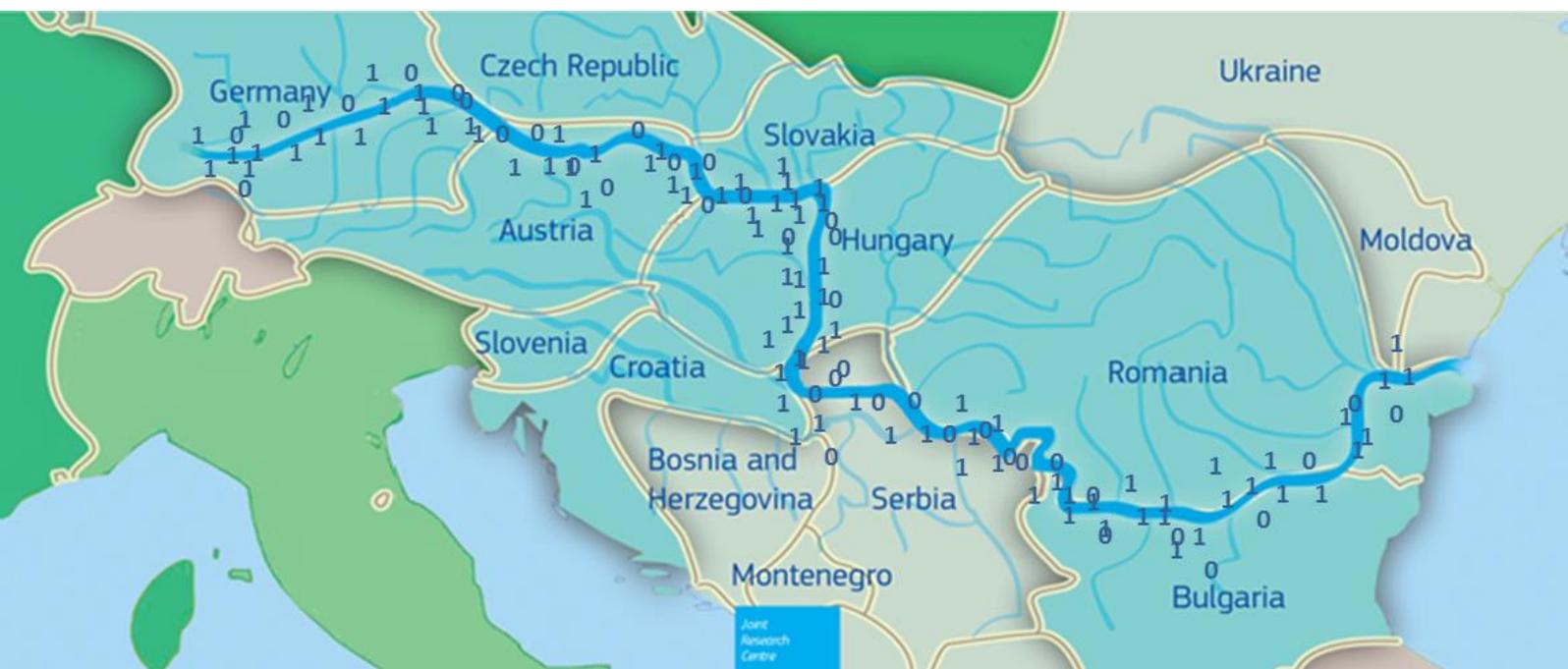
Danube Reference Data and Services Infrastructure

Danube_Net (D1)

State-of-play and organisational context of data infrastructure in Romania

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1 Introduction

The present report is focused on geospatial data and its main objectives are:

- List of key public and private sector data providers, policy-making organisations, research organisations and organisations who can aid stakeholder engagement working within Romania, in cross-border contexts or at the regional level;
- The current legal context and funding of initiatives aiming at building the Romanian national data infrastructure;
- List of main completed and current projects in Romania related to the Priority Areas (PAs) of the European Union Strategy for the Danube Region (EUSDR).

The report is structured in six sections, the first one being an introduction which gives an overall presentation of the report. Section 2 is dedicated to data providers and to the analysis of the main trends related to data in the context of EUSDR. The next section deals with the policy-making organisations and to their current involvement. Section 4 presents a list of the main research organisations related to the EUSDR, while section 5 is devoted to the stakeholder engagement organisations and networks. The final section of the report consists in some concluding remarks as well as an attempt to assess the main issues related to the objectives of the report. The acronyms used are in Romanian as the organizations are currently known and/or referred at the national level.

Romania became a NATO member in 2004 and an EU member in 2007. Thus, from a geo-spatial data viewpoint, the country had to comply to NATO military geo-spatial data standards since 2004 and to the INSPIRE Directive legal provisions since 2007. The process of becoming compliant to the above-mentioned requirements started long before these dates due to the need of the re-structuring of the GI market in Romania. Thus, 1996 can be considered the milestone of the new Romanian GI legal framework as the "Law of Cadastre and Land Registration" was promulgated that year. Based on that Law, the main player in the geospatial data sector was established, namely ANCPI (National Agency for Cadastre and Land Registration). ANCPI along with DTM (Military Topographic Directorate), which is mainly responsible for military geospatial data sector, are the main players in the field of geospatial data.

The INSPIRE Directive was transposed in 2010 but the strategy for its implementation in Romania is under current approval. It is also worth mentioning that Romania became a member of the European Space Agency in 2011 and is now integrated in the corresponding structures of this agency.

It must be noted that in Romania there is a strong and long tradition of mapping and cadastre and currently there are a lot of organisations, both public and private, that embarked on applying the most modern technologies in GI processing.

The Danube Reference Data and Services Infrastructure (DRDSI) is one of the Flagship Cluster actions that support the implementation of the EUSDR. DRDSI project belongs to the Priority Area 7 "To develop the Knowledge Society (research, education and ICT)" of EUSDR. EUSDR is the fruit of a political initiative launched by two EU Member States, namely Austria and Romania, promoted initially through a common letter at the Prime Minister level (June 2008) and addressed to the President of the European Commission.

2 Data providers

The key geospatial data providers have a major contribution in implementing both the EUSDR and the INSPIRE Directive. Due to the nature of the geo-spatial data their data providers are central public administration institutions, mainly ministries. As a consequence, the data providing activities are considered under the authority of each public body involved. This approach has some advantages, such as the access to (financial) resources at the national level as well as several drawbacks such as the complex bureaucratic process involved.

It should be noted that the names of the ministries have changed during the last 25 years reflecting the specific programs and action plans each government had. Nevertheless, the main activities have been assumed by the same ministries and that is why the ministries names listed in the following table are reflecting these main activities. The actual names of the ministries and central authorities are presented in Annex 1.

TABLE 1: List of data providers

Name of organisation	Organisation type	List of typical data provided
1. ANCPI (National Agency for Cadastre and Land Registration)	Public sector	Coordinate reference systems, Geographical grid systems, Geographical names, Administrative units, Addresses, Cadastral parcels, Transport networks, Hydrography, Protected sites, Elevation, Land cover, Ortho-imagery, Statistical units, Land use, Human health and safety, Utility and governmental services, Production and industrial facilities, Natural risk zones
2. Ministry of Environment	Public sector	Hydrography, Protected sites, Elevation, Land cover, Ortho-imagery, Geology, Statistical units, Soil, Land use, Human health and safety, Utility and governmental services, Environmental monitoring facilities, Production and industrial facilities, Area management / restriction / regulation zones and reporting units, Natural risk zones, Atmospheric conditions, Meteorological geographical features, Sea regions, Bio-geographical regions, Habitats and biotopes, Species distribution
3. Ministry of Defence	Public sector	Coordinate reference systems, Geographical grid systems, Geographical names, Administrative units, Transport networks, Hydrography, Elevation, Land cover, Ortho-imagery, Land use, Area management/restriction/regulation zones and reporting units, Sea regions
4. Ministry of Interior	Public sector	Geographical names, Administrative units, Addresses, Natural risk zones

5. Ministry of Foreign Affairs	Public sector	Administrative units
6. Ministry of Agriculture	Public sector	Protected sites, Land cover, Ortho-imagery, Statistical units, Soil, Land use, Human health and safety, Environmental monitoring facilities, Agricultural and aquaculture facilities, Natural risk zones, Habitats and biotopes, Species distribution
7. Ministry of Regional Development	Public sector	Administrative units, Protected sites, Buildings, Land use, Natural risk zones
8. Ministry of Transportation	Public sector	Transport networks , Statistical units
9. Ministry of Economy	Public sector	Utility and governmental services, Production and industrial facilities, Area management / restriction / regulation zones and reporting units, Energy resources, Mineral resources
10. Ministry of Education	Public sector	Ortho-imagery, Geology, Soil, Natural risk zones, Atmospheric conditions, Meteorological geographical features, Sea regions, Habitats and biotopes, Species distribution
11. Ministry of Health	Public sector	Human health and safety, Utility and governmental services, Production and industrial facilities, Area management/restriction/regulation, zones and reporting units
12. Ministry of Culture	Public sector	Geographical names, Protected sites
13. Romanian Academy	Public sector	Geographical names, Protected sites, Geology, Population distribution — demography, Natural risk zones, Atmospheric conditions, Meteorological geographical features, Sea regions, Bio-geographical regions, Habitats and biotopes, Species distribution
14. INS (National Institute of Statistics)	Public sector	Geographical names, Statistical units, Human health and safety, Population distribution — demography, Natural risk zones
15. ANRM (National Agency for Mineral Resources)	Public sector	Geology, Production and industrial facilities, Area management / restriction /regulation zones and reporting units, Energy resources, Mineral resources
16. Local Public Administrations	Public sector	Administrative units, Addresses, Cadastral parcels, Buildings, Land use, Utility and governmental services

It is easy to note that all the key data providers presented in Table 1 are public sector organisations. This is mainly due to the fact that the necessary resources for collecting, maintaining and distributing data are available only within organisations belonging to the national level. Of course, the private sector and/or the

academic institutions and NGOs are not avoided in this complex process. On the contrary, many tasks belonging to the complex process of data providing are completed by them. The public sector organisations manage the funds and the projects but in many cases, private sector, academic institutions and/or NGOs are performing the job.

Also, it should be noted that within INSPIRE Directive implementation process there are four Romanian LMOs registered namely ANRM, INSPIRE working group, ANCPI and ICPA (Institute for Soil, Agrochemistry and Environment). Also there are six SDICs registered: RoEnv SDIC (Romanian Environmental SDIC), SeismicRiskRo (Regional and Urban Seismic Risk in Romania SDIC), DMT (Data Modeling and Topology – Faculty of Geodesy), CMold (Central Moldavia regional SDIC), 3D CAD (Data Modeling and 3D Representations - Faculty of Geodesy), AUV (Mures county SDI watch team for natural and built environment).

Key actors should be considered as willing to contribute with data for DRDSI platform /EUSDR provided that the national legal framework would allow them to do so.

Possible missing data within the EUSDR context could be address, considered as location of properties based on address identifiers, usually by road name, house number, postal code.

3 Policy-making organisations

Romania, represented by the Ministry of Foreign Affairs (MAE), played a major and active role in developing and promoting the EU Strategy for the Danube Region. Thus, according to MAE website (www.mae.ro), between December and June 2009, Romania and Austria promoted, among the EU Member States and third states in the Danube basin, the idea of a new project of regional cooperation, in the form of EUSDR, after the Baltic Sea strategy model. On 8 December 2010, the European Commission endorsed and published the EU Strategy for the Danube Region, consisting of a Communication and an Action Plan. Therefore the Danube Strategy is a project of the European Union, which third states of the region have also been invited to join. The Romanian National Contact Point for EUSDR is MAE.

Another three key Romanian organisations related to EUSDR are the three ministries that are mandated to act as coordinators for Priority Areas as follows:

- Ministry of Transport: PA-1a “Waterways”
- Ministry of Tourism: PA-3 “Culture & Tourism”
- Ministry of Environment: PA-5 “Environmental Risks”

The activities corresponding to PA-1a “Waterways” are coordinated by Romania and Austria (www.danubnavigation.eu). Romania is represented by the Ministry of Transport, which is currently involved in developing and monitoring of the projects and project ideas related to this PA that are categorized as follows: Inland Water Transport Policies, Waterway Management, Ports and Sustainable Freight Transport, Fleet Modernisation, River Information Services, Waterway Infrastructure, Education and Jobs.

The PA-3 “Culture & Tourism” (groupspaces.com/CultureTourism/) is coordinated by Bulgaria and Romania. Ministry of Regional Development is mandated to represent the country in the context of this priority area.

Ministry of Environment is mandated to represent Romania as coordinator of PA-5 “Environmental Risks” (groupspaces.com/EnvironmentalRisks) in cooperation with the representative organisation from Hungary. Currently, the Ministry is supporting the specific activities of the PA-5 being involved in the current projects of this priority area, namely SEERISK (www.seeriskproject.eu) and Restoration of Lower Morava floodplains (www.life-march.at).

TABLE 2: Policy-making organisations

Name of organisation	Organisation type	List of policy areas they are responsible for	Completed/current projects creating data/tools to support EUSDR

Romanian Parliament	Central legislative authority	Legislative body of Romania	Danube Parliamentarian Network
Romanian Government	Central gov.	State administration, legislative authority	e-government OGP (Open Government Partnership) National Action Plan
Ministry of Foreign Affairs	Central gov.	Foreign policy	EUSDR National Contact Point
Ministry of Transport	Central gov.	Transportation, infrastructure	PA-1a "Waterways" coordinator PA-1b "Rail, Road & Air"
Ministry of Energy	Central gov.	Energy	PA-2 "Energy"
Ministry of Regional Development	Central gov.	Tourism, local and regional development	PA-3 "Culture & Tourism" coordinator PA-10 "Institutional capacity"
Ministry of Environment	Central gov.	Environment, climate change	PA-4 "Water Quality" PA-5 "Environmental Risks" coordinator PA-6 "Biodiversity"
Ministry of Education	Central gov.	Information technologies and communication	PA-7 "Knowledge Society" 2013/37/EU Directive Digital Agenda in Romania PA-9 "People & Skills"
Ministry of Economy	Central gov.	Energy, Business environment	PA-8 "Competitiveness"
Ministry of Interior	Central gov.	Public safety, centralised personal data information system	PA-11 "Security"

The policy-making organisations presented in Table 2 are involved in different ways and stages within the implementation of EUSDR. For each Priority Area the actions are under current development and, due to the fact that the next financial exercise of the European Union just started, a lot of work is still to be done in order to implement the Action Plan of the EUSDR. One of the consequences of this situation is that, in this early stage, it is difficult to identify concrete projects taking place in each Priority Area. Nevertheless, based on the information available through <http://www.danube-region.eu/about/priorities>, several projects in which Romanian partners are involved are listed in the following:

PA 1a (Mobility – Waterways)

- Cooperation network for logistics and nautical education focusing on Inland Waterway Transport in the Danube corridor supported by innovative solutions (NELI)
- Harmonized Inland Navigation Transport through Education and Information Technology
- Pollutant emissions reduction of IWT ships on the Danube Corridor
- System for ship-generated waste collection and processing in the maritime Danube ports
- Ship-generated waste collection and processing system and response in cases of pollution on the Danube sector managed by the CN APDF SA Giurgiu
- Rehabilitation and modernization of port infrastructure in the Port of Braila
- Rehabilitation and modernization of port infrastructure in the Port of Galati
- Ro-Ro Terminal in the Port of Galati
- Bulk Terminal in the Port of Galati
- Rehabilitation and modernization of port infrastructure in the Port of Tulcea
- Modernization of port infrastructure in the Port of Cernavoda
- Modernization of port infrastructure in the Port of Calarasi
- High-performance Green Port Giurgiu
- Modernization of port infrastructure in the Port of Giurgiu
- Rehabilitation and development of port infrastructure in the Port of Oltenita
- Modernization of port infrastructure in the Port of Calafat
- Modernization of port infrastructure in the Port of Drobeta Turnu Severin
- Modernization of port infrastructure in the Port of Moldova Veche
- Completion of the North breakwater in the Port of Constanta
- Development of the railways capacity in the river-maritime area of the Port of Constanta
- Road bridge at km 0+540 of the Danube–Black Sea Canal and the works related to the road and access infrastructure for the Port of Constanta
- Constanta South Bridge
- Green Danube Ports
- Set up of a support system for hydrographical works on the Danube in order to ensure minimal navigation depths
- Modernizing the navigation signalization system on the Danube–Black Sea Canal
- Modernizing the navigation signalization system on the Poarta Alba–Midia Navodari Canal
- Improving navigation conditions on the Romanian–Bulgarian common section of the Danube (rkm 845.5–375)
- Improving navigation conditions on the Danube between Calarasi and Braila (rkm 375–175)
- Banks protection on the Sulina Canal
- Rehabilitation of locks on the Danube–Black Sea Canal and the Poarta Alba–Midia Navodari Canal
- Banks consolidation on the Danube–Black Sea Canal
- Banks consolidation on the Poarta Alba–Midia Navodari Canal
- Systematization of Arges and Dâmbovi_ă Rivers for navigation and other uses – "Danube–Bucharest Canal"

PA 1b (Mobility - Rail-Road-Air)

- Danube FAB Project
- Modernization of Tulcea "Danube Delta" Airport
- Rehabilitation of the Railway Line Border-Curtici-Km 614 for the Traffic of the Trains at a Maximum Speed of 160 km/h

- Rehabilitation of the Railway Line Km 614 - Gurasada for the Traffic of the Trains at a Maximum Speed of 160 km/h
- Rehabilitation of the Railway Line Gurasada-Simeria for the Traffic of the Trains at a Maximum Speed of 160 km/h
- Rehabilitation of the Railway Line Campina-Predeal
- Rehabilitation of the Railway Line Bucharest-Constanta, the Sections Bucuresti Nord – Bucuresti Baneasa and Fetesti-Constanta
- Danube Railway Bridges Rehabilitation
- High-Speed Railway Line, a Component of the Route Vienna-Budapest-Bucharest-Constanta
- Pitesti-Bucharest-Cernavoda Motorway
- Cernavoda-Constanta Motorway

PA 4 (Water Quality)

- Danube Sediment Management – Assessment for Restoration of Sediment Balance in the Danube River Basin
- Promoting Strategic Partnership Enabling Cooperation in the Tisza River Basin (ProTisza)
- Sustainable Integrated Management of International River Corridors in SEE Countries (SEE River)

PA 5 (Environmental Risks)

- SEE RISK

PA 6 (Biodiversity, landscapes, quality of air and soils)

- DANUBEPARKS – Network of Protected Areas

PA7 (Knowledge Society)

- Danube River Research and Management (DREAM)
- Health Impact of Nanotechnology (HINO)
- Danube International Center for Advanced Studies for River-Delta-Sea Systems (DANUBIUS)

PA8 (Competitiveness)

- Creating a network of collection and primary processing of agricultural products (fruits, vegetables, seeds) in the Danube macro-region
- Gateway Danube
- Monitoring and Simulation System of the Erosion and Desertification Phenomena in the Danube River Basin, in order to Create some Response Strategy and Their Amelioration

PA 9 (People and Skills)

- Education Reform Initiative of South Eastern Europe (ERI SEE)

- Optimizing the links between labor market and the educational system: modernizing the vocational system in Romania
- Cluster Modernizing VET system – Improving performance, quality and attractiveness of VET
- Task Force Fostering and Building Human Capital of the Regional Cooperation Council
- Qualification Network for Austrian Companies in Romania
- Empowering Young People – Connecting Europe
- (d)unaVision - Learning Journeys and Being Spaces for a Sustainable Future
- Central European Exchange Programme for University Studies (CEEPUS)
- Removing obstacles to recognition of qualifications
- Training on competence based assessment for VET teachers
- aces – Academy of Central European Schools
- CoDeS: Collaboration of Schools and Communities for Sustainable Development (EU-Comenius multilateral network)
- E-School for Sustainability in the Danube Region (eSchool4S)
- SEEMIG: Managing Migration and its Effects in SEE – Transnational Actions Towards Evidence Based Strategies

PA 11 (Security)

- Setting up the Structure for a Danube River Forum (DARIF)

The Government Ordinance No.4/2010 establishing the National Infrastructure for Spatial Information in Romania lists all the 23 public authorities that are members of the INIS Council (National Infrastructure for Spatial Information Council) as follows: ANCP (National Agency for Cadastre and Land Registration), Ministry of Environment, Department for Water, Forests and Fish, Ministry of Defence, Ministry of Interior, Ministry of Foreign Affairs, Ministry of Public Finances, Ministry of Agriculture, Ministry of Regional Development, Ministry of Transport, Ministry of Economy, Ministry of Education, Ministry of Health, Ministry of Culture, Ministry for Information Society, Romanian Academy, National Institute of Statistics, ANRM (National Agency for Mineral Resources), STS (Special Telecommunications Service), Association of the Communes in Romania, Association of the Municipalities in Romania, Association of the Towns in Romania, Association of the Counties in Romania. All these organisations are supposed to support the NSDI.

TABLE 3: Support for the NSDI

Name of organisation	List of key legal acts responsible for relating to data	List of key initiatives they are involved in	List of key funding sources
1. Romanian Government	Open Government Partnership Romania National Action Plan, July 2014 – June 2016	Open Government Partnership National portal: data.gov.ro	State budget

2. ANCPI (National Agency for Cadastre and Land Registration)	Gov. Ord. No.4/2010 (establishing the National Infrastructure for Spatial Information in Romania)	INSPIRE implementation: presidency of INIS Council National INSPIRE geo-portal: geodata.gov.ro	State budget, EU structural funds
3. DTM (Military Topographic Directorate)	Gov. Ord. No.4/2010	INSPIRE implementation National geo-portal: www.geomil.ro	State budget
4. Ministry of Environment	Gov. Ord. No.4/2010	INSPIRE implementation: vice- presidency of INIS Council National geo-portal: biodiversitate.mmediu.ro/ portal_map/	State budget, EU structural funds
5. Ministry for Information Society	Digital Agenda for Europe	National Strategy concerning Digital Agenda for Romania 2014-2020	State budget, EU structural funds
6. STS (Special Telecommunications Service)	Gov. Ord. No.4/2010	IT&C secured infrastructure for INSPIRE implementation	State budget
7. APIA (Agriculture Payments and Intervention Agency)	Law No.1/2004 establishing Agriculture Payments and Intervention Agency	IACS – Integrated Administration and Control System LPIS – Land Parcel Identification System	European Agricultural Guarantee Fund, European Agricultural Fund for Rural Development

Table 3 list seven se organisations whose support is considered as an infrastructure for other NSDI stakeholders or beneficiaries as they are providing complex geo-portals, IT&C secured infrastructure as well as legislative framework for all kind digital activities in Romania.

A special mention should be made for the Open Government Partnership implementation through the National Action Plan because it creates a reliable framework for any EUSDR project and promotes actions that are increasing the credibility of Romania at large. The national open data portal (data.gov.ro) is operational and constantly maintained and improved.

The main stakeholder of the NSDI is ANCPI (National Agency for Cadastre and Land Registration) as it ensures both the Presidency and the Secretariat of the INIS Council. Consequently, ANCPI is the main responsible for the INSPIRE Directive implementation in Romania.

Based on the information kindly provided by dr. Constantin Ene, Director of the GIS Department at ANCPI, the present report is able to include recent and relevant data regarding INSPIRE Directive implementation in Romania as follows. Thus, Government Ordinance No.4/2010 establishing the National Infrastructure for Spatial Information in Romania transposed the INSPIRE Directive into Romanian legislation and created the legal framework for its implementation. The Ordinance was modified several times and the most recent version was published in Monitorul Oficial (the Official Journal of Romania) No.433 on June 13, 2014. Also, the new version of the Romanian INSPIRE Geoportal can be addressed at <http://geoportal.gov.ro>.

For the time being two important subsequent normative acts are prepared and are under current approval process:

- Government Decision establishing public authorities responsibilities related to INSPIRE implementation
- Government Decision regarding the Action Plan of the INIS Council.

It should be emphasized that the transposition required a subsequent strategy for INSPIRE implementation that was not included in the legal provisions of the transposing normative act. In this context, the project entitled "Inspire – Coherent fundamental decisions at national level, a unitary European framework" was developed by ANCPI being co-financed by the European Social Fund through the Administrative Capacity Development Operational Programme 2007-2013. Its expected results are related to both the legal framework and to the technical framework regarding INSPIRE implementation, as follows:

- Legal framework
 - Strategy for INSPIRE implementation
 - Normative acts regarding tariff policies for tariffs, data exchange and access to geo-spatial data sets.
- Technical framework
 - National Nomenclature of Geospatial Data Managers (<http://geoportal.gov.ro/Geocatalog>)
 - Collection/generation of metadata corresponding to the datasets included in the NSDI
 - Development of services for informing and correlating the cadastral information in the context of INSPIRE directive

As a concluding remark, we could consider ANCPI efforts as the most important component within the process of INSPIRE implementation in Romania as well as the creation of a NSDI. The proposed Action Plan of the INIS Council is yet to be approved by all the national stakeholders that have responsibilities within INSPIRE implementation at the national level. This process is a rather complex one due to inherent administrative bureaucratic procedures.

4 Research organisations

The main research activities in Romania are undertaken in public institutions, no matter that they are universities or public research centres. At the same time, due to the importance of the technical and scientific issues that characterize the GI market, there is a strong relation between public and private research institutions. As a consequence, many research projects are undertaken by mixed public-private partners.

Another distinctive feature of the research activities is that most of the public research organisations are under the authority of central public administration, namely, under the authority of the ministries. In this way, the scientific/technical commitments assumed by the Romanian state via the ministries are transferred directly to the research community. Thus, the main issue in solving the current research problems belongs in fact to the ministries management level and consists in defining an optimum (financial) resources allocation based on an appropriate prioritisation of tasks.

Many of the public research organisations are also geo-spatial data providers. Taking into account that the central administration (ministries) are responsible for providing the main categories of geo-spatial data, it follows that there is a natural and vivid connection between data provider institutions and (public) research organisations.

Table 4 includes 28 organisations listed in alphabetical order and, it should also be noticed that the list presented in table is by no means exhaustive.

TABLE 4: List of research organisations

Name of organisation	Organisation type	Completed/current projects creating data/tools to support EUSDR	Lists of relevant research networks they belong to
1. ASRC (Advanced Studies and Research Centre)	Private research firm	Platform for Geoinformation Support of Disaster Management	European Space Agency
2. Babes-Bolyai University, Cluj-Napoca	University	Socio-economic and Political Responses to Regional Polarisation in Central and Eastern Europe	European Strategic Forum of Research Infrastructures
3. CNC (National Cartography Centre)	Public research centre	TopRo5: Topographic map of Romania 1:5.000	FIG, ISPRS, ICA
4. CRUTA (Romanian Centre for the use of Remote Sensing in Agriculture)	Public research centre	MUTER: Applications and basic services for land use monitoring using geo-spatial technologies	EARSeL
5. ESRI Romania	Private research firm	SIAT: early warning, monitoring and drought risk analysis integrated system for Romania	Environmental Systems Research Institute

6. IBB (Romanian Academy Institute of Biology Bucharest)	Public research centre	Monitoring of conservation state of the species and habitats in Romania according to art.17 from Habitats Directive	Natura 2000
7. ICAS (Forest Research and Management Institute)	Public research centre	MERA: Forest Ecosystem Mapping (in cooperation with JRC, Ispra, Italy)	International Union of Forest Research Organizations
8. ICIM (National Institute for Environment Protection)	Public research centre	ROMOMED: Monitoring of the environmental impact due to the improvement of the navigability conditions on Danube between Calarasi and Braila	EIONET
9. ICPA (Institute for Soil, Agrochemistry and Environment)	Public research centre	Establishment of a Prototype for the National Soil Spatial Data Infrastructure in Compliance with INSPIRE Directive	European Soil Bureau Network
10. IGAR (Romanian Academy Institute of Geography)	Public research centre	ROBUHAZ-DUN: Romanian – Bulgarian cross-border joint and technological hazards assessment in the Danube flood-plain	International Geosphere – Biosphere Programme
11. IGR (Geological Institute of Romania)	Public research centre	ERCIP: Improvement plan of the European rivers corridors	EuroGeoSurveys
12. INCDD (Danube Delta National Institute)	Public research centre	MARS: Managing Aquatic ecosystems and water Resources under multiple Stress	World Network of Biosphere Reserves
13. INHGA (National Institute of Hydrology and Water Management)	Public research centre	DANUBE WATER: Danube Water Integrated Management	International association of Hydrological Sciences
14. INP (National Institute for Cultural Heritage)	Public research centre	eGISpat: National GIS for protecting monuments and sites	International Council for Monuments and Sites
15. INS (National Institute of Statistics)	Public research centre	Sub-national statistics on NUTS and city level	European Statistical System
16. ISPIF (National Institute for Land Reclamation)	Public research centre	ADER: Assessment, monitoring, and integrated quality management of water resources used in agricultural and zoo-technical farms	European Irrigation Association

17. Intergraph Computer Services	Private research firm	VIRGO: Virtual Registry of the under – above – on GrOund Infra-structures	Intergraph Corp
18. Meteo Romania (National Meteorological Administration)	Public research centre	Mitigating Vulnerability of Water Resources under Climate Change	EUMETNET
19. Muzeul “Antipa” (“Grigore Antipa” National Museum of Natural History)	Public research centre	Implementation of Natura 2000 network in Romania	Natura 2000
20. RACAI (Research Institute for Artificial Intelligence “Mihai Drăganescu”)	Public research centre	eSDI-net: European Network on Geographic Information Enrichment and Reuse	Romanian Academy
21. ROSA (Romanian Space Agency)	Public research centre	IncREO: Increasing Resilience through Earth Observation	European Space Agency
22. TeamNet	Private research firm	SINCRON: National System for the Management of Protected Areas	Natura 2000
23. “Transilvania” University Brasov	University	EuMIXFOR: European mixed forests. Integrating Scientific Knowledge in Sustainable Forest Management	Danube Rectors' Conference
24. Universitatea “A.I. Cuza” Iasi	University	Flumen-fluvial processes and sediment dynamics of slope channel systems: impacts of socio-economic and climate change on river system characteristics and related services	European Geosciences Union
25. Universitatea Bucuresti	University	DANUBERES: Impact of climatic variability as well as of anthropic interventions on the Danube hydrological regime and on the coastal sedimentary dynamics	European Geography Association
26. Universitatea de Vest Timisoara (West University Timisoara)	University	NETECOWAT: Network To Overcome Common Issues With Regard to the Management of Water Quality in the Cross-Border Area	European University Association

27. URBAN-INCERC (National Institute for Research and Development in Constructions, Urban Planning and Sustainable Territorial Development)	Public research centre	The Concept of Interregional Cooperation in Space Development Zone Danube	European Union for technical approval in construction
28. UTCB (Technical University of Civil Engineering Bucharest)	University	Urban Climate Study Bucharest, Romania	Urban Data Management Society

As can be easily noticed, most of the listed organisations are involved in research projects with a high relevance to the EUSDR. It should also be noted that many of the research institutions have already strong and traditional cooperation relations with homologous institutions in the Danube region. Cross-border, regional and inter-regional programmes played an important role in building research networks in the Danube region.

5 Stakeholder engagement organisations and networks

There are several national and international organisations that can assist the Romanian stakeholders' engagement to support DRDSI activities. These organisations are listed in alphabetical order in Table 5, as they were identified for the time being.

TABLE 5: Stakeholder engagement organisations

Name of organisation	Type	Main area of interest
1. AGILE	International	Association of Geographic Information Laboratories for Europe
2. ApTI (Association for Technology and Internet)	National	Internet, open data, open source software
3. Ceata Foundation	National	Free software
4. EARSeL	International	European Association of Remote Sensing Laboratories
5. EIONET	International	European Environment Information and Observation Network
6. EuroGeographics	International	Association of European National Mapping, Cadastral and Land Registry Authorities
7. EUROGI	International	European Umbrella Organisation for Geographic Information
8. ESPON	International	European Observation Network for Territorial Development and Cohesion

9. Foundation for an Open Society	National	Open society
10. Funky Citizens	National	Open data, public funds
11. Geo-spatial.org	National	Geo-spatial data, open data, open source software
12. INSPIRE Maintenance and Implementation Group	International	Support for NSDI implementation
13. Kosson.ro	National	Open access
14. Median Research Centre Foundation	National	e-governance
15. Smart City Association	National	Open data

The above listed organisations (mainly the national ones) are interested in promoting the modern values of the information technologies applied to the geospatial data sector. At the same time, some of them are already involved in national/international projects and, therefore, have the experience and expertise to carry out complex tasks defined within different European programs and strategies, comparable with EUSDR. Most of the above mentioned organisations are actively involved in promoting open data initiatives in Romania. Nevertheless, for the time being there is little impact of their activity related to spatial data.

In this context, it might be of interest to note that an exercise was proposed in order to find the answer (based on the open data) to the following question: how many law cases are in Romania related to geo-spatial cadastral data, within a certain period of time? A direct answer to this question cannot be found anywhere in Romania. Relevant data for building the answer are to be found at the 15 courts of appeal (http://www.justitia-romana.org/Site_Engl/Pagina_Principala_Eng.html) that have in their jurisdiction 42 tribunals; each tribunal has in its jurisdiction several first instances, and the total number of first instances in Romania is 188. The procedure for finding the answer seems to be rather complex and, for the time being, it is under current development.

6 Conclusions

Romania promoted EUSDR from the very beginning. Thus, the strategy started as a political initiative launched by two EU Member States, namely Austria and Romania, promoted initially through a common letter at the Prime Minister level (June 2008) and addressed to the President of the European Commission.

At the national level, all the key data providers are public sector organisations. This situation might become a major advantage within the process of building the NSDI provided that the corresponding legal framework will be in place, ensuring the responsibility, authority and financial resources as well for each organisation.

Regarding the Romanian policy-making organisations it should be noted the role of the Ministry of Foreign Affairs (MAE) as one of the driving forces for developing and promoting the EUSDR. After the European Commission endorsed and published EUSDR, MAE became the Romanian National Contact Point for the strategy.

Support for NSDI is ensured at the Government level through the Open Government Partnership Romania National Action Plan 2014-2016. At the same time, ANCPPI is the main organisation within the INSPIRE implementation process. A special mention should be made for the place ANCPPI was assigned within the national central public administration system. Thus, ANCPPI was initially placed under the direct authority of the Prime Minister but, in time, the institution migrated to several ministries. At the date this report is released ANCPPI is placed under the authority of Ministry of Regional Development and Public Administration. This situation may generate difficulties whenever ANCPPI has to promote legal provisions that are referring to other ministries. This is particularly the case with the INSPIRE implementation process.

Many of the Romanian research organisations are also geo-spatial data providers. Therefore, there is a large spectrum of such institutions, belonging to public sector and private sector as well.

There are several stakeholder organizations and networks that are involved in supporting EUSDR activities. Nevertheless, for the time being there is little impact of their activity related to spatial data. A special mention should be done for NGOs that are currently one of the main driving forces for promoting a reliable implementation of the PSI Directive 2013/37/EU in Romania. In this context, it should be emphasized that the PSI Directive should be transposed within the Romanian legislation till June 2015.

Romanian organizations already embarked on EUSDR implementation as can be seen from section 3 (policy-making organisations) of the report. Nevertheless, it is easy to note the disparities between the current statuses in different Priority Areas.

The work behind this report is not complete mainly because comments from many stakeholders have not been received in due time. It should be also noted that the dialog with the stakeholders is usually rather difficult to establish taking into account the low degree of awareness concerning EUSDR.

Key players should be systematically informed about the objectives and potential benefits as well as about the progress of the project. Ideally, a motivated contact person should be identified within each of the stakeholder organisation; of course, it would be desirable that such a person should have a permanent/steady position in the organisation.

The assessment of the overall readiness and interest of the Romanian actors regarding EUSDR and DRDSI should be based on their degree of awareness related to the strategy and the DRDSI project. Usually, the first contacts and discussions are promising but further consolidation of the first impressions is needed in terms of systematic and reliable (public) information sources such as websites, newsletters, workshops and other similar means.

A special treatment should be applied to (local) public administration organisations in order to be correctly informed, sensitized and made aware in connection with the benefits they can obtain by being involved in DRDSI.

Annex 1

Actual full names of the Romanian ministries and central authorities mentioned within the report, valid in December 2014:

Name used in the report	Actual full name (December 2014)
Ministry of Environment	Ministry of Environment, Waters and Forests
Ministry of Defence	Ministry of National Defence
Ministry of Interior	Ministry of Internal Affairs
Ministry of Agriculture	Ministry of Agriculture and Rural Development
Ministry of Regional Development	Ministry of Regional Development and Public Administration
Ministry of Economy	Ministry of Economy, Trade and Tourism
Ministry of Education	Ministry of National Education and Scientific Research
Ministry of Tourism	Ministry of Economy, Trade and Tourism
Ministry of Energy	Ministry of Energy, Small and Medium Enterprises and Business Environment