Technical Framework Methodology as a core of building up the NSDI – NSDI Implementation Specifics in Serbia –

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INSPIRE conference 2012
Istanbul, 26th June 2012
Republic Geodetic Authority [RGA] is a special organisation defined by the Law on Ministry

- The national provider and administrator of cadastre and geoinformation
  - Geodetic Reference System
  - State Survey
  - Real Estate Cadastre
  - Utility Cadastre
  - Spatial Units Register
  - Addresses Register
  - Topographic Mapping
  - Assessment of Real Estate Valuation
  - Geographical Names Register
  - Geomagnetism
  - NSDI

- Nation-wide; 2715 employees in 6 sectors

http://www.rgz.gov.rs
Serbian NSDI status

What is Done

- 2009: Law on State Survey and cadastre
- 2010: Spatial Data Infrastructure **Strategy** of Serbia 2010 – 2012
- 2010-2011: **NSDI Bodies** [NSDI Council + NSDI working groups]
- 2011: **Medium term program** for NSDI 2011 – 2015
- 2009: Initial **Geoportal** [www.geosrbija.rs]
- 2011: **Metadata** [Profile + Editor]

Ongoing Activities

- NSDI Technical Infrastructure development
- Institutional framework: Cooperation
- Technical Framework Document
Ongoing Activities

- NSDI Technical Infrastructure development
  - Development strategy
  - Metadata Catalogue
  - New web portals

- Institutional framework: Cooperation
  - Survey of geo-sector status
  - Analysis of current situation of regulation in geoinformation area
  - Geodata sharing policy: Recommendation for cooperation model

- Technical Framework Document
NSDI Development

Government

Geospatial

NSDI Council

Working group for cooperation

Working group for legal framework

Working group for technical framework

Community

NSDI Stakeholders
NSDI Working groups

**Working group for cooperation**
- Defining of cooperation model for geodata sharing
- Implementation of cooperation agreements
- To recommend responsible stakeholders for INSPIRE themes

**Working group for legal framework**
- Agreements according to the defining cooperation model
- Legal framework study under geosector
- Transpose of INSPIRE directive within Serbian legislation

**Working group for technical framework**
- Implementation of standards for geoinformation and ICT (ISO, INSPIRE, OGC, CEN, W3C ...)
- Utilisation of INSPIRE technical requirements
- National geoportal development
Metadata Catalogue and Metadata Catalogue Service

Creation of searchable online metadata catalogue and metadata catalogue service using GeoNetwork (GN) Open Source software
New web portals

**IGIS project** (2010-2013): National Spatial Data Infrastructure and Remote-Sensing Centre for the Republic of Serbia based on IGIS (Infoterra Geo-Information Solution)

![IGIS logo](image)

**Project partners:**
- **Republic Geodetic Authority**
- **IGN France** + **EADS Astrium**

**INSPIRE Web Portal:** discovery, view and an optionally download services are INSPIRE compliant

**Software solutions:** ESRI ArcGis Server + ESRI Geoportal Extension for ArcGis Server + PostgreSQL + IGIS Data Management Capabilities: used to publish data

**Targeted users:** Internal and RGA Partners

**Web Boutique/DataDoors:** Distribute/sell geodata to Internet users (private company, partners, association, ...)

No particular objectives in INSPIRE Compliance but the INSPIRE XML metadata file can be delivered with the data ordered
Survey of geo-sector status – State of play in Serbia

Analyse of current capacities, available geodata and services as well as further needs within geoinformation field in Serbia

- Organization’s details and available resources
- Available spatial data and services in organisation in relation to INSPIRE themes
- NSDI cooperation
- Standardisation

Focus group: NSDI stakeholders
Analysis of current situation of regulation in geoinformation area:

- International acts (INSPIRE directive, PSI directive on the re-use of public sector information, Directive on public access to environmental information)
- National laws
- Jurisdictions of public entities regarding geodata
- Registers and Databases for geodata
- Responsibility related to INSPIRE themes per the Annexes
- Availability of geodata under public entities ownership (access to geodata, condition for sharing and exchange, pricing policy)
<table>
<thead>
<tr>
<th>Annex I / Theme</th>
<th>Responsible institution</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Coordinate reference systems</td>
<td>Republic Geodetic Authority</td>
</tr>
<tr>
<td>2 Geographical grid systems</td>
<td>Republic Geodetic Authority</td>
</tr>
<tr>
<td>3 Geographical names</td>
<td>Republic Geodetic Authority</td>
</tr>
<tr>
<td>4 Administrative units</td>
<td>Republic Geodetic Authority, Statistical Office of the Republic of Serbia</td>
</tr>
<tr>
<td>5 Addresses</td>
<td>Republic Geodetic Authority, Public Enterprise of PTT Communications &quot;Srbija&quot;</td>
</tr>
<tr>
<td>6 Cadastral parcels</td>
<td>Republic Geodetic Authority</td>
</tr>
<tr>
<td>7 Transport networks</td>
<td>Ministry of infrastructure and energy, Public Enterprise “Roads of Serbia”, Public Enterprise “Serbia Railways”, Autonomous Provinces bodies, Local Administration</td>
</tr>
<tr>
<td>8 Hydrography</td>
<td>Republic Hydrometeorological Service of Serbia, Ministry of Agriculture, Trade, Forestry and Water Management - Directorate for Water, Public Water Management Company ‘Srbijavode’, Autonomous Provinces bodies, Local Administration</td>
</tr>
<tr>
<td>9 Protected sites</td>
<td>Ministry of Environment, Mining and Spatial Planning Institute for Nature Conservation of Serbia, Autonomous Provinces bodies, Local Administration</td>
</tr>
</tbody>
</table>
Institutional framework: Cooperation

Geodata sharing ➔ Open Data

Currently:
- There is not long-term policy for data sharing
- Need to define model for cooperation in order to make good condition for share and use of geodata
- Ongoing work under the working groups: Recommendation for cooperation model

Outcome:
- Reduction of costs for producers and users of geodata
  - Increased of data usage and effective public services
Technical Framework Definition for NSDI Serbia
## Review of the current accomplishments of NSDI Unit in context of Technical Framework

### Architecture Components

<table>
<thead>
<tr>
<th>Existing Datasets/Services</th>
<th>Implemented/Planned Solution</th>
</tr>
</thead>
<tbody>
<tr>
<td>Data Repository</td>
<td>yes</td>
</tr>
<tr>
<td></td>
<td>RGA Server / data specification</td>
</tr>
<tr>
<td>External Data</td>
<td>n/a</td>
</tr>
<tr>
<td></td>
<td>RGA Server / data specification</td>
</tr>
<tr>
<td>External Services</td>
<td>n/a</td>
</tr>
<tr>
<td></td>
<td>wasn’t discussed</td>
</tr>
<tr>
<td>Web Client</td>
<td>yes</td>
</tr>
<tr>
<td></td>
<td>Adaptive (Avinet)</td>
</tr>
<tr>
<td>CSW</td>
<td>yes</td>
</tr>
<tr>
<td></td>
<td>GeoNetwork</td>
</tr>
<tr>
<td>WCS</td>
<td>no</td>
</tr>
<tr>
<td></td>
<td>Rasdaman /Geonetwork/ESRI</td>
</tr>
<tr>
<td>Download Services</td>
<td>no</td>
</tr>
<tr>
<td></td>
<td>FME Server or WebBoutique</td>
</tr>
<tr>
<td>WMS</td>
<td>no</td>
</tr>
<tr>
<td></td>
<td>ESRI or Rasdaman or in-house</td>
</tr>
<tr>
<td>WFS</td>
<td>n/a</td>
</tr>
<tr>
<td></td>
<td>wasn’t discussed</td>
</tr>
<tr>
<td>GeoDRM</td>
<td>no</td>
</tr>
<tr>
<td></td>
<td>EasySDI</td>
</tr>
<tr>
<td>Payment Mechanisms</td>
<td>no</td>
</tr>
<tr>
<td></td>
<td>WebBoutique</td>
</tr>
</tbody>
</table>
Level of organisations in geoinformation area standardisation in

Worldwide

ISO/OGC/W3C

European

INSPIRE/CEN

National

SRPS

ISS
ISO/TC211 – international – world-wide level

In sense of project focus topics, another grouping is relevant - by SDI topics:

Olaf Østensen Chairman of ISO/TC 211
Standardization: The SDI Challenges
ISO/TC 211 Standards for SDIs 2009

Metadata standards

Data description standards

Services – data access

Other aspects of the SDI
Core SDI relevant standards - OGC:

**Catalogue Service (CSW)**
http://www.opengeospatial.org/standards/cat
with developed General Catalogue Model

**Web Map Service (WMS)**
http://www.opengeospatial.org/standards/wms
published as ISO 19128 Geographic information - Web map server interface

**Web Coverage Service (WCS)**
http://www.opengeospatial.org/standards/wcs

**Web Feature Service (WFS)**
http://www.opengeospatial.org/standards/wfs
published as ISO 19142 Geographic information - Web Feature Service

**Geography Markup Language (GML)**
http://www.opengeospatial.org/standards/gml
published as ISO 19136 Geographic information -- Geography Markup Language (v.3.2.1)

**OGC GeoDRM RM**
The INSPIRE Directive

INSPIRE Implementing Rules - legally binding EU member states

Metadata - implemented Metadata Editor and Serbian Basic Metadata Catalogue - keep updated and in coordination with INSPIRE specs and national requirements

Data Specifications - project focus
- recommend and accept specifications for Annexes I (II, III)
- consider Framework Documents and Guidance Documents

Network Services - project focus
- recommend and accept specifications
- Discovery, View and in perspective Download and Transformation

Data and Service Sharing - project focus
- consider Regulation on INSPIRE Data and Service Sharing
- develop/implement GeoDRM

Monitoring and Reporting - in perspective
CEN TC287 – international – regional level

In tight cooperation with ISO

Accepting ISO standards and applying on European level

In spatial domain working only in support of INSPIRE having working group for SDI

CEN technical report:
Geographic Information – Standards, specifications, technical reports and guidelines, required to implement a Spatial Data Infrastructure
CEN/TR 15449:2011
Institutional framework for standardisation in Serbia

Law on standardisation

Institute for Standardisation of Serbia

Technical committee
Geographic information – code KS I 211
Institute for Standardization of Serbia TC I211

Working on accepting international standards in the field

Group I211 within SRPS thus systematically adopted and published 21 ISO standards and 1 CEN/TR, all in English and in 2008!
http://www.iss.rs/standard/index.php?national_committee_id=817&item_from=0

14 standards are still in working progress of the SRPS I211 group.
http://www.iss.rs/tc/work_programme.php?national_committee_id=817
Serbian NSDI Technical Framework Document

Technical Framework Document should support specifying core standards for data and services implementation within the Serbian NSDI.

The document shall cover:

- Identification of which standards (and versions) that shall apply to:
  - Data exchanged to and from the NSDI unit in RGA
  - Network services offered by the NSDI unit in RGA
  - Network services to be used by the NSDI unit
- Requirements to NSDI cooperating partners for complying with the digital right management of NSDI.
- Requirements to documentation of datasets and services
Serbian NSDI Technical Framework Document

Standards for implementation in the Serbian NSDI:
- NSDI framework components
- Relevant standards for the identified components in sense of:
  - Framework
  - Metadata
  - Data
  - Services
  - Security and DRM
- Categorisation of standards
  - A core, optional and future needed standards suite
Framework pillars:

*the existing stakeholders’ data and services*
  - analyse and recommend data specification based on formalisation or transformation for compliance with INSPIRE

*the data and services that are in the process of adopting*
  - set of standards adequate and available along with the data publishing process

*the spatial data/services that could appear in the long term*
  - secure standards conformity, flexibility and modularity in order to be possible to meet future needs
Conclusion and Recommendations

Implementation
   Recommended models vs Local specifics
   Accomplished results vs Projected goals

Cooperation with other stakeholders
   NSDI Working groups, Active inclusion

Continuation and upgrading of the NSDI
   Formalisation of the development, More focus on specific SDI components, Monitoring of the progress

Education and Development
   Various levels: Awareness rising, Technology adoption, Service implementation, Best practice cases
Technical Framework Methodology
as a core of building up the NSDI
– NSDI Implementation Specifics in Serbia –

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