

The Hungarian SDI Strategy

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Key words: Geoinformation, spatial data, infrastructure, NSI, standard, spatial reference, data policy, education

SUMMARY

Involving players of geoinformation sectors in Hungary the Spatial Data Infrastructure Strategy of the country has been elaborated in frame of the general Hungarian Information Society Strategy (MITS). The Hungarian SDI Strategy defines the main tasks as

- establishing NSDI organizational framework,
- revision of legal framework and data policy,
- elaboration of the national standards and data specifications,
- managing of interoperable spatial reference databases and their actualization,
- providing the metadata services and access to spatial data,
- acquiring of geoinformation knowledge and using the geoinformation in education,
- active participation is European and international collaboration.

Governmental acceptance is in progress, recently.

The comprehensive Spatial Data Infrastructure Program and a particular Electronic Unified Land Registry Program have been elaborated and submitted to the Governmental Development Agency for realization.

The paper present details of the Hungarian SDI Strategy and those of the two Programs.

The programs involved in the National Spatial Data Infrastructure (NSDI) will play an important role in other fields of MITS (abbreviation of Magyar Információs Társadalom Stratégia, in English: Information Society Strategy for Hungary) and are connected to a certain part of the operative programs formulated in the National Development Program. But, these programs are not properly coordinated, majority of them appears as if isolated, consequently, their implementation may cause parallel data acquisition and unjustified additional input, which is in total contradiction with the INSPIRE directive. To use the resources in a cost-efficient way, form the Hungarian information society and satisfy the requirements of the European integration, it is necessary to elaborate a strategy in uniform structure that enables us to cover the demands of the society in geospatial terms. NSDI is a convenient tool to define and harmonise the tasks in this respect.

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1. VISION

The implementation, operation and improvement of the Hungarian NSDI and also its integration into the European SDI will significantly strengthen Hungary's market position and competitiveness. NSDI provides such a tool for the State, the public administration and the local self-governments, which, through advanced services, contributes to the improvement of the citizens' quality of life. The realisation of NSDI provides a basis for coordinated and cost-efficient creation of geospatial data, omission of parallel data acquisition and access to metadata (catalogues of geospatial data) and to the data themselves (viewing, interactive use and downloading). After a decade, the majority of case management will go through portals supported by geospatial data, which mostly are optimised to access through wireless tools. The data policy realising in the framework of NSDI serves both multisectoral financing of creating, maintaining and servicing of data and rationalising the costs of access to data, and provides sector-neutrality too. While creating the reference databases, the proportion of the State's role and that of the State budget will decrease, and the income generated by the value-added service will grow.

2. TASKS CONCERNING THE CREATION OF THE NATIONAL SPATIAL DATA INFRASTRUCTURE

2.1. Organizational Framework Coordinating the Elaboration of the National Data Infrastructure Should be Created

The aim of building up the organizational framework is to provide efficient coordination. Its three components are the Coordination Committee for Map Supply (CCMS), the NSDI Secretariat and the NSDI officials responsible for the special fields. The effectiveness of CCMS – which was set up according to the Hungarian Act LXXVI/1996 on Land Surveying and Mapping Activity – must be intensified through the representation of a deputy secretary of State in the Committee. The implementation of the operative tasks and coordination are the duties of the NSDI Secretariat, which will function by involving the NSDI officials of the special field:

- reviewing the relevant rules of law;
- continuous monitoring of the users' demands;
- monitoring the ongoing projects, preparing the start of new projects on spatial data infrastructure, their control based on the INSPIRE directive;
- Coordination of the Hungarian participation in international working groups (ISO, CEN, specification of data groups).

2.2. The Existing Legal Background and Data Policy Should be Revised

Among the existing directives and laws, it is necessary to identify those concerning the spatial data infrastructure, and review them from the view of cost-efficient implementation and operation of a National Spatial Data Infrastructure. Special attention has to turn on the Act LXXVI/1996 on Land Surveying and Mapping Activity. The efficient order of procedures and regulated operation must be elaborated for the application of the National Spatial Data Infrastructure in the public administration and the local governments. The full-scale access and conditions of authorisation for access to spatial data has to be regulated. Such an environment of directives and laws has to be created to support the efficient use of the existing spatial data asset. Conditions of data share (free of charge or, if the state -financing is partially or totally impossible, for payment) access to the core data for spatial referencing, their updating and maintenance must be elaborated, with special attention to the public administration and national defence.

By applying copyright and individual rights, legal protection should be provided for the spatial data in line with the relating directive (96/9/EC) of the European Commission. The suitable protection of the databases must be solved against unauthorised use or intervention. By operating convenient controlling system and using efficient sanctions the enforcement of directives and laws should be guaranteed. Beyond legal background, data protection should be improved technically, too.

2.3. The Spatial Data Standards and Database Specifications Harmonized with the International and European Norms should be Elaborated

It is basic requirement to operation of geoinformation systems to build up databases that are standardized both in informatics and GIS terms as well as to make the processes authentic.

To reach the regional, national, European and global interoperability of the NSDI, it is necessary to adopt the relating international structural and procedure standards of geoinformation to Hungarian conditions, and on this basis, the necessary product-standards must be elaborated. Participation in the activities of CEN TC 287 and ISO TC 211 should be ensured. The process of standardisation has to be completed by coordinated development of spatial data specifications in the frame of EuroGeographics. Financial conditions of the standardisation should be provided on governmental level or need to be solved through aimed tendering procedures. Standardisation should be followed by coordinated elaboration of data specifications. In this field, Hungarian participation should also be ensured in various European working groups and projects (e.g. EuroRegionalMap, EuroSpec, EuroRoadS, EuroMapFinder).

2.4. The Spatial Referencing Core Data Necessary for Operation of the National Spatial Data Infrastructure and for Geoinformation Activity should be Established and the Updating of these Data Bases should be Guaranteed

Establishment and updating of the multipurpose spatial reference core data should be carried on through governmental coordination, specifying the resources and the responsibilities. In

this field new e-content programs should be started. These programmes should be included in the existing National Development Program. The coordinated establishment and maintenance of the national geodetic and mapping core data (geodetic data, cadastre system and topographic base maps) and also managing the standardised quality of these reference spatial data are specially important. Hungary's competitiveness in the information society should be strengthened with participating in European geoinformation activities and programmes (e.g. GMES, GALILEO, EuroGlobalmap, EuroRegionalMap, *eContentplus*) as well as with helping for and using of the benefits of the Spatial Data Infrastructure of the United Nations (UN SDI). As a first step a decision process study should be prepared on the introduction and operation of NSDI, and on development the proposal concerning the establishment and maintenance of reference spatial data and presenting the macroeconomic usefulness of modern spatial data infrastructure.

2.5. National Metadata-service for Supporting Wide Use of the Generated Datasets Should be Created and Clearinghouses for Providing Easy Access to Spatial Data Should be Operated.

To facilitate geoinformation use of the existing spatial datasets, metadata-service should be organized. Access to spatial data has to be provided by setting up and operating clearinghouse(s) for spatial data. Metadata for description of spatial data should be collected, serviced and made accessible free of charge, in accordance with general practice and with the INSPIRE directive. Priority has to be given to the creation and servicing of metadata which belong to the spatial referencing core data as listed below:

geodetic reference system geographical grids, projections geographical names administrative boundaires data transport networks hydrography postal addresses cadastral parcels	digital land elevation land cover ortophotos geology protected sites
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Further on, it is necessary to create the conditions needed to metadata service of thematic spatial data group:

statistical area units soils buildings environmental monitoring land use health and safety management facilities operated by public administration industrial facilities agricultural and water management facilities	demographic data restricted areas natural danger zones atmosphere energy resources bio-geographical regions ecological areas habitats animal and plant species mineral resources
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Through the clearinghouses, free access to metadata, their downloading and the free viewing of relevant spatial information should be provided. It must be clearly defined who and under which conditions can have access to which spatial datasets.

2.6. Suitable Programs Should be Realised throughout the whole Education System for Acquiring the Necessary Knowledge of Efficient Use of Spatial Data

It is necessary to start and, where applicable, to continue applying GIS in the public education when teaching spatially related subjects (history, geography, environment studies). It is necessary to provide the recognition of GIS-based attitude and culture in the basic and secondary level education. Opportunity is to be given to the school children for examining, presenting and managing the environmental condition and location-based cultural values of their own settlements in a GIS. In the higher education, students should be prepared to be able to transform their geospatial information into „knowledge”. It is especially important to organize GIS postgraduate training courses for the graduated teachers and lecturers working in all levels of the education.

2.7. Active Cooperation with and Participation in the Activity of International and EU Institutions and Working Groups

The involvement of the Hungarian geospatial information society should be provided in the activity of the international and EU institutions and working groups, dealing with geospatial information. The only way to represent and enforce the Hungarian interests in the community is to be involved and to cooperate in the working groups of CEN, ISO, INSPIRE, EuroGeographics, GMES, GALILEO, and also to participate in the UN SDI and GSDI programmes.

3. SCHEDULE OF ESTABLISHMENT AND OPERATION OF THE NATIONAL SPATIAL DATA INFRASTRUCTURE (NSDI)

	Deadline	Milestones of EU	National milestones
PREPARATION	September 2005.		Elaboration of the „Strategy for establishment and operation of the National Spatial Data Infrastructure”
	IV. quarter, 2005.		Working in of intentions and tasks related to the establishment and operation of the national spatial data infrastructure into MITS, into the Conception of the National Development Policy and NFT II.

	Deadline	Milestones of EU	National milestones
	<i>1. quarter, 2006.</i>		Creation of organizational frames for establishment and operation of the National Spatial Data Infrastructure, establishment of National Committee. Elaboration of programs referring to creation of databases necessary for establishment of the National Spatial Data Infrastructure
	<i>2005-2006.</i>	Preparation of INSPIRE, elaboration of introduction rules: <ul style="list-style-type: none"> – Produce and updating of metadata; – Network services; Development of conceptual data models Application of INSPIRE like guided test.	Contribution in the work of working groups of the EU. Participation in frame of EuroGeographics in the application of INSPIRE like guided test. Development of spatial datasets in the frame of eContentplus.
	<i>December 2006.</i>	Elaboration of prototype of EU Geportal.	
	<i>2007.</i>	Preparation of INSPIRE, working out of introduction rules <ul style="list-style-type: none"> – Use of filling up services by third party, – monitoring and report; – Access of institutions of the Community to the GI datasets 	Cooperation in the activity of EU working groups, e.g. Humboldt project
ADOPTION	<i>2007</i>	Acceptance of the INSPIRE Directive.	Lunch of Governmental Directive on Hungarian NSDI Strategy
	<i>2007 + 3 months</i>	Establishment of the INSPIRE Committee.	Representation in the EU INSPIRE Committee.
	<i>2007</i>	Acceptance of the introduction rules.	
	<i>2007 – 2008.</i>		National acceptance of the introduction rules. Preparation of the necessary rules of law.

	Deadline	Milestones of EU	National milestones
INTRODUCTION	<i>2007 – 2014.</i>		Development of spatial datasets in the frame of NFT II.
	<i>2009.</i>	Nomination of officials responsible for spatial datasets.	
	<i>2009.</i>		INSPIRE Directive put into force nationwide.
	<i>2009.</i>	The monitoring system is ready for services.	
	<i>2009.</i>	Network services are operated.	
	<i>2010.</i>	Metadata of spatial reference core data are accessible.	
			First report
	<i>2011</i>	The datasets of spatial reference core data renewed according to the harmonised data specification are available.	
	<i>2012</i>	Acceptance of the harmonised data specifications for spatial reference core data and thematic spatial datasets.	
	<i>2013</i>	Metadata of thematic spatial datasets are accessible.	
	<i>2014</i>	The datasets of thematic spatial datasets renewed according to the harmonised data specification are available.	
	<i>2014</i>	Report of the Committee for submission to the Parliament.	Report to Hungarian Government and Parliament

4. ORGANISATIONAL FRAMEWORKS OF ESTABLISHMENT AND OPERATION OF THE NATIONAL SPATIAL DATA INFRASTRUCTURE I

Existing organizational elements:



MEMBERS:

- Ministry of Interior,
- Ministry of Agriculture and Rural Development,
- Ministry of Economy and Transport,
- Ministry of Defence,
- Ministry of Environment and Water Management,
- Ministry of Finance,
- civil national security services,
- Central Statistical Office,
- Hungarian Academy of Sciences,
- Research and Technology Innovation Council.

TASKS:

- To overview — based on the existing state —the middle and long term geodetic and mapping plans of represented organisations and to establish the order of importance, to recommend to the minister responsible for the management of geodetic and mapping activity;
- To give opinion on the middle- and long-term geodetic and mapping plans of the minister of agriculture and minister of defence;
- To express an opinion on the schedule of implementation of tasks;
- To express an opinion on draft legislative provision concerning the surveying and mapping activities.

Organizational elements to be created:



Provide coordination

MEMBERS:

- members of CCMS
- Ministry of Education;
- HUNAGI
- National Office of Research and Technology
- VÁTI Ltd.
- Contact persons of international organizations

TASKS:

- Continous monitoring of the users' demand, representation of sectorial requirements, give opinion on the submissions.
- Revision of the related laws, elaborate the EU-conform regulation;
- Elaboration of standards and other technical rules;
- Monitoring the ongoing projects, proposal of starting projects on spatial data infrastructure.
- Coordination of Hungarian participation in international and EU-level working groups (CEN, ISO, data specifications).

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BIOGRAPHICAL NOTES

Szabolcs Mihály

Member of the Hungarian SDI Strategy Working Group

Academic experience: Dipl. Photogrammeter-Surveyor (Institute of Geodesy, Ariel Survey and Cartography, Moscow, 1967), Doctor Tech. (Budapest Technical University, 1982), Ph.D. degree (Hungarian Academy of Sciences, 1981).

Practical experience: Satellite geodetic techniques and GPS, elaboration of satellite geodetic adjustment software systems, elaboration and nationwide harmonisation of the Hungarian „Digital base map” standard and „Digital topographic map database” standard, coordination and successful realization of numerous national and international R+D project, database modelling, National Spatial Data Infrastructure, coordinate system transformation.

Publications: lecture notes, monographs, more than 110 papers published in proceedings and registered journals, similar amount of internal reports, a big part of it on GIS and digital cadastre.

Recent membership: Geodetic Scientific Committee of HAS (subcommission chairman), Chairman of GI Standard’s WG of Hungarian Office of Standards, Representative to Eurogeographics, Hungarian representative to FIG Commission 3.

Recent position: Director General, Institute of Geodesy, Cartography and Remote Sensing, Hungary.

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