

## CONCEPTUAL ASPECTS OF REGIONAL SPATIAL INFORMATION SYSTEMS IN POLAND

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### Introduction

In nearly all voivodships, marshal's offices carry out activities aimed at practical application of modern geospatial technologies according to their needs. In effect, regional spatial information systems have spontaneously emerged since a dozen years or so and each of them covers the area of one of 16 voivodships. The actual state achieved in individual regions, or voivodships, differs significantly with regard to information content, functionality, architecture and degree of progress in implementation of these systems, hereafter called regional systems.

The INSPIRE Directive and other acts of the UE legislation connected with spatial information as public information and with information about environment, and the Act on spatial information infrastructure with related secondary legislation have vital impact on functioning and improvement of already existing regional systems and on creation of systems which are only at the stage of designing.

A new impetus in this respect was provided by the strategy of intelligent and sustainable development favouring social inclusion, known under the name of *Europe 2020*, which defines the directions of social and economic development of the European Union. This strategy covers *European digital agenda* aimed at maximum utilization of the potential of information and communication technologies. Specific actions have been planned influencing, among other things, creation, functioning and practical use of spatial information.

### Objectives of the regional system

The basic objective of the regional system should be ensuring easy access to trustworthy spatial information about the region for different users according to their needs: administrative units, institutions, enterprises and inhabitants of the region. According to the INSPIRE principles, the information provided should be comprehensive, acquired from all available

sources: information systems, databases and registers, irrespective of where, by whom and on which level of administration this information is collected and stored. Organizational and technological solutions applied should ensure the possibility of joint use of data obtained from different information sources.

Detailed objectives depend on the region and its priorities; for instance for Podlaski Spatial Information System these objectives were specified as follows:

- *optimization of decision making processes of public administration at all levels,*
- *increasing effectiveness of environment protection,*
- *improvement in functioning of crisis management services,*
- *improvement of planning processes on regional level,*
- *raising investment and tourist attractiveness of the voivodship,*
- *supporting regional policy and improving the performance of the marshal's office,*
- *supporting participation of the region in EU projects and programs.*

Generally, attention is focused on the objectives resulting from vital contribution of regional systems to development of e-administration and their participation in implementation of development strategy at the voivodship level.

### **Integration role of the regional system**

The regional system may and should be the integration hub in the region. In the first place, it is about integration of activities of organizational units and authorities of the territorial self-government both on powiat (county) and community level. As results from the experience of Mazowieckie voivodship, the regional system provides a convenient basis for useful common undertakings of the marshal's office and powiat and community offices in the area of e-administration, personnel training and introduction of technological progress. Taking advantage of available aid funds, large teams are activated, which have a positive impact on creation of information society and civic society in the region.

The regional system is also used for promotion of the region, including dissemination of knowledge about its geographic and cultural merits and particular economic and social features as well as for making available information interesting for investors and tourists. Attention should be also drawn to the possibilities of taking advantage of broadly understood educational functions of the regional system in the educational system.

### **Data sources made available by the regional system**

Spatial datasets made available by geoportal of the regional system may be divided into the following sets:

- own sets of the system. i.e. datasets collected and stored within the framework of the system according to particular features of the region and specific needs related to them,
- originating from nationwide sources covered by the spatial information infrastructure (IIP) established on the basis of the Act on IIP, the INSPIRE Directive and departmental provisions,
- originating from regional sources operating in the region,

- originating from local sources (powiats, cities and communities) functioning on the basis of departmental provisions, especially in the area of geodesy and cartography.

Appropriate standard services ensuring the possibility to use the network, called network services, are subordinated to these datasets. Network services are described in detail in the Directive and relevant INSPIRE resolutions.

## Legal provisions and standards

The regional system should be treated as justified and necessary extension of IIP taking into account specific regional needs of the voivodship. However, in order to implement its objectives and tasks the system should be adapted to:

- national provisions defined by the Act on IIP, the Act on informatization of activities undertaken by entities fulfilling public tasks, the Act on Geodesy and Cartography and other acts concerning spatial information as well as arising from secondary legislation, especially resolutions concerning systems and databases related in their themes to the regional system,
- EU provisions defined by the INSPIRE Directive, the Directive on re-use of public sector information and other acts of the EU law related to spatial information, including relevant secondary legislation, particularly the resolutions of the European Commission on INSPIRE data and services.

Of course, besides European and national law, relevant acts of local law refer to the regional system, but they must be in accordance with all above mentioned generally binding acts of law.

Generally binding regulations concerning interoperability are introduced by the Act of 12 February 2010 amending the Act on informatization of activities undertaken by entities fulfilling public tasks and some other acts. Point 11 thereof states that:

*To fulfill its tasks, public entity uses public teleinformation systems meeting minimum requirements for teleinformation systems and ensuring interoperability of systems according to the principles defined in the National Interoperability Framework.*

In turn, in the final version of the resolution of the Council of Ministers of 21 July 2011 related to the National Interoperability Framework it is distinctly stated (§ 4 item 1):

*Interoperability is achieved by:*

- 1) *making uniform, understood as using the same norms, standards and procedures by entities fulfilling public tasks, or*
- 2) *exchangeability, understood as a possibility to replace a product, process or service without disturbing the exchange of information between entities fulfilling public tasks or between these entities and their customers, meeting at the same time all functional and non-functional requirements of the cooperating systems, or*
- 3) *conformity, understood as usefulness of products, processes or services designated for common use under specific conditions, which ensure meeting vital requirements without any undesired reactions.*

In the effect of adaptation to binding provisions of law, taking advantage of global scientific and technical achievements and taking into account generally accepted standards, necessary conditions are created to ensure interoperability or, in this case, the possibility of:

- 1) cooperation of a given regional system
  - with infrastructure created on the basis of the INSPIRE Directive, the Act on IIP and departmental provisions, including with infrastructure nodes of geodetic and cartographic service,
  - with systems functioning on regional level, especially with analogous systems in neighbouring voivodships,
  - with other systems functioning on higher (national) and lower (local) levels,
- 2) joint use of datasets and services within the regional system in connection with the services of e-administration.

### **Features of target regional system**

Regional systems will undoubtedly evolve in the direction of regional spatial information infrastructures taking into account to more and more extent the requirements of European and Polish law and significant technological progress in this area. The target regional system should have in particular the following features:

- general access to the resources covered by the system. i.e. resources and services of spatial data subject to restrictions arising from separate provisions,
- interoperability in the understanding given in the charter „Legal provisions and standards”,
- application of metadata describing the resources of the system and facilitating search and evaluation of the resources according to the user’s needs,
- possibility of active participation in creation and functioning of the infrastructure by other entities in the voivodship interested in spatial information and possessing their own resources,
- service-oriented architecture of the infrastructure,
- cooperation of spatial data services with the services of e-administration.

### **Conclusions**

1. Regional systems created by marshal’s offices in individual voivodships provide a vital contribution to the development of regions and, at the same time, contribute to the development of spatial information infrastructure in Poland .
2. Regional systems should be developed so that they:
  - meet binding provisions of law in the area of spatial information and informatization,
  - become regional infrastructures meeting the requirements of interoperability,
  - take into account the needs of e-administration.
3. As close cooperation of marshal’s offices with regard to regional systems is necessary, it is suggested to set up Liaison Taskforce of Regional Spatial Information Systems composed of representatives of marshals of voivodships. The author wants to express his hope that this suggestion will be discussed and will take shape during XXI conference of PASI. The conclusions presented above may be also referred, after appropriate adaptation, to local spatial information systems, in particular to the systems of metropolitan cities.

### **Internet sources**

EUROPE 2020: [http://ec.europa.eu/europe2020/index\\_pl.htm](http://ec.europa.eu/europe2020/index_pl.htm)  
INSPIRE Directive, secondary legislation and other materials: <http://inspire.jrc.ec.europa.eu/>  
Materials of the EU Regions Committee: [www.cor.europa.eu/](http://www.cor.europa.eu/)  
Materials related to regional systems: websites of marshal's offices and geoportals of regional systems  
Repository, lexicon and other PASI materials: [www.ptip.org.pl](http://www.ptip.org.pl)  
The Act, resolutions and other materials of IIP: [www.radaip.gov.pl](http://www.radaip.gov.pl)

### ***Abstract***

*In Poland, regional spatial information systems have spontaneously developed since a dozen years or so and their primary task is to support the activities of marshal's offices in individual voivodships. The development of these systems is presently shaped by the INSPIRE Directive, its transposition in the form of the Act on spatial information infrastructure and by secondary legislation related to spatial information infrastructure and interoperability framework.*

*In the paper, consequences of legal regulations in force are exposed drawing attention to the necessity of understanding the system as a kind of basis of a regional spatial information system. Broadly understood objectives of the system are specified drawing attention to its integration role and data sources. Legal conditions are characterized and features of target system are presented. At the end, conclusions are provided confirming the need for further development of regional spatial information systems in accordance with binding provisions of law and recommending to undertake properly organized inter-regional cooperation in this field.*

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