

Importance of a real estate cadastre as the basic, reference public register in the sustainable country development

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Substantial and legal modifications of Spatial Information Systems in Poland

Public administration bodies, which maintain public register are obliged to commence the following services:

- searching
- reviewing
- collecting
- processing
- dissemination

All of services must be activated using electronic data

Legal regulations in Poland

Regulation of the Polish Government , on April 12, 2012 –
National Interoperability Frameworks specified:

- the National Interoperability Frameworks;
- the minimum requirements **for public registers** and **exchange of information in electronic form**;
- the minimum requirements for **tele-information systems**.

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Legal regulations in Poland

Following the Act on the Spatial Information Infrastructure of 2010,
which is the Polish implementation of the INSPIRE directive:

*„**interoperability** of data files and spatial data services is understood as the possibility to combine spatial data files and co-operation of spatial data services, **without the repeated manual intervention**, leading to the coherence of results and the increased added value of spatial data files and services”*

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Interoperability in new legal regulation

Interoperability should be achieved through:

-unification

(utilisation of compatible standards, norms, procedures performed by public tasks)

-exchangeability

(possibility to substitute a product, a process or services without disturbing information exchange between entities, which perform public tasks)

-compliance

(usefulness of products, processes or services dedicated to common utilisation, under specific conditions, which ensure the achievement of important requirements, with the lack of unexpected impacts)

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Cadastral Parcel in Polish National Interoperability Frameworks

Cadastral parcels (and the address point) are the basic spatial reference object for public registers.

-these both objects have been legally defined in the Law of Geodesy and Cartography, being the basic legal act in the field of geodesy and cartography.

- such regulations existing in the legal acts stress the high importance of geodesy and cartography, increase professional prestige of surveyors and cartographers

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Responsibility of surveyors and cartographers in new legal regulation

Geodesy and cartography in Poland is responsible for:

1. **Coverage** of the country by land and buildings registers databases (EGiB)
2. **Uniformity** of the existing cadastral databases
3. Meeting **the accuracy criteria** of the existing cadastral databases
4. **Quality** of the existing cadastral databases
5. **Reliability** of the existing cadastral databases
6. **Timeliness** of the existing cadastral databases
7. **Interoperability** of the cadastral databases

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1. COVERAGE

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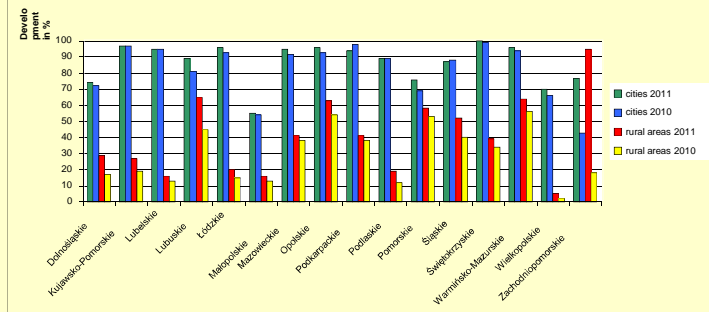
Land and buildings register -statistical data

General data about Poland	List		No.	Cities	Rural areas	Total
	Number of register units		3	925	2175	3100
	Number of register districts		4	11250	42726	53976
	Number of cadastral parcels		5	7359788	28010249	35370037
	Number of land register units		6	4302503	10111032	14413535
	Size in hectares	register	7	2156970	29086990	31243960
		surveyed	8	2127819	29109918	31237737
	Estimated number of buildings		9	5583598	11769519	17353117
	Estimated number of premises		10	4523727	703155	5226882

Source GUGIK: Report on the real estate cadastre and its modernisation, GUGIK 2011

Modernisation of land and buildings cadastre -statistical data

Complete information on lands, buildings and premises - descriptive part, as on December 31, 2010 and December 31, 2011



Source GUGIK: Report on the real estate cadastre and its modernisation, GUGIK 2011

Cartographic part of documentation of the land and buildings register-statistical data			
No	Data file which characterises current development of the land and buildings register	Urban areas	Rural areas
1	A vector cadastral map, complete content, containing: borders of cadastral parcels, outlines of land use fields, classification complexes, outlines of buildings	91 %	60 %
2	A vector cadastral map, incomplete content, containing: borders of cadastral parcels, outlines of land use fields, classification complexes	1 %	10 %
3	A raster map, amended in the process of updating with vector data	2 %	10 %
4	Analogue map	6 %	20 %
TOTAL		100 %	100 %

Source GUGiK: Report on the real estate cadastre and its modernisation, GUGiK 2011

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Financial means for cadastral data				
2007	2008	2009	2010	2011
84,012,118 zł	91,543,224 zł	89,509,927 zł	78,996,749 zł	85,744,251 zł
	From the state budget [zł]	From the district own funds [zł]	From other funds [zł]	Total financial inputs incurred on modernisation within the reporting year 2011 [zł]
Poland	25,047,237	39,998,076	20,698,938	85,744,251 20 mln EUR

Source GUGiK: Report on the real estate cadastre and its modernisation, GUGiK 2011

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**2. UNIFORMITY OF THE EXISTING
CADASTRAL DATABASES**

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Land and buildings register - administration bodies

The land and buildings registers are maintained in Poland by **438** administration bodies, including:

- **378 starosts** (heads) of districts and mayors of cities with rights of districts,
- **60 mayors** or presidents of cities.

Based on the same legal acts but partly they are maintained not in uniform way

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Diversity of IT system of land and buildings register

- About 10 systems are used to maintain the **descriptive** parts;
- About 10 systems are used to maintain the **graphical** parts;
- The systems for **descriptive and graphical parts are seldom integrated.**
- In majority of cases **two separate systems** are used for the descriptive and the graphical parts.
- Those two systems are often developed and delivered by various software developers
- data exchange between the systems is difficult, although the legally issued standard of data exchange (SWDE) exists

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Integrated Real Estate Information System (ZSIN) -new legal regulation

The ZSIN system it to ensure:

- **maintenance** of the central repository of backup files with land and buildings register data;
- **monitoring** - at the national and voivodship levels - the coherence and the quality of land and buildings register data;
- **data exchange** in the form of electronic documents, between the land and buildings register and other public registers;
- **verification of the compliance** of land and buildings register data with data included in property registers and other public registers;
- **dissemination** of **integrated** land and buildings register data to administrative bodies, among others for the needs of economic planning, spatial planning, the environment, for fiscal purposes, for state inspections, fighting against corruption and internal security.

Maybe it will be solution of the problems listed

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3. MEETING THE ACCURACY CRITERIA OF THE EXISTING CADASTRAL DATABASES

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Accuracy criteria of the cadastral databases

According to the law, geodetic topographic surveys are performed in such a way that location of a topographic point, considering the closest points of a horizontal network and a measurement network is specified with the accuracy not lower than:

- 0.10 m** - in the case of terrain details of the **I group**;
- 0.30 m** - in the case of terrain details of the **II group**;
- 0.50 m** - in the case of terrain details of the **III group**.

The majority of objects of the cadastral documentation are included in the **I group**, including terrain details, which are explicitly identifiable in the field, which preserve permanent shapes and locations, in particular:

- symbols and border points,
- geodetic marks,
- constructions and building installations,

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Accuracy criteria of the cadastral databases

Cadastral databases does not reflect the level of achieving the accuracy criteria, concerning the spatial location of particular objects

Cadastral databases are:

- the result of many public procurements,
- implemented for various purposes
- many databases have been created **as a result of vectorisation** of existing analogue databases and **not as a result of modernisation** works, with consideration of accuracy criteria concerning the spatial locations of cadastral objects

The exchange of such objects is required in the course of modernisation of cadastral documentation, what could lead to such situation when those objects would meet the accuracy criteria, specified in regulations

Without the deep analyses of the existing databases and the resources stored at Geodetic and Cartographic Documentation Centres it is very difficult to estimate the percentage of databases, which are maintained in the vector form and which meet the accuracy criteria

4. QUALITY OF THE EXISTING CADASTRAL DATABASES

QUALITY OF THE EXISTING CADASTRAL DATABASES

The **quality of the existing databases is related to the achievement of uniformity and accuracy criteria.**

➤ The high accuracy should not be expected for databases, which **are not uniformly maintained** and which **do not meet the accuracy criteria.**

All modernisation works, performed recently, which are often covered by the EU funds, pay much attention to the accuracy criteria.

➤ Projects concerning modernisation of the land and buildings register documentations are well prepared nowday;

➤ they are **focused on the accuracy of locations of spatial cadastral objects and on the achievement of legal requirements concerning cadastral objects.** **Legal status of real estate is also settled in this process.**

5. RELIABILITY OF THE EXISTING CADASTRAL DATABASES

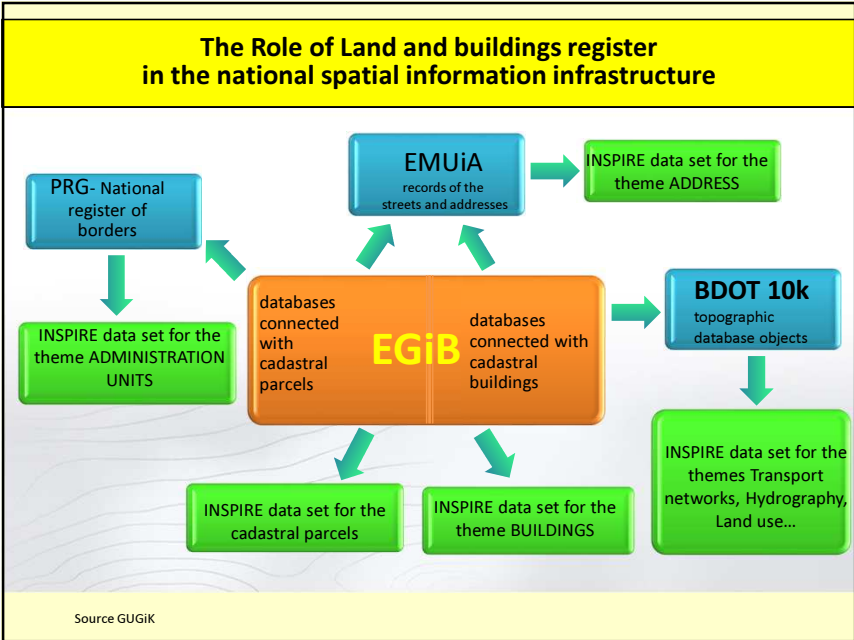
RELIABILITY OF THE EXISTING CADASTRAL DATABASES

Data from the land and buildings register is the **basis for the national spatial information infrastructure.**

The land and buildings register is also permanently updated, including 100% of the **descriptive part** of the documentation of the land and buildings register.

What refers to the **cartographic part** of the cadastral documentation, reliability of cadastral data **should be considered as data of limited reliability**, due to the above mentioned reasons (the accuracy, quality, timeliness, etc.).

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6. TIMELINESS OF THE EXISTING CADASTRAL DATABASES

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TIMELINESS OF THE EXISTING CADASTRAL DATABASES

According to the Regulation on cadastral, the **documentation of the land and buildings register** is updated through introduction of documented changes to the cadastral databases.

This documentation is updated in order to:

- **disclose** new legal and real status,
- **eliminate erroneous data**, which are incompliant with the real status,
- **substitute data which does not meet the accuracy criteria and standards**, with data which is compliant with standards and accuracy requirements.

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TIMELINESS OF THE EXISTING CADASTRAL DATABASES

- The majority of bodies which maintain the documentation of the land and buildings register **updates this documentation immediately after receiving appropriate documents**
- Such updating usually concerns the descriptive part of the cadastral documentation.
- The cartographic part is permanently updated for analogue maps, if it is has not been computerised and if it is not maintained in the digital form.
- If it is maintained in the digital form, it is permanently updated in the case of utilisation of integrated systems for maintaining the cadastral documentation, since the permanent updating is usually forced by such systems
- In the case when integrated systems are missing, data from the descriptive and the graphical parts of the cadastral documentation is often incompliant.

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TIMELINESS OF THE EXISTING CADASTRAL DATABASES

- the lack of complete and **legally binding** computerisation of the cadastral documents does not allow for keeping it updated on official and legally accepted portals, such as GEOPORTAL.
- Data acquired once has not been accepted by the bodies which maintain the cadastral documents to the resources, and therefore, it has not been updated by those bodies.

There is no possibility to update most of the cadastral data, until it is modernised

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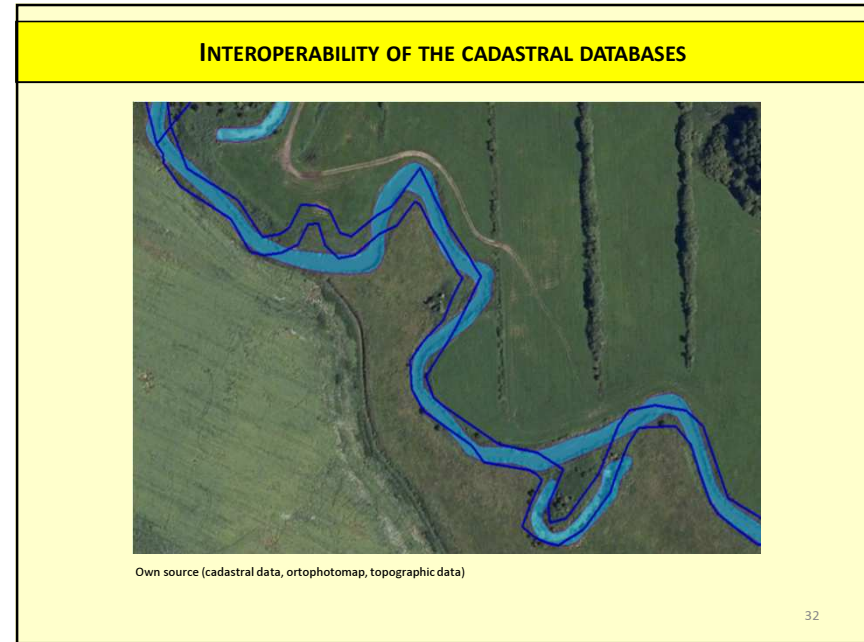
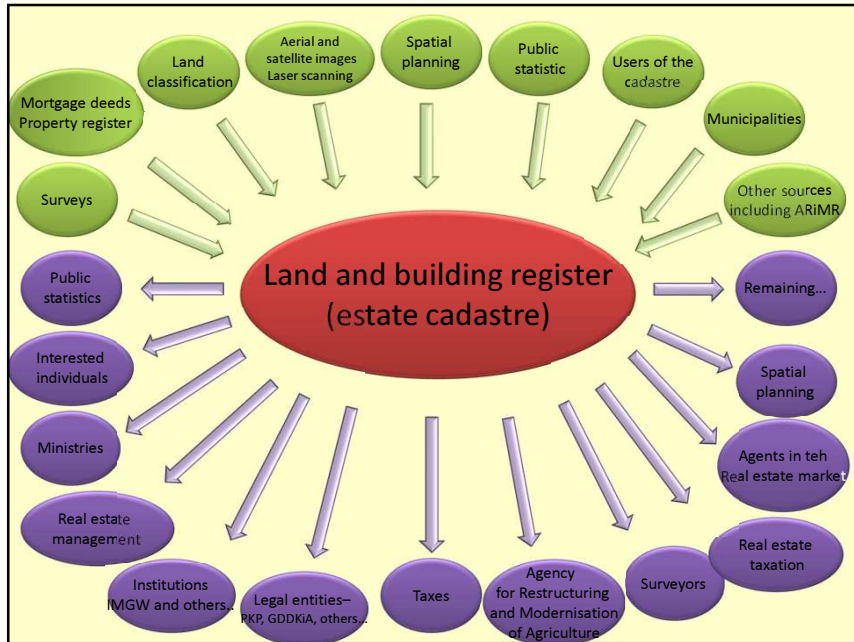
**7. INTEROPERABILITY OF THE
CADASTRAL DATABASES**

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INTEROPERABILITY OF THE CADASTRAL DATABASES

Databases are updated and maintained in such a way that the **interoperability** of data files stored in these databases and related services are ensured, as it is understood by the act of March 4, 2010 on the spatial information infrastructures

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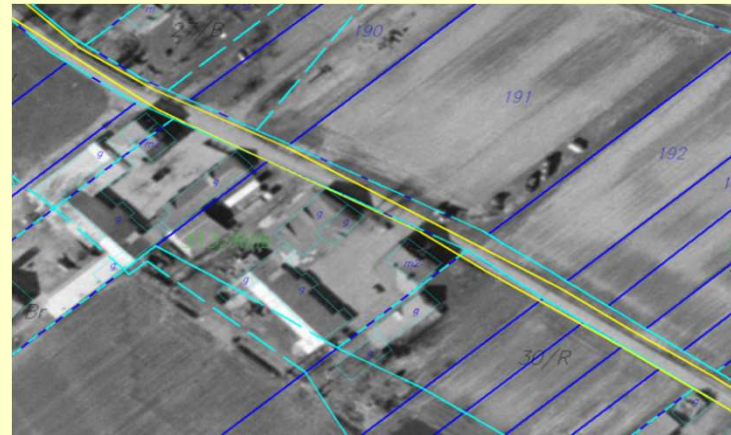
INTEROPERABILITY OF THE CADASTRAL DATABASES



Own source (cadastral data, ortophotomap, topographic data)

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INTEROPERABILITY OF THE CADASTRAL DATABASES



Source GUGIK

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INTEROPERABILITY OF THE CADASTRAL DATABASES



Source GUGIK

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INTEROPERABILITY OF THE CADASTRAL DATABASES

It is because:

- objects are **not integrated** in particular databases
- databases were created in **various time**, basing on **various source data, technical conditions, projects, demands** etc.,
- **spatial objects** (such as rivers, roads) **has changed their natural routes** with respect to periods when the cadastral documentation was developed,
- **objects were generalised at the database level**; their geometric descriptions were changed, what results in creation of an object which spatial description varies from the original.

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INTEROPERABILITY OF THE CADASTRAL DATABASES

The basic obstacle for modernisation works is connected with:

- **insufficient** amount of funds
- **legal and technical difficulties** (e.g. cadastre after partitioning of the country)
- **source data of poor quality**, concerning the register of land and buildings, which exist in various parts of the country
- data included in public registers, also in the documentation of the land and buildings registers, **is not fully interoperable and integrated**

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INTEROPERABILITY OF THE CADASTRAL DATABASES

Complex modernisation of the cadastral documentation, as the basic public register, should be urgently performed.

The cadastral register may be the basis for the spatial information infrastructure only when it is computerised and meets the legal requirements.

The only possible way to achieve the full functionality of the land and buildings register, which would become the updated, reliable and interoperable register, meeting the technical requirements of the public register, is to **perform its complex modernisation.**

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SUMMARY
<p>The following elements are required for integrating the land and buildings register with other public registers and for ensuring their interoperability:</p> <ul style="list-style-type: none"> ➤ organisational changes ➤ time ➤ funds
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SUMMARY
<p>According to the report of GUGiK:</p> <ul style="list-style-type: none"> -due to insufficient funds, which may be used by district authorities, -wide scope of tasks which should be solved by these authorities <p>The date of completion of the process of modernisation of the land and buildings register for the entire country may be delayed <u>without the financial support from the state or from the EU funds.</u></p> <p><u>This will have the negative impact on those sectors of economy which utilise data from the cadastral databases.</u></p>
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Thank you for your attention

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