

Information Systems for Property Administration in Lithuania

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SUMMARY

With the rapid development of information technologies and creation of e-government in Lithuania in recent years, a need to gradually introduce onestop-shop principle has emerged. A lot of progress has been made in applying and developing information technologies (IT); however full implementation of e-government would help to overcome various administrative obstacles, to develop a modern management structure based on transfer of information through various channels and ways.

The majority of base registers which store information on persons, entities and real property have been already created and are in operation. The Real Property Register, the Population Register, the Register of Legal Entities, the Address Register are running successfully and are handled by one institution – the State Enterprise Centre of Registers. Information about real property is the main component of many national databases which is used in different ways for the needs of separate economy sectors and the society. Address is a key element for integration of information. It will be impossible without the Address Register to successfully link separate real property address components into a standardised object of the Address Register defining accurate position of the registered object.

It should be noted that it is extremely important for every country to choose a modern approach for the development of real property administration system which is appropriate to the country. Real property administration system in Lithuania was developed and implemented in accordance with the UN ECE Land Administration Guidelines; also the international experience has been successfully used. International cooperation with various organisations offered Lithuania the opportunity to gain knowledge and skills necessary for the creation of real property administration system, enabled to compare various solutions and to create real property administration system that is the most appropriate for the country.

The implementation of such system was evidently affected by the development of a new market and economy, rapid technological progress, social changes and emerging relations between public institutions and private business. Despite all achievements, it is very important to develop the international cooperation further, to search for new ways and measures for the improvement of real property administration system, taking into account national and international needs of the public and private sectors as well as the society.

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1. REGISTER AND CADASTRE INFORMATION SYSTEM

The State Enterprise Centre of Registers is delegated to develop and maintain the Lithuanian Real Property Administration Information Systems. The Enterprise can independently perform its basic functions using its own technical and human resources, but the extent of activities requires using external capacities. The use of external resources and services is economically justified as it is usually related with the short-term specific challenges. Technical tools are mostly used for introducing new technologies because their permanent possession at the enterprise is much more expensive. External technical and human resources are used for technical upgrade of the information system, licensing and maintenance of the Standard software, and in some cases for expanding the system. External service suppliers, namely Oracle Inc. and ESRI Inc., can be mentioned among the other since their software products make the background of the Real Property Register and Cadastre information system. Their products are used for the following main areas:

- Database of the Real Property Register;
- Cadastral database based on geographic information system (GIS);
- Transaction data base and information analytical system of real property market data (for taxation of real property and other needs).

2. GEOINFORMATION SYSTEM OF REAL PROPERTY CADASTRE

Graphical information is a prerequisite for effective real property administration, because most of the data are related to geographical position of an object, namely, location of the real property, its shape and area. In order to avoid disputes over the boundaries of adjacent land parcels, it is not allowed in Lithuania now to sell the land parcels whose boundaries are not in the digital cadastral map. Before registration of a land parcel, all polygons of land parcels and central lines of engineering structures are entered into the cadastral map, the areas and shapes of land parcels are checked, as well as their geographic location in relation to adjacent land parcels. To prevent occurring of land disputes and to enable surveyors the web-based GIS application “Geo-Surveyor” was introduced. Based on electronic cadastral map it provides surveyors with a private layer of map and tools to plot new land parcels in up-to-date real-life context. Application indicates any occurring conflict with boundaries of existing property or infrastructure. It even lets to observe preliminary projections of other new parcels plotted by other surveyors to keep context in mind.

At the beginning of the land reform and during the restoration of the ownership rights to land, the formed land parcels were registered in the land registry information system without entering them into the digital cadastral map and without performing their control in relation to the adjacent land parcels. Moreover, during the first years of the land reform not fully accurate cartographic material

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was used for formation of land parcels. Therefore, some land parcels wrong boundaries may be found in the cadastral map with. In 2004, following the order of the National Land Service under the Ministry of Agriculture the correction and update of the real property cadastre map was conducted. It aimed to analyse the most common errors in the cadastral map, the phases for its adjustment and update, and to provide map fragments with examples.

In the beginning of 2004, a new cadastral map update and management system was introduced. It is used at the GIS workplaces of the Branch Offices of the Centre of Registers to enter land parcel boundaries into the cadastral map, to check with regard to the adjacent land parcels and at the same time to transfer to the central GIS database.

The project “Development of the infrastructure of Lithuanian geographical information” (LGII) (EC 2015) was conducted according to the measure 3.3 “Development of services and infrastructure of information technologies” of the General Programming Document for 2004–2006, with the support from European Regional Development Fund. The responsible manager of the project was the state enterprise Remote Sensing and Geographical Information Center “GIS Center” in partnership with state institution and enterprises which regulate or conduct accumulation and management of official geographical data.

As the result of the project a set of measures has been elaborated which are necessary for creating a modern and comprehensive national system for transmission of geographical information which can guarantee interface among various sets of geographic data and geographical linkages within state registry and cadastre. In particular, the following results were obtained (EC 2015):

- Creating general model of georeferential data, data base specifications, integrated interfaces among cadastres, registries and registry data bases of state agencies;
- Creating Internet portal for LGII;
- Creating fully functioning national system of meta-data for geographical information;
- Creating national integrated system of geographical information (data base and geographical services);
- Updating, putting in order and supplementing national referential geographical data;
- Creating functioning electronic training system for further training of staff working with geographical data.

In this way the project has contributed to the data flow harmonization within the nation. The harmonization has been achieved by simplifying processes of accumulation, management and application of digital geographical information, while the public use of geographical information has qualitatively improved (EC 2015).

A special program SDEGATE is developed, which provides on-line computer connection between a user terminal and the central GIS database ArcSDE while exporting and importing geodetic data. Web application developed by the State Enterprise Centre of Registers, which is used for providing the cadastral map, is being constantly improved and it allows users to obtain a view of the cadastral map excerpt from the central GIS database in accordance with a request.

Using new information technologies applied to the exchange of information between notaries and the Real Property Register a special web application was created to generate a cadastral map excerpt and submit it to a notary together with the certificate required for transaction (at the moment – for revision of the register data for transaction). Cadastral map excerpts in paper and digital form

are provided to the following users in a convenient format: surveyors, developers, municipalities, Land Management Divisions, keepers of other registers and cadastral and private individuals. Cadastral map is provided through Internet to banks, insurance companies, notary offices, courts, mortgage institutions, real estate agencies, public authorities, private companies, etc.

In order to integrate the Real Property Register information on buildings and land parcels using the cadastral maps, an application was developed to identify the central coordinates of buildings and enter into the cadastral database. Advanced software and hardware technologies support timely update and management of the real property cadastre geoinformation system by using the software, such as ArcGIS, ArcIMS, ArcSDE, ArcObjects, AutoCAD, and Oracle.

3. INFORMATION SYSTEM OF PUBLIC E-SERVICE FOR REAL PROPERTY TRANSACTIONS (NETSVEP IS)

On 29 April 2005, the State Enterprise Centre of Registers, the Information Society Development Committee under the Government of the Republic of Lithuania and the Central Project Management Agency signed a contract on implementation of the project Public Electronic Service for Real Property Transactions (NETSVEP).

Project aimed to develop and implement a public electronic service for real property transactions for residents and entities, including payment for the service. Namely, to implement *one-stop-shop* principle for conclusion of realproperty transactions and ensure faster and better quality services to the population, to introduce online provision of official real property register and cadastre information by electronic means to notaries and transacting parties at the notary's workplace, to automate the preparation of transaction data and documents, the registration of rights, legal facts in the Real Property Register and the storage of these electronic documents.

Before implementation of the project, residents had to conclude a real property transaction at least two times visiting the Centre of Registers: the first time to submit an application for a certificate on registered real property, and the second time to collect the certificate required to conclude a transaction. Real property transaction procedure was rather complicated, time-consuming and inconvenient to counterparties and employees of various institutions involved in the transaction procedure.

After implementation of the project, the procedures for real property transaction have simplified significantly. Parties to transaction no longer need to visit the Centre of Registers, as the transaction can be concluded just at the notary office. The registration of rights can be ordered there as well and the prepared registration documents collected. Property transactions are drafted using modern electronic tools, working online with the real property central data bank.

This novelty provided an opportunity to deliver services more efficiently and better quality to natural and legal persons; in addition, real property transactions have become much safer. Electronic system prevents from illegal manipulation of real property and falsification of documents. Notaries attest the documents of real property transaction and operations related to the registration of ownership in the Real Property Register database using electronic signature certificates.

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The envisaged outcome was achieved, it means a public electronic service for real property transactions to the Lithuanian people was developed and implemented. In addition to the main use, the system can be used for development of other public electronic services and to improve access to official information. The main economic benefit of the project to the Lithuanian citizens and legal entities is a simplified real property transaction process: time for ordering and collecting registry documents is saved; the time of parties to transaction (residents) is also saved, shorter terms for documentation of transaction and registration. From the very beginning the NETSVEP IS project was designed for all citizens and legal persons of the country possessing real property or the rights to it or seeking to acquire it throughout the territory of Lithuania, regardless of social status, gender or place of residence and the location of the property.

Results of NETSVEP IS project:

- 1) One-stop-shop principle implemented – parties to transaction communicate only to a notary. Notary is a main user who directly communicates with the parties to transaction, drafts documents and attests transactions.
- 2) NETSVEP IS is a tool for concluding a real property transaction.
- 3) Notary has access to the information on real property objects and on the parties to transaction from the Registers of Real Property, of Legal Entities, of Residents, of Addresses, of Mortgage and other registers maintained by the Centre of Registers or the data thereof it is using.
- 4) Integrated environment developed, namely, all actions are performed within a single system.
- 5) Digital transaction documents, which are signed using e-signature, are automatically transmitted to the Centre of Registers.
- 6) History of conclusion of the documents is transmitted together with each document: who and when drafted, modified, attested the document and similar.
- 7) Documents of attested transactions are stored in the individual archives of notaries.
- 8) Each notary has access to own documents only.
- 9) Archive documents are not subject to editing; however they can be used as templates for new transactions.

4. INFORMATION SYSTEM OF THE REAL PROPERTY MARKET RESEARCH AND PROPERTY VALUATION

In 2002–2003 the State Enterprise Centre of Registers carried out the first mass valuation of land on the basis of market situation as of 1 January 2002. The second mass valuation of land (2003–2004) was performed based on the market situation as of 1 July 2003; the third (2004–2005) based on the land market situation as of 1 October 2004. Valuation reports are approved by the Order of the Director General of the National Land Service under the Ministry of Agriculture. Thereafter the following mass valuation documents are prepared: land mass valuation reports and value maps. Those documents are prepared for the territory of each municipality (60 reports), and one complex report of mass valuation of land is compiled for the entire territory of the Republic of Lithuania.

The results of annual mass valuation of land are presented to the county and municipality administrations and the public for consideration. They are available on the website <http://www.registrucentras.lt>. Grounded remarks and comments based on the market data are

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considered when correcting boundaries of the value zones, revising the valuation approaches and data in the reports. A valuer aims at making up the land value zones as precise as possible following the valuation rules and at preparing the value computation algorithms so as their use results in the average market values as close as possible to the market values. Having corrected the inaccuracies identified, the reports of land mass valuation and the land value maps are submitted for approval.

In 2005, during the third mass valuation of land, a rise in market prices of land, including agricultural land in rural areas, was noticed in all the municipalities.

Higher prices were noticed of those agricultural land parcels with higher land productivity score. To ensure more exact valuation of such land, in 2005 an adjustment coefficient for land productivity score was introduced into the model for calculation of the land value that is used only for agricultural land (excluding amateur garden parcels) and only for those value zones, which cover the rural areas – villages and towns.

The results of land mass valuation are obtained by analysing transactions data in the database of the Centre of Registers and other information on land and other real property market (sales, leasing, and supply) with regard to physical and legal characteristics of the property. The methodology used allows a fairly accurate calculation of land values. The real property market in Lithuania is quite dynamic. Regular growth of land prices is recorded in cities and recently in rural areas. These fluctuations in the market prices must reflect in the results of mass valuation of real property. The improvement of mass valuation of land is encouraged by evolving real property market, improving professional qualification, growing digital information, emerging new advanced computer technologies and increasing market data bank. Lithuania is one of the first Central and Eastern European countries where computer-based mass valuation is almost completely introduced, land information system and other advanced technologies are widely used.

5. SYSTEM FOR PUBLIC E-SERVICE FOR MUNICIPALITIES

System for Public e-Service for Municipalities (REGIA). REGIA is a tool specifically developed for municipalities: their people, civil servants and therein operating businesses. Purpose of REGIA is to create favourable conditions for geographically-based decision-making and to facilitate the exchange of information between residents, legal entities and municipalities. The system is based on the Lithuanian real property cadastral map and therein integrated data of three base state registers: Addresses, Legal Entities and Real Property. The system enables users to create and manage their own data layers. The service is easy to use and all services are managed through the web browser. It is up to the user to decide whether his data layer is publicly visible and who is entitled to use it. REGIA services are publicly accessible in the review mode and do not require a user's registration. REGIA operates on the cloud principle, it means that any information created by a user, data recorded, uploaded documents are accumulated and stored in the REGIA servers and are accessible from any computer.

Users may find relevant information on the REGIA map at any time, such as:

- addresses;
- operating enterprises, institutions and organisations;
- real property objects;
- data on real property market analysis, mass valuation of real property and

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other;

—data on energy performance certification of buildings;

—information on cultural heritage objects and similar.

Through the REGIA integrated interfaces a user is directed to the databases of the registers in order to obtain data from the registers administered by the Centre of Registers and by other registrars, All municipalities today are using the REGIA service. The information is available to all residents in the country free of charge. For user convenience, a mobile (smart mobile phones) program is created for individuals to notify the municipality of any event or fact they have noticed and to keep track of it. The system also allows see information presented by the municipality.

REGIA is a handy and simple tool for integrated display of data and prompt management and monitoring of events.

CONCLUSIONS

It can be summarised that efficient real property management, cadastre and register system, including mass valuation, and a variety of services is one of the conditions for:

—economic growth in the country;

—sustainable housing, crediting and property market;

—fair and transparent taxation;

—secure ownership.

Improvement of public real property cadastre and register services, use of modern technologies and expansion of eservices is the main focus in creating better business environment. According to Doing Business (2015) report, Lithuania is the ninth (9) among 188 countries in the category of property registration.

REFERENCES

Kasperavicius R., Real property administration system in Lithuania, 272 p., 2015, Vilnius, Registrų centras.

Tupenaite L., Naimaviciene J., Bagdonavicius A., Sabaliauskas K., Construction and real estate management under conditions of market instability, 301 p., 2015, Vilnius, VGTU press
TECHNIKA.

BIOGRAPHICAL NOTES

Kęstutis Sabaliauskas is the Director General of the State Enterprise Centre of Registers from 1997 and takes the responsibility of the entire management of the enterprise, its strategy, planning and organisation of activity. He is graduated from Kaunas Polytechnics Institute and obtained a degree of an engineer mathematician.

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He is well familiar with the developments in the real property administration and land information systems, operation of real property cadastre and register system in Lithuania and many western and eastern European countries. Participates and presents papers in the international workshops and conferences. He takes part in the activities of the UN GGIM: Europe - a regional committee of the United Nations Initiative on Global Geospatial Information Management, the Association of European National Mapping, Cadastre and Land Registry Authorities (Eurogeographics), the European Land Information Service (EULIS).

Rimantas Ramanauskas is Vice-President of Lithuanian Association of Surveyors. He is Deputy Director General at the State Enterprise Centre of Registers, since 1997 being responsible for overall management of the Centre of Registers, for real property cadastre, surveying, GIS and other issues. Author of many presentations and speaker at international conferences and workshops. More than 30-year experience in lecturing geodetic surveying, engineering geodesy, higher geodesy, satellite geodesy and theory on earth shape, theory on mathematic processing of geodetic surveying, mapping, gravimetry, geographic information systems, land cadastre. Involved in international projects related to real property cadastre and register, surveying and GIS activities.

Arvydas Bagdonavicius, Deputy Director for Valuation at the State Enterprise Centre of Registers, Lecturer at the Construction Economy and Real Property Management Department of Vilnius Gediminas Technical University. Arvydas Bagdonavičius graduated from Vilnius University, Faculty of Economy in 1995; worked in the national and international consultancy companies; participated in the World Bank projects. Since 1997, he has been working at the State Enterprise Centre of Registers, being responsible for the creation of information systems for real property valuation, real property data accounting and analysis, e-health. Together with the colleagues from the Centre of Registers and Vilnius Gediminas Technical University he participates and presents papers at the national and international conferences, issues publications on property valuation and taxation issues.

Romualdas Kasperavicius - Deputy Director for Real Property Cadastre and Register of State Enterprise Centre of Registers of Lithuania. Working in developing on Lithuanian Real property Cadastre and Register system from 1992. Representative from Lithuania in Commission 7 (Cadastre and land Management) in FIG and ELRA (European Land Registrars Association). Participating in different international projects linked to developing national Land administration Systems.

Kazys Maksvytis, Head of the Real Property Cadastre and Register Department at the State Enterprise Centre of Registers (Lithuania) since 2012. Responsible for coordination of real property cadastre and register management activities at the Centre of Registers. 10 years experience in the National Land Service under the Ministry of Agriculture (as Director General). From 2003 – Chair of the Qualification Commission for Bachelors' Final Theses in Land Management at Aleksandras Stulginskis University (former Lithuanian University of Agriculture). Member of the Lithuanian Association of Surveyors. Representative from Lithuania in Commission 7 (Cadastre and land Management) and 8 (Spatial Planning and Development) in FIG. Participated in different international (EU INTERREG programme, Technical cooperation, Twinning Light) projects.

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Jurga Naimaviciene, PhD, Associated Professor at Vilnius Gediminas Technical University, Faculty of Civil Engineering, Department of Construction Economics and Real Estate Management. Defended her PhD in 2008, in the field of Civil Engineering, Technological Sciences. Since 2014 Senior Specialist for Market Data Analysis at State Enterprise Centre of Registers, Department of Real Estate Valuation, Market Research and Data Analysis Unit. Author and co-author of more than 20 scientific publications and a textbook. Research interests: real estate market analysis, marketing, multiple criteria decision support.

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