

Implementation of Building Taxation and Mass Valuation in Lithuania – Outcomes and Lessons Learnt

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Key words: mass valuation, real property database; real property taxation; value maps, appeals

SUMMARY

Ad valorem principle in real property taxation has hardly fought its way in Lithuania. For a long time real property tax has been paid only by legal entities. Taxable value of buildings and structures has been estimated with reference to nominal values.

The specialists of the State Enterprise Centre of Registers commenced preparatory activities regarding the implementation of mass valuation system for land and other real property from 1998. OECD and Lincoln Institute of Land Policy (USA) provided much support in this field. Mass land valuation has been performed in Lithuania since 2001, and we have already discussed this issue in previous FIG conferences.

In June 2005, the Seimas (Parliament) of the Republic of Lithuania has enacted a new wording of the Law on Real Property Tax. The Law provided that taxable value of buildings and constructions was estimated against the property market value set using mass valuation approach and in separate cases (for industrial property) – against the replacement costs of property. It also established that real property value set by individual valuation might be also considered as taxable value. This Law came into force as of 1 January 2006.

The Centre of Registers has developed mass valuation models for buildings and prepared value maps. ORACLE Discover, NCCS, GIS software were use in this process. In case the specialists failed to adopt standard software for certain works they tried to search for own solutions (GIS, merging valuation results with the Real Property Register data) in order to have full automation of valuation system and implementation of basic AVM and CAMA principles. On 29 December 2005, the Minister of Finances of the Republic of Lithuania in his order has approved building mass valuation reports and value maps after the procedures of public discussions were completed.

With the Law on Real Property Tax and mass valuation results coming into force, the process of appeals began. Many taxpayers were shocked by the increased tax amount compared to the previously paid tax against the taxable value that was set using other principles. The appeals brought to light a wish of taxpayers to reduce taxable value by any means. Property valuers more often use income (income capitalisation) and residual value approach in the individual valuation reports.

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1. INTRODUCTION

Some years ago Lithuania has started the development of mass valuation system, that was unambiguously associated with the intended introduction of a market value based real property tax. Lithuania is one among the countries in transition that in 2004 became the EU member state with its rapidly growing economy and developing real property market. Favourable political decisions, a modern real property cadastre and register system with its adequate institutional structure enabled to develop a mass valuation system of land and constructions. Flexible mass valuation system allows yearly update of value maps at low costs, makes valuation results accessible to the public and use for different needs in the public and private sectors.

The analysis of some years of experience shows that the appearance of mass valuation system of land and construction structures, which was originally associated only with the real property tax reform, stimulated the interest of the society, public and municipal institutions in values estimated by mass valuation approach. Previously they had to use either expensive services offered by independent valuers or to be content with the cadastral values that were far from being actual ones. Mass valuation allows estimating average market values that are cheap to calculate and accurate enough for certain purposes.

2. DEVELOPING AN EFFECTIVE TAXATION AND VALUATION FRAMEWORK

Taxes on property are used almost in all countries around the world. As property tax is typically based on values, there is a need for correct valuation, i.e. tax fairness is understood as the right and sound estimation of taxable value. World practice shows that the market value and the taxable value of real property computed on its base is the most easy to explain, it reflects the actual property value on the market, the benefit of this property, also the receivable and expected income of sale.

At present, the market value is estimated in two ways: by single or individual valuation and mass valuation. Mass valuation and single-property valuation have similar steps and are based on the same principles. In the course of property valuation for taxation in most cases individual valuation is not applied since it is much-time-and-work consuming, i.e. the costs are too high and difficult to apply for large amount of properties.

In mass valuation the main stresses are laid upon valuation of a large amount of property by applying standardised statistical data processing. Mass valuation also has some drawbacks: it hinders evaluation of the part of property characteristics; therefore the accuracy of value

suffers. The opportunities of applying mass valuation are also restricted by availability of market data and other information on property that is needed for a valuer.

Despite this, due to its low-price and potential to assess a large amount of real property objects within a short time, mass valuation meets best the needs of real property taxation and is the most optimal tool for setting value of property, subject to taxation. The use of CAMA and GIS in mass valuation expands additionally the possibilities of this valuation method and increases the accuracy of values set during mass valuation.

When developing a mass valuation system and analysing an opportunity to implement AVM and CAMA system in Lithuania, a conclusion was made that a key element for the establishment of mass valuation system and its successful operation is an automated real property formation and registration system developed in Lithuania, also a fully integrated real property, cadastre, register and GIS database, covering all types of properties, and a system of transaction data created on the basis of such database. Therefore, while introducing our experience of mass valuation, at the same time we have to talk about the real property database developed and its operation.

In 1991, Lithuania started the restitution of real property and privatisation, and at present has the information on all registered real property in the computerised real property databanks. Centralised real property register databank has the comprehensive cadastre, register and property values information, which is constantly updated. The development of an automated real property information system started at the very beginning of the reform, and it provided a basis for the successful development of the computerised mass appraisal system based on market principles.

The first and most important point of the development is use of automated system for collection and processing of the data necessary for valuation. Since 1997, an integrated real property cadastre and register system is in operation in Lithuania. The State Enterprise Centre of Registers that was established in 1997 administers the real property cadastre and register in Lithuania. The Government of the Republic of Lithuania charged the Centre of Registers with storage and updating of the real property cadastre and register data, to administer database of the real property cadastre and register, to create a GIS system in Lithuania and assess real property for public needs, including taxation. Data about the entire registered real property amounting to over 5,5 million objects is stored in the integrated database.

Data collected in uniform digital format is a basic factor of success in developing an automated mass valuation model based on statistical methods. The developed computer-based mechanism for data collection and processing evidenced that having made proper adjustments to the enquiry formats. Data of real property market transactions are stored in the database from 1998. Annually the number of transactions increases (see Figure 1), and the total number of registered transactions currently exceeds 700 000.

Data on market transactions and involved property stored in a uniform format creates a possibility to standardise and automate mass valuation process, to identify main valuation criteria and factors influencing value. Increasing use of statistical methods for the selection and processing of data reduces the potential of mistakes and random factors making influence on value.

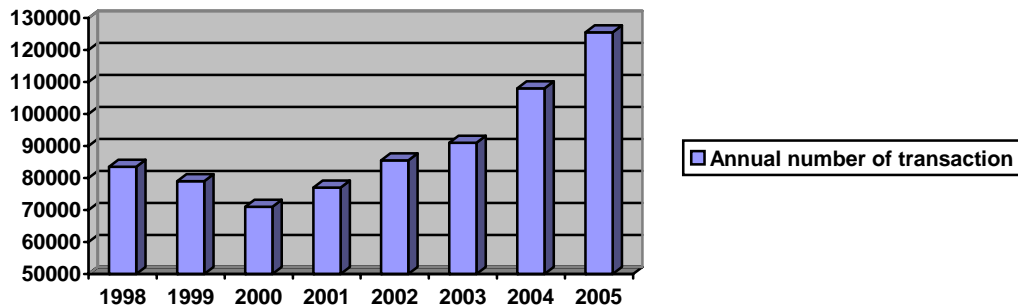


Figure 1. Number of registered transactions in Lithuania

In 2002-2003, a computerised mass appraisal system was developed, which integrated the information systems of cadastre, register and market database into a united system. It provided a possibility to evaluate real property located in the entire territory of the country based on standardised principles, within the defined time and using the updated market data. It also allows the periodical re-evaluation of property considering the market developments. The results were integrated with GIS, resulting in a possibility to have public access to value maps and the mass appraisal results obtained.

The Centre of Registers, compared to other valuation enterprises, has the best technical and organisational potential to perform this work. It disposes of a computerised database of all real property registered in the country. 11 branch offices cover the whole territory of Lithuania. The branch offices employ certified real property valuers, who have valuation experience and are familiar with the local market. The automated databases at the Centre of Registers enable to provide valuation results to the clients in digital form and link data with property owners. The aforementioned measures enable to perform mass land valuation works with the minimum additional technical, human and financial resources, as well as the lowest time input, and ensure the quality of valuation results. The existing legislation provides for a regular updating and provision of this valuation system with new data – newly formed property units and revision of cadastral data of the registered land parcels and property units. The mass valuation system enables to change valuation models, in case of the change in property market – re-estimation of property value.

The State Enterprise Centre of Registers performed the first mass land valuation during 2002-2003. Annual mass valuation is performed on the basis of market as of 1 July of each year. Mass valuation of land has been performed for four years. The compared volumes of works

executed during the first, the second and the third mass land valuation are given in Figures 2 and 3.

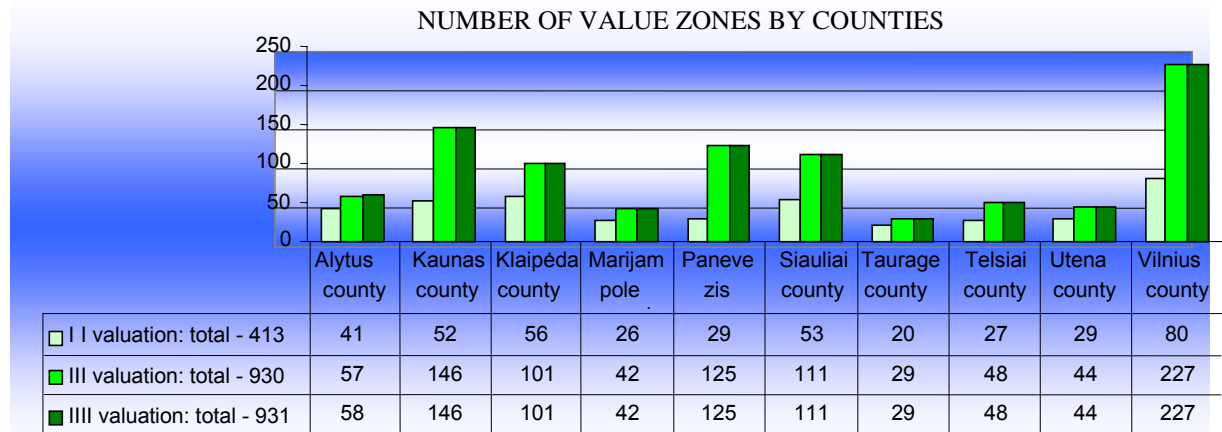


Figure 2. Volume of work performed during the first, second and third land mass Valuation

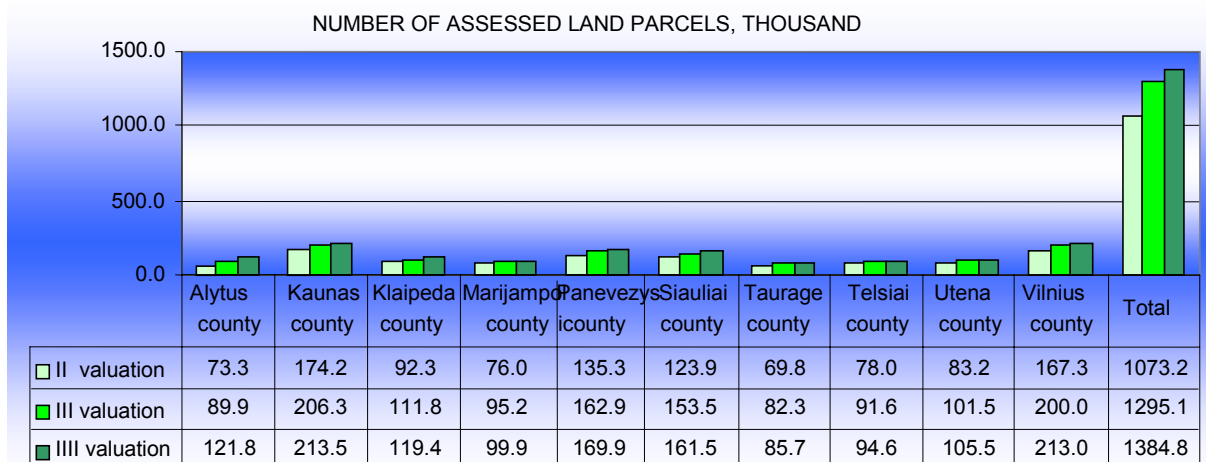


Figure 3. Number of assessed land parcels the first, second and third land mass Valuation, thousand

The second and third land mass valuation has been performed with more precise and accurate consideration of not only the most important factor to the real property value – location factor – but also of other factors having influence upon value. The number of value zones is higher

in the counties with big cities, such as Vilnius, Kaunas, Klaipeda, Siauliai, Panevezys. A more precise consideration of location is caused by high land values. In these areas the inaccuracy of zones would result in higher value deviations than in those areas, where land is not marketable, and its value is low.

The first experimental mass valuation of constructions and buildings in Lithuania was performed in 2003. When the Law on Real Property Tax was passed, valuation of real property gained legal status and the results of valuation became very important; for this reason this group of property was revaluated anew in 2005. From 2006, mass valuation of construction, as of land parcels, shall be performed annually. General statistics on construction structures in the country and market data are given in Table 1 and factors taken into consideration are given in Table 2.

Table 1. Statistical and market data on construction structures in the country by 1 January 2005

Date of recording data	Type of structures	Number of objects in the RPR	Volume, m ³ and areas, m ²	Number of sales	Market activity, %
01/01/2005	Buildings	2 077 921	912 645 700 m ³	52 510	2,53
	Premises	930 815	51 399 117 m ²	42 043	4,52

Table 2. Factors considered in the structure valuation models, the number of separate factor clusters

Number of value zones	Number of purpose groups	Area, volume	Number of groups of wall materials	Construction year	Reconstruction year	First floor	End floor	Number of floors of buildings	Number of rooms	Number of heating types	Basement	Gas	Water supply	Sewage	Completeness of construction
948	10	+	13	+	+	Yes, no	Yeas, no	+	+	4	Yes, no	Yes, no	Yes, no	Yes, no	Up to 99 %

3. VALUATION MODELS AND VALUE MAPS

There were 540 valuation models (formulas) developed for the assessment of constructions, a separate report on mass valuation of constructions for every municipality (60 reports) and a report on mass valuation of structures in the whole country (4 volumes) were prepared.

Value maps and real property valuation models play an important role in the mass valuation system. The more fairly and reasonably these components are developed with respect to the market, the more accurate results are obtained with regard to the market value. The principle scheme of building land parcel valuation models and compiling value maps is illustrated in Figure 4.

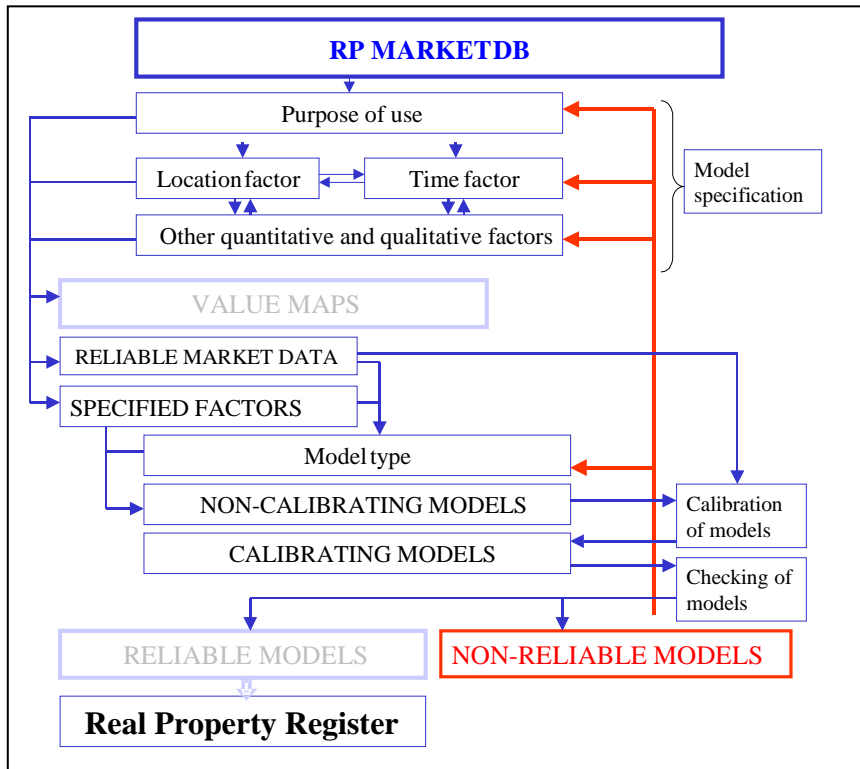


Figure 4. Principle scheme of building valuation models for land parcels and other Real Estate (constructions) and compiling value maps.

Labour expenditure and quality of the results depend very much on the reliability of data. Statistical methods and graphical measures are used for checking and revision. The experience of property valuers as specialists and the knowledge of real property market within the territory being valued are very important. After elimination of the disputed transactions, a specification of the land valuation model is worked out, i.e. factors and characteristics affecting market prices as well as their relationship shall be determined. The impact of time factor on the transaction prices is being analysed in this phase. Having estimated the influence of the time factor, the adjustment of prices is done. The impact of the location factor results in land value zones, the boundaries thereof are defined, analysing the distribution of sales prices in the area, considering the purpose of land and types of the land use, the development of communications, street (road) network, satisfaction of social needs and other infrastructure elements, prestige of the site. Evaluation of the impact of the location factor ends in land value mapping. In the phase of model specification, land parcel data are grouped by the characteristics, essential to the land market value: value zones, purpose of use, agricultural land, size of the land parcel, productivity grade and its use for recreation. The mathematical expression of relationship between these factors and prices make up a model. The influence of factors (characteristics describing property) in the model upon the land value is determined by calibration of models.

Calibration of the model is the process of estimating the coefficients in a mass valuation model. The calibration shall use the multiple regression analysis (the MRA) and other statistical methods. The MRA is statistical approach of estimating the unknown data, using the known and available information. In mass valuation, the unknown data shall be market value of the real property, and the known and available data – sales prices and characteristics of the objects. The reliability of the estimated coefficients shall be evaluated using the statistical indices estimated in the MRA. Those models, the statistical checking indices thereof match with the ones set or specified in valuation standards, shall be considered as designed correctly and integrated into the Real Property Register database for estimation of mean market values. If it turns out that the indices are incorrect, the model shall be analysed anew – the original market data are checked, the zoning and the specification of models is revised. Later, the calibration of models is done once more. This process will be repeated until the estimated value results are reliable. Works in the transaction database will be completed with the preparation of land value maps covering the territories of municipalities and reliable land valuation models. The obtained results with explanations are included in the reports on mass land or buildings valuation of municipal territories.

An automated property valuation system is inseparable from the integration of graphical information. Today, the integration of CAMA and GIS is a common and integral process. The use of GIS information is expanding in the mass valuation of land and constructions (Figure 5). Reorganizing and justification of the boundaries of value zones with the help of GIS information becomes one of the most relevant tasks in the current phase of real property mass valuation.

As it was mentioned before, the results of mass valuation in Lithuania are used not only for calculation of real property taxes, but also for other public purposes. The users of data are various institutions and organisations, as well as the residents of Lithuania. It is very important to offer an opportunity for all interested institutions and persons to receive property values quickly, as well as to ensure a possibility to receive comprehensive data in such a format that is accessible for all, and at the same time to ensure protection of personal data. In supplying mass valuation data to the users in Lithuania, several ways are applied. The most popular is the supply of data via Internet according to the unique number of the property. Separate applications with valuation, cadastre and register data set are developed for the institutions, which need specialised information (municipalities, tax inspectorates). There is also an opportunity offered for the owner to order an official (approved) excerpt from the Real Property Register specifying a relevant (up-to-date) value of property. Such excerpts are necessary for concluding transactions, documenting succession or gift.

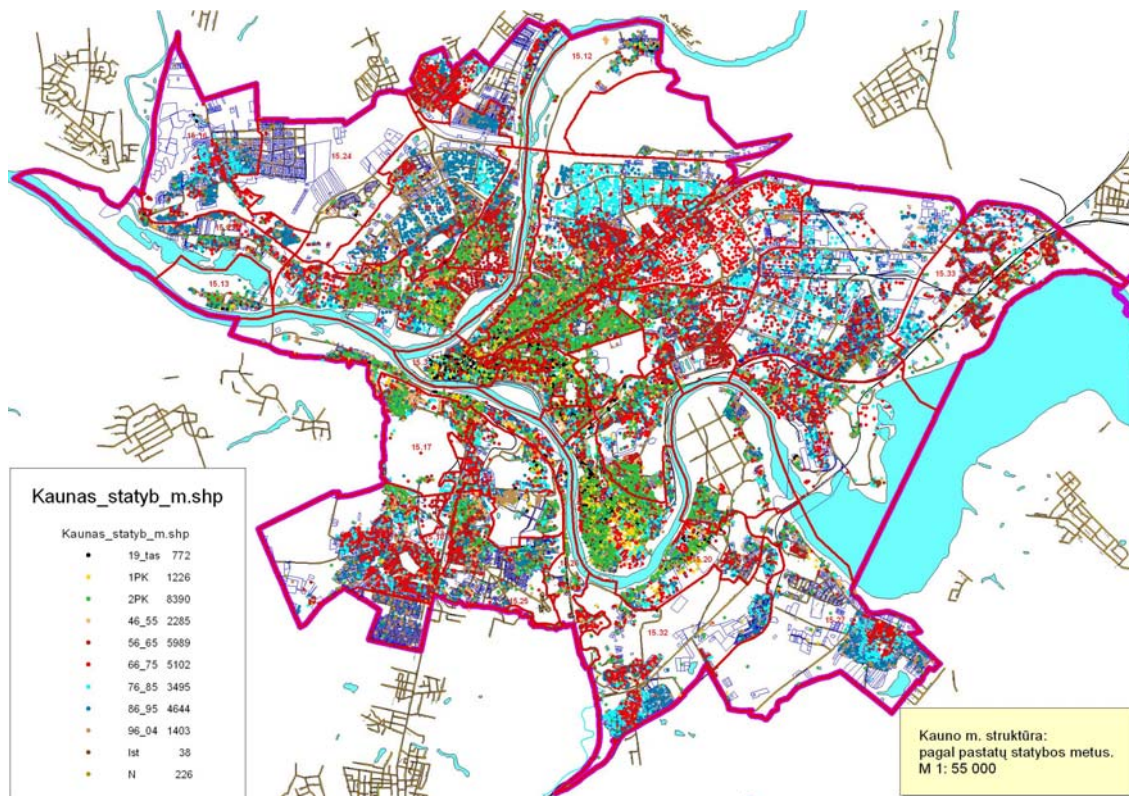


Figure 5. Use of GIS in compiling value maps: Building age of the Kaunas City, LT

4. MASS VALUATION OF BUILDINGS (CONSTRUCTIONS)

On 1 January 2006 the Law on Real Property Tax came into effect. It defined that the taxable value of commercial property shall be estimated by an average market value of commercial property that is calculated by the way of mass valuation and in some specific cases the taxable value of industrial real property shall be established on the basis of replacement value of the property. It is also established that the taxable value may be considered as the real property market value calculated by the way of individual valuation. It is possible to order an individual valuation for the revision of taxable value may only in case of appeal submitted to the State Enterprise Centre of Registers. The Centre of Registers shall decide whether to correct the taxable value following the submitted report of individual valuation or not.

Initial version of the Law on Real Property Tax has provided for a rather short period – one month that was given to appeal against the valuation results and submit the appeals. In practice, however, this term became longer after the State Tax Inspectorate has submitted a Law explanation. At the end of March 2006 the legislator amended the version of the Law on Real Property Tax and specified a 6-month term for submission of such appeals from the establishment of taxable value and its publication.

There are first results from the appeals submitted regarding the taxable value established by the way of mass valuation. Reaction to the changes in taxable value of the commercial buildings and constructions was rather nervous and stormy. Taxpayers as well as local

politician and mass media have reacted. The law granted the right to the councils of local authorities to decide upon the reduction of tax rate. This has also helped to ease the tension and unnecessary disputes.

Taxable values of commercial properties in 18 municipalities (out of 60) decreased or remained unchanged in comparison with the previously ones (before 01 01 2006). Market value of real property, i.e. taxable value as well, has significantly increased in Vilnius city, Kaunas city and other large cities of the country. The increase in some cases reaches 2 times and even more. The State Enterprise Centre of Registers, i.e. the main valuer for estimation of taxable value by the way of mass valuation, observed the following basic principles for public information and communication:

- maximum openness and transparency;
- clear establishment of the boundaries for competence and responsibility;
- positive attitude towards the taxpayers and public interest groups.

Slightly more than three million real property objects were valued by the way of mass valuation that pursuant to the definition specified by the law may be considered as the properties for commercial use. Within the first period (short one) of appeals there were 1617 appeals submitted regarding the taxable value of more than 2000 real property objects. Only half of them is submitted together with the report of individual valuation and therefore were analysed. The results of submission and investigation of appeals are presented in Table 3.

Table 3. Results of the investigation of appeals submitted against the taxable value estimated by the way of mass valuation (in units)

Total number of appeals	Rejected because no valuation reports were submitted	Investigation suspended under the request of applicants	Appeals and Valuation reports investigated	
			Taxable value is corrected	Rejected because of wrong report
1617	811	31	458	317

The Centre of Registers set up the Appeals Investigation Commission, which has carefully investigated the appeals submitted together with the reports of individual valuation. Main reasons for acceptance of appeals and correction of values are as follows:

- part of premises are located in the basements;
- property is in bad shape and out-of-use;
- objects with large areas in the closed territories;
- commercial objects in expensive zones, however, located inside the yards without show windows and access to the premises from the street.

Main reasons for rejection of appeals:

- valuation for another purpose than that registered in the Real Property Register;
- another methods and approach applied than those specified by the Law;

- having estimated the market value of a building the value of land has been subtracted in addition;
- errors in the calculation of values.

Out of 317 decisions to reject the appeals submitted with individual valuation reports 3 decisions were appealed against to the Commission of Administrative Disputes and 40 decisions were appealed against to the Vilnius County Administrative Court.

After the extension of the term for submission of appeals there about 200 revised individual valuation reports submitted with repeat appeals and over 100 new appeals. In addition it makes the revision of taxable values for about 500 buildings and constructions.

5. ISSUES FOR DISCUSSION - NEW TECHNOLOGIES IN REAL PROPERTY VALUATION

Property valuers more and more apply the use income value (income capitalisation) and residual value approach in the individual valuation reports. The Lithuanian Association of Hotels and Restaurants makes an especially great pressure regarding the use of use income approach. This business interest group puts all efforts to reduce the taxable value of hotel buildings. Up to now everybody thought that the best way out is to apply the use income value approach. However it is very difficult to separate the cash flows attributable to the hotel real property and to another property (business) and to make an actual valuation of the building.

Comparative analysis of the taxable values for hotel real property establishment by the sales comparison method and the use income value method shows that both methods for estimation of taxable value of hotels have drawbacks. This is to state that considering the current market conditions in Lithuania the market value of commercial property, especially including hotels, is higher than the use value by the income received. In other words the value of commercial property on the market by the sales (market) value and income method differs. This causes many discussions in period for introducing the real property taxation based on *ad valorem* principles. This also stimulates the methodological discussions regarding the justification of taxable value, the purpose of the tax and its expedience and application of new mathematical models.

The relations between individual and mass valuation were overviewed in the previous FIG conference paper (Bagdonavicius and Deveikis, 2005). This is to emphasize that in both cases the base of market data is of huge importance to individual as well as mass valuation. The base for market sales and rent transactions must immediately react to the market changes. Only in such a situation the mass valuation and/or individual valuation may achieve necessary accuracy and objectivity.

The development of a system for mass valuation of real property in Lithuania where a computerised cadastre and register as well as storage of transaction data in the common database served as a base, also methods taken over from the developed countries, was a

successive process with applying new technologies, improving valuation procedure and obtaining more accurate values.

With regard to the improvement of the mass valuation system, the long-range plans provide for the expanded use and storage of lease contracts for assessing property by income approach, to develop a list of indices stored in the Real Property Register (e.g. separating areas of basements and lofts in the property description, to expand descriptions of engineering infrastructure, etc.).

6. FINAL REMARKS AND CONCLUSIONS

The system for mass valuation of buildings and constructions in Lithuania is introduced later than the system of mass valuation of land. It allows avoiding certain methodological and technological problems. Finally, the system for training the capacities of mass valuation specialists has been introduced with the help of experts from Sweden, Finland, USA and other countries.

The development of a valuation model (formula) and identification of value zones are of great importance for both: the mass valuation of land and of buildings. The practice of mass valuation of land shows that the number of zones after the repeat valuation is increasing. To make the identification of value zones more exact the application of GIS methods and integration of graphical information and different registers is of special importance.

The base of market transactions data in the Centre of Registers is in the process of constant development what makes a solid background for the estimation of taxable value under the *ad valorem* principle. The use of statistical methods allows estimating rather accurate average market value of real property. Any inadequacies encountered may be revised upon the request of a taxpayer on the basis of individual valuation. The system of appeals protects and defends the rights and lawful interests of a taxpayer.

The tasks in the nearest future associate to wider use of GIS in the process of mass valuation of buildings, the application of the use income value method (income approach) for commercial buildings in estimating the taxable value. More clear regulation of the mass valuation and individual valuation still remains a very important issue from both the methodological and legal point of view. Amendments to legal acts and improvement of the methodology will allow achieving better results in real property valuation.

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BIOGRAPHICAL NOTES

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Professional background: Master degree of economics, Vilnius University, 1995.

Relevant professional experience:

1992 – 1996 - Swedish consulting company Ecofin, Expert

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Membership of professional bodies:

Lithuanian Association of Property Valuers (vice-president, 2001-2003),

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Steponas Deveikis, date of birth November 18, 1955, country - Lithuania

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1994 – 2005 – Corporation “Matininkai” Ltd., Vice-president, Head of Real property branch

Since 2005 - State Enterprise Centre of Registers, Head of Division

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