MASS VALUATION AND MARKET DATA
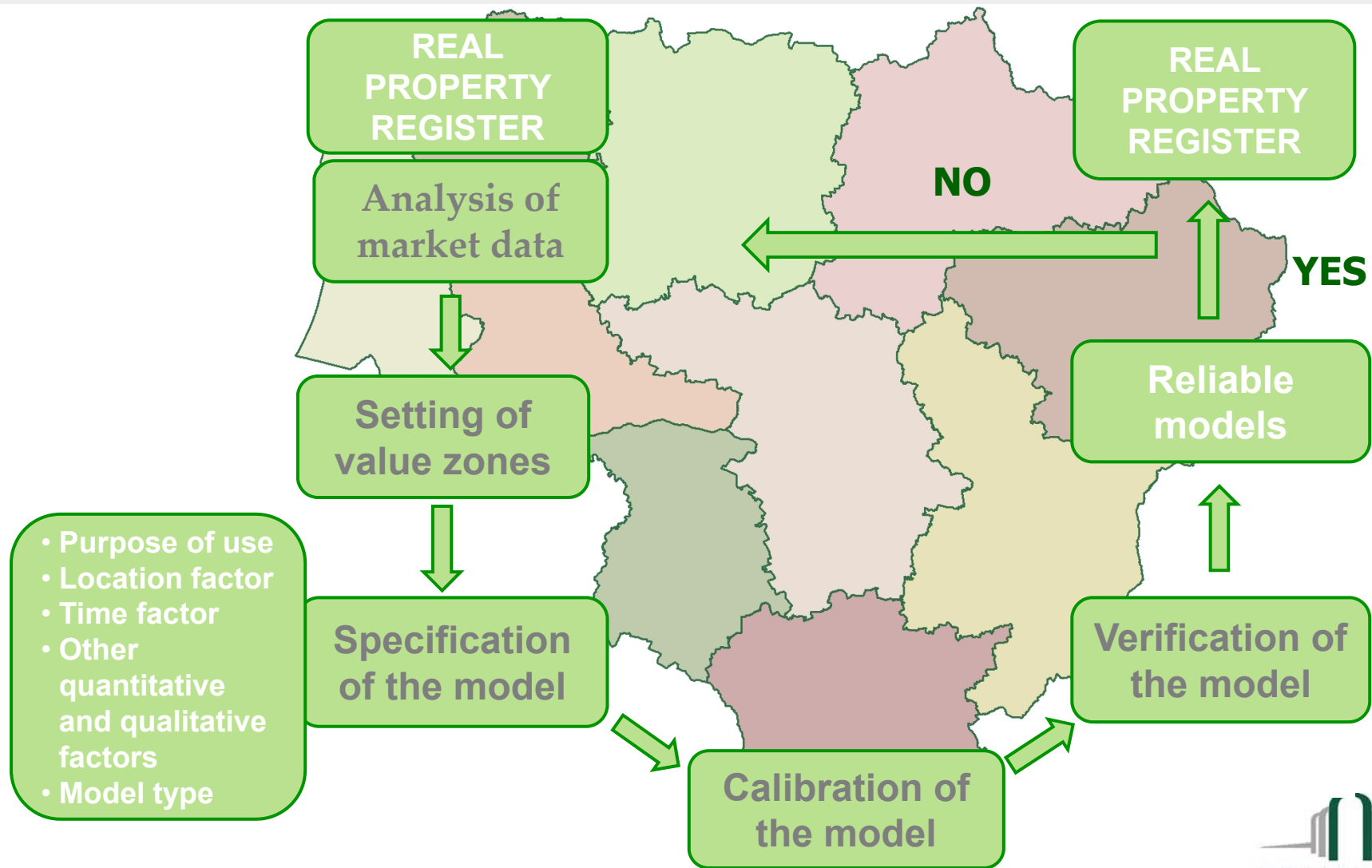
LITHUANIA

VALSTYBĖS ĮMONĖ
REGISTRŲ CENTRAS

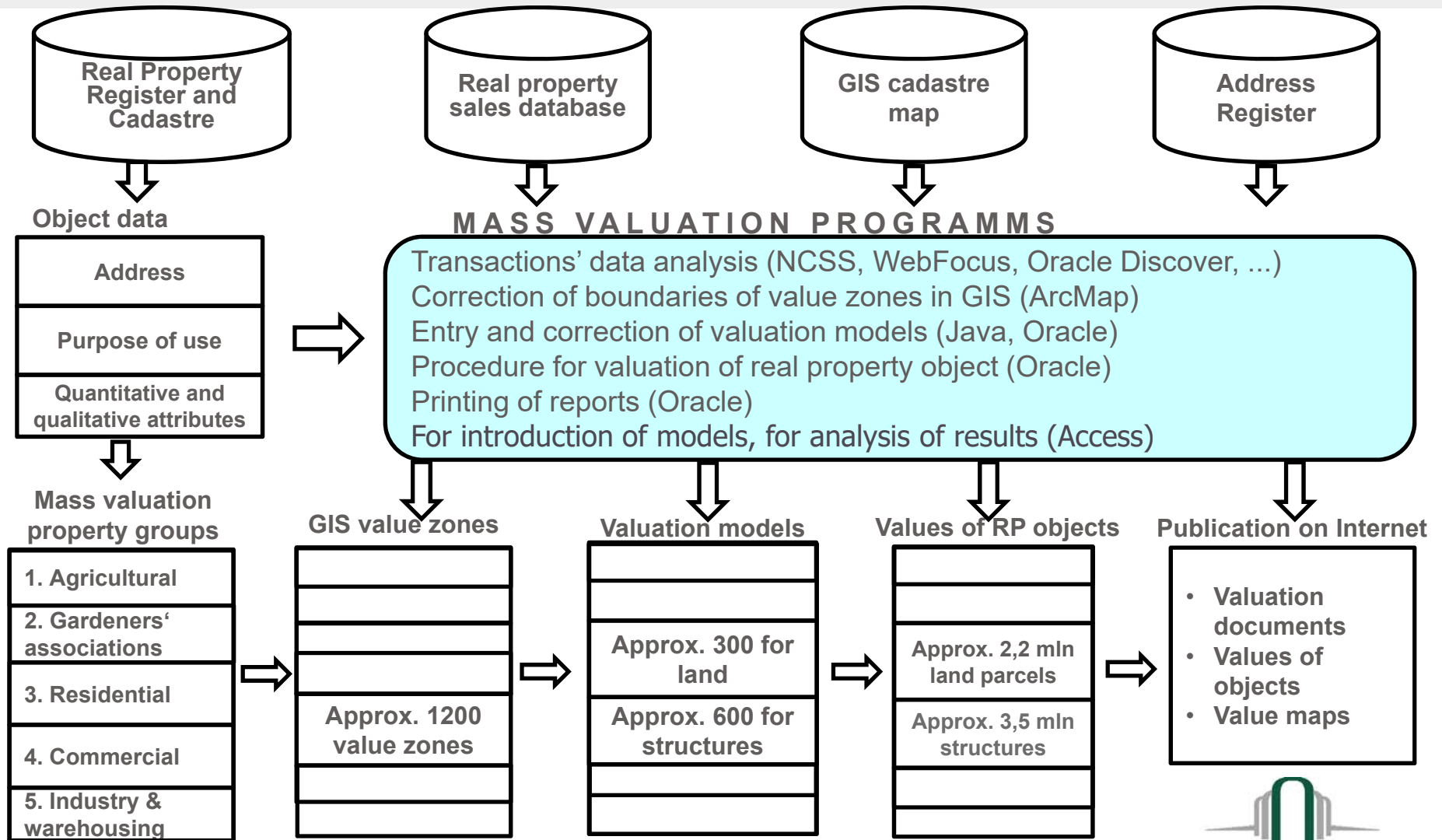# MAIN PRINCIPLES OF THE LITHUANIAN APPROACH TO MASS VALUATION

- Mass valuation system is built on the integrated **digital data** of real property cadastre and register and other main state registers.
- Mass valuation process is fully **automated.**
- Mass valuation **results are public** and published on the Internet.
- Mass valuation **results are easily applicable** for decision making on different issues.
- Lithuanian mass valuation system was presented in different international events, articles, international projects (China, Russia, Azerbaijan, Egypt, EU countries, etc.)

Mass valuation model

REGISTRŲ CENTRAS
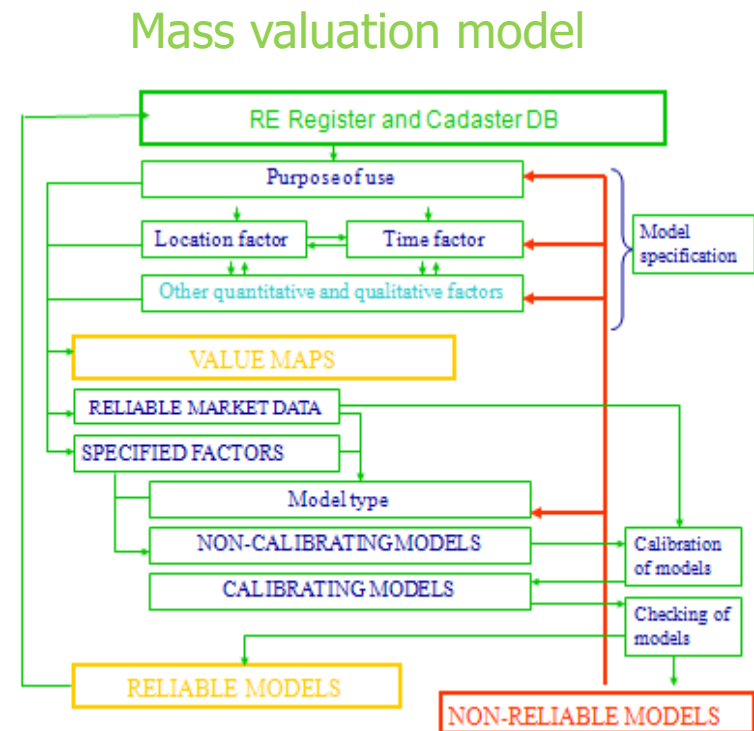
MASS VALUATION PROCESS

MASS VALUATION INFORMATION SYSTEM

Real Property Register and Cadastre

Real property sales database

GIS cadastre map

Address Register

Object data

Address
Purpose of use
Quantitative and qualitative attributes

MASS VALUATION PROGRAMMS

Transactions' data analysis (NCSS, WebFocus, Oracle Discover, …)
Correction of boundaries of value zones in GIS (ArcMap)
Entry and correction of valuation models (Java, Oracle)
Procedure for valuation of real property object (Oracle)
Printing of reports (Oracle)
For introduction of models, for analysis of results (Access)

Mass valuation property groups

1. Agricultural
2. Gardeners' associations
3. Residential
4. Commercial
5. Industry & warehousing

GIS value zones

Approx. 1200 value zones

Valuation models

Approx. 300 for land

Approx. 600 for structures

Values of RP objects

Approx. 2,2 mln land parcels

Approx. 3,5 mln structures

Publication on Internet

- Valuation documents
- Values of objects
- Value maps

REGISTRŲ CENTRAS

GROUPS OF CONSTRUCTIONS

Residential:
Dormitories,
Apartments
Detached houses

Administrative and health care
Commercial and services

Recreation and sports
Culture, education and science
Garden buildings
Auxiliary
Garages

Industrial,
warehouses,
transport and
engineering

REGISTRŲ CENTRAS

GROUPS OF LAND

Agricultural,
land of gardeners associations

Commercial, industrial

Residential

MODEL SPECIFICATION: CORRELATION MATRIX

Correlation matrix used for determination of qualitative and quantitative factors which show how important is the relation between statistically interrelated factors.

Pearson Correlations Section	(Row-Wise Deletion)								
	Price	m2_price	Year_constr	Total number of floors	Floor	Floors without first and last floors	Zone	Walls	Type of object
Price	1	0,500634	0,355828	0,229186	0,186679	0,265887	0,437425	0,105204	0,066759
m2_price	**0,5006**	**1**	**0,2483**	**0,228583**	**0,204958**	**0,276777**	**0,7845**	**0,1612**	**0,0652**
Year_constr	0,355828	0,248294	1	-0,002343	0,082343	0,048958	0,170319	-0,05794	0,084201
Total number of floors	0,229186	0,228583	-0,00234	1	0,236633	0,807229	0,271447	0,25406	0,098062
Floor	0,186679	0,204958	0,082343	0,236633	1	0,762646	0,219181	0,091507	0,022118
Floors without first and last floors	0,265887	0,276777	0,048958	0,807229	0,762646	1	0,319315	0,223767	0,081054
Zone	0,437425	0,784468	0,170319	0,271447	0,219181	0,319315	1	0,1712	0,075817
Walls	0,105204	0,1612	-0,05794	0,25406	0,091507	0,223767	0,1712	1	-0,02407
Type of object	0,066759	0,065246	0,084201	0,098062	0,022118	0,081054	0,075817	-0,02407	1

The outcome of specification: factors and zones (territories) are specified which may be important for estimating the average market value of real property.

REGISTRŲ CENTRAS

VERIFICATION OF MODEL

Assessment Ratio Section				
	Actual	Predicted		
	Price	Price	**Ratio**	
Number of Cases	108	108	108	
Mean	282511,9	282826,2	1,021112	
Median	256674	256951,9	**1,022919**	
Minimum	62791,5	76419,85	0,668298	
Lower Quartile	160000	157214,5	0,921705	
Upper Quartile	359800	354398,4	1,115624	
Maximum	1400000	1351200	1,920386	
Range	1,34E+06	1,27E+06	1,25E+00	
IQR	199800	197183,9	0,193919	
Variance	3,54E+10	3,32E+10	2,66E-02	
Std. Deviation	188200,9	182127,7	0,163077	
Coef. of Variation	0,66617	0,643956	0,159706	
Ave |Dev. from Median|	124029,3	122469,1	0,117822	
Coef. of Dispersion	48,32173	47,66227	**11,51816**	
Weighted Mean			1,001113	
Price Related Differential			**101,9977**	

Percentile Section of Vert_kain_sant					
Percentile	Value	95% LCL	95% UCL	Exact Conf. Level	
99	1,9				
95	1,2	1,201681	1,424567	95,42319	
90	1,2	1,148404	1,234068	96,53123	
85	1,2	1,12595	1,205105	95,47729	
80	1,1	1,08558	1,178912	95,97738	
75	1,1	1,073782	1,144089	95,44489	
70	1,1	1,048822	1,127934	95,32707	
65	1,1	1,044756	1,10963	95,64208	
60	1,0	1,025565	1,081001	95,07201	
55	1,0	1	1,070533	95,76827	
50	1,0	0,977732	1,046776	95,3283	
45	1,0	0,959505	1,042496	95,67616	
40	1,0	0,94638	1,020273	95,07201	
35	1,0	0,92231	0,993853	95,64208	
30	0,9	0,910501	0,969968	95,36099	
25	0,9	0,893479	0,94998	95,35503	
20	0,9	0,830252	0,925125	95,71888	
15	0,9	0,801605	0,911484	95,7472	
10	0,8	0,761	0,886332	95,57663	
5	0,8	0,668298	0,819346	95,1751	

- **Median** about 1
- **COD** equal or less than 15
- **PRD** should be between 98 and 103
- **Ratio** (value's and price's ratio) – from 0.8 to 1.2

REGISTRŲ CENTRAS

GIS IN MASS APPRAISAL
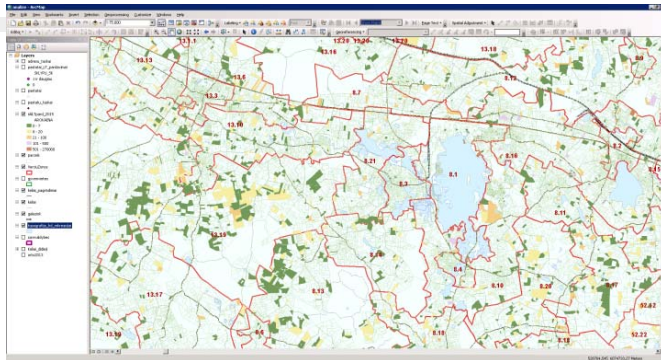
- Distribution of sales and sale prices
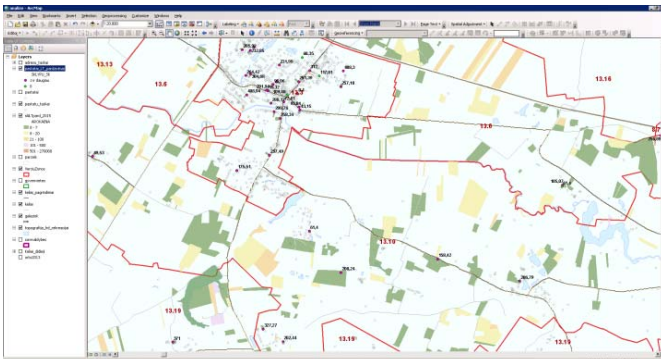
- Analysis of cadastral data
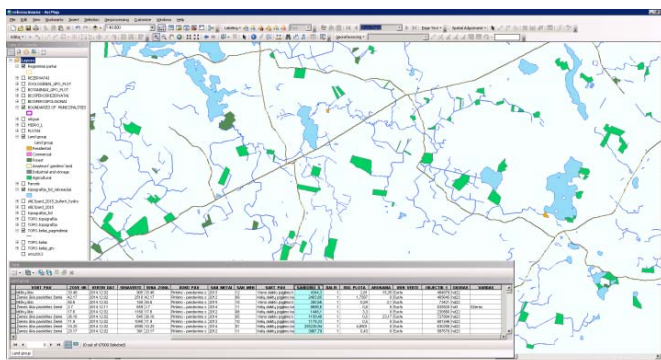
- Distribution of price influence factors

REGISTRŲ CENTRAS

ANALYSIS OF CADASTRAL DATA OF LAND PARCELS USING ARCMAP

Soil productivity score (Šakiai district)
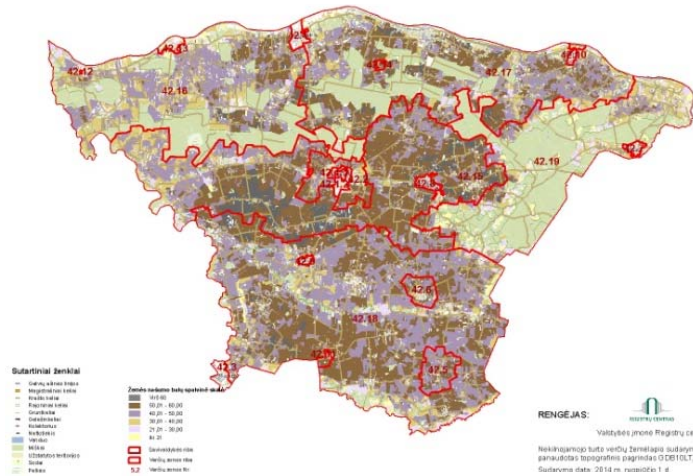
Sales of land parcels 2010.01.01-2015.08.01
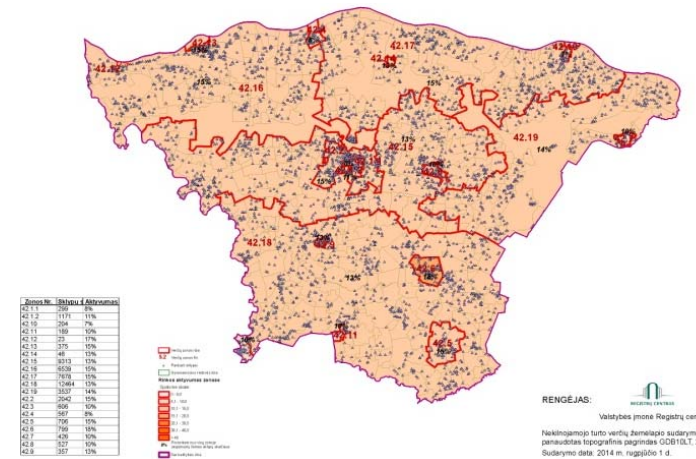
Land structure according to the purpose of use (Utena city)

VALUE ZONES AND MODELS

VERIFICATION OF RESULTS
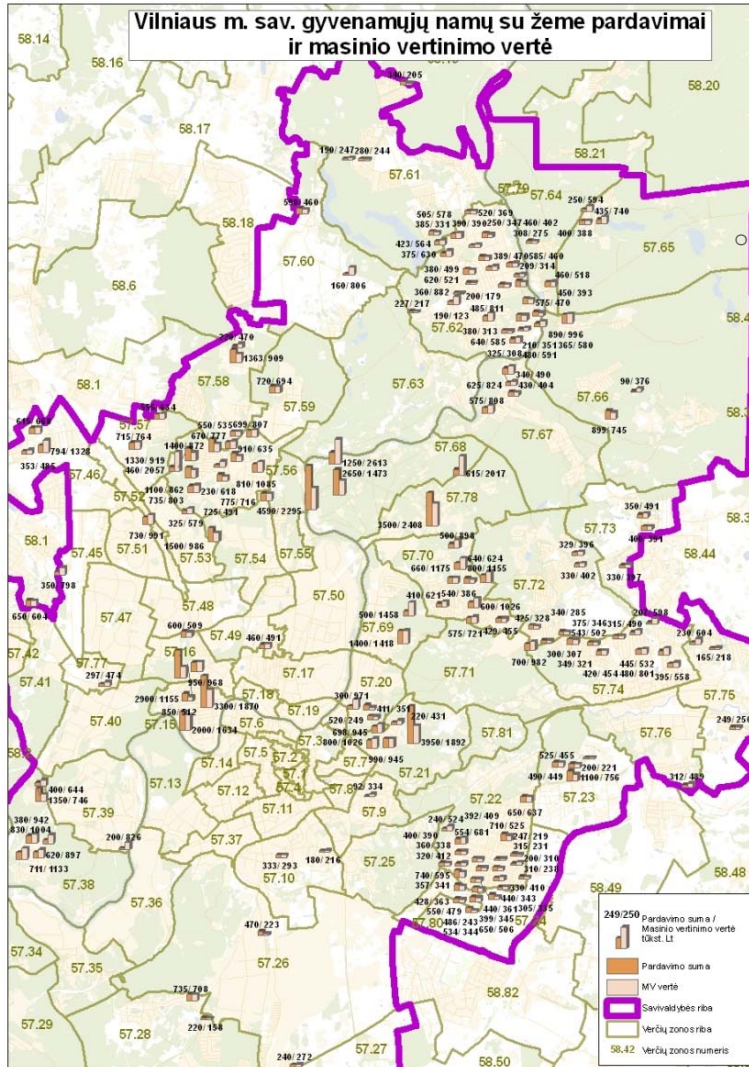
Comparison of mass valuation values and sales prices of residential buildings with land in Vilnius city

USE OF REAL PROPERTY MASS VALUATION DATA AND VALUES

Assessment of taxable values of land and buildings

Calculation of inherited or gifted property taxable value

Providing of social support for low income citizens

Providing of state guaranteed legal assistance

Estimation of initial sales or rental value of state-owned land

Estimation of rent of state-owned fixed assets (constructions)

Estimation of statistical indexes

USE OF REAL PROPERTY MASS VALUATION DATA AND VALUES

Calculation of fees for registration of real property and rights thereto

Calculation of notaries fees

Activities of insurance companies

Activities of bailiffs for estimation of initial action price

Banks activities

Providing market data to real estate professionals

For other state economic needs (estimation of losses, compensation, etc.)

REAL PROPERTY MARKET DATA AND ANALYSIS

Provision of real property market data by the Internet

Provision of real property transaction data	Calculation of housing price index
Dynamics of real property transaction prices	Value calculators
Dynamics of real property sales	Individual enquiries and analyses
Administration of real property analytical applications	

✓ DB of the Centre of Registers contains data about more than 2 million transactions which can be used for calculating values;

✓ The goal is to provide these data as quicker as possible and in the most appropriate form to the public institutions (Bank of Lithuania, Ministry of Finances, Statistics) and other specialists (banks, analysts, valuers, etc.).

Pardavimo sandorių kainų trendas

$y = 8.318x2 + -135.183x + 3116.055$

Įregistruotų parduotų butų vidutinės 1m2 kainos pokyčiai šalyje
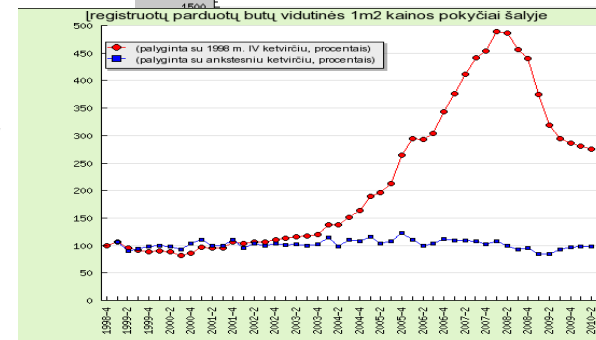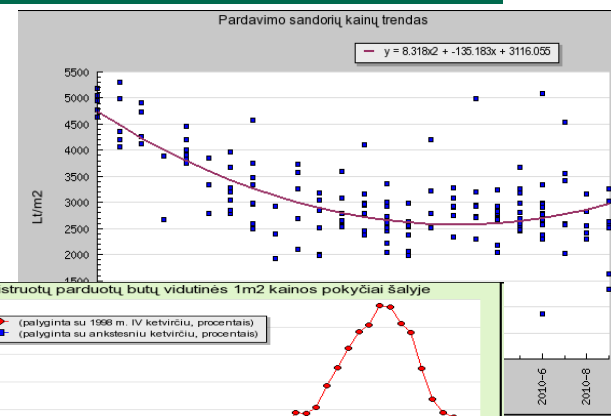
REGISTRŲ CENTRAS

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