

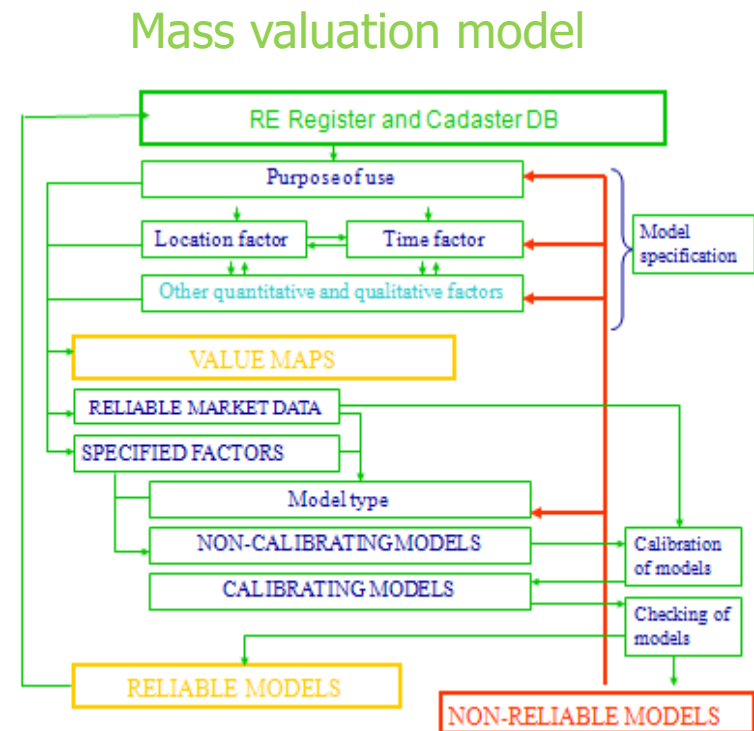
MASS VALUATION AND MARKET DATA

LITHUANIA

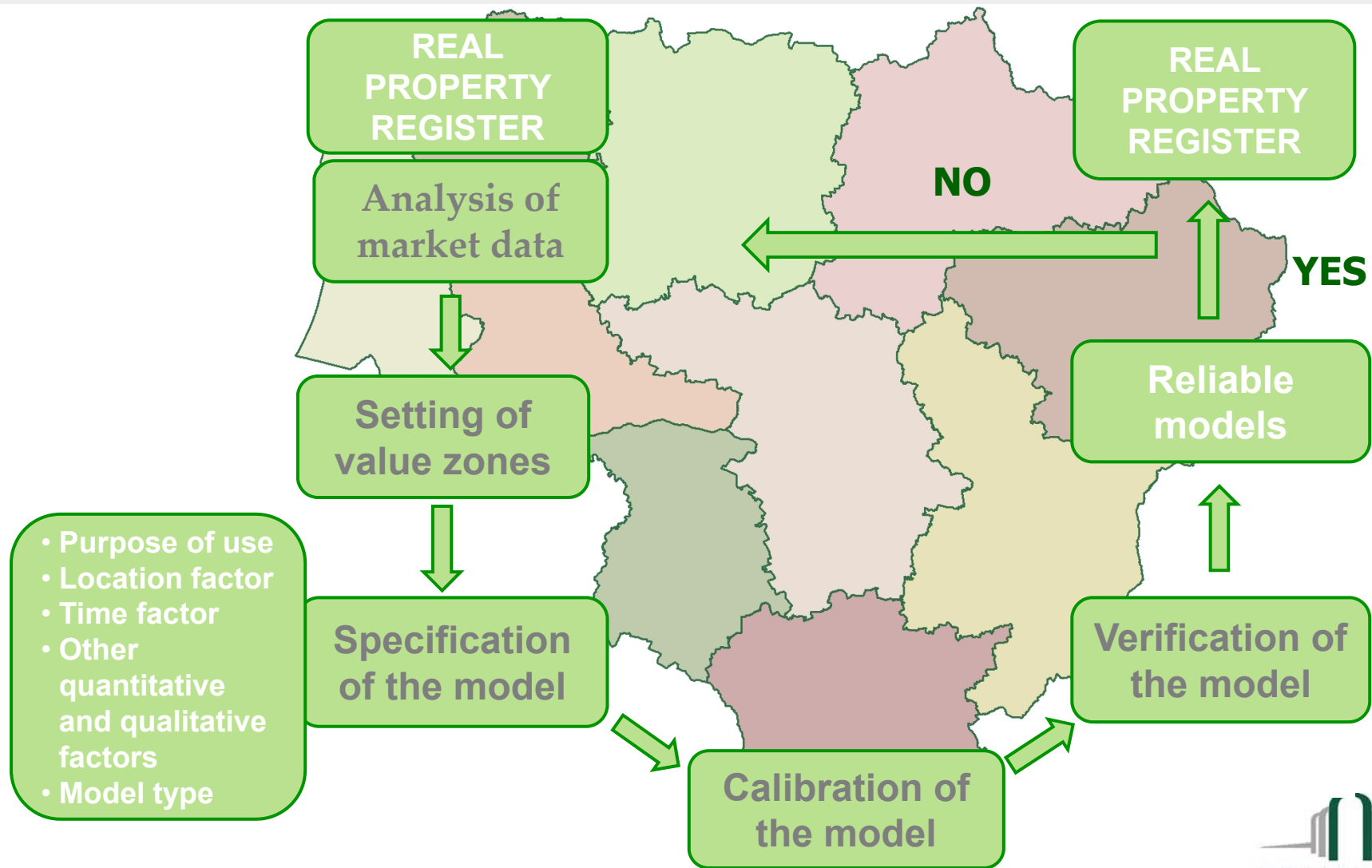


MAIN PRINCIPLES OF THE LITHUANIAN APPROACH TO MASS VALUATION

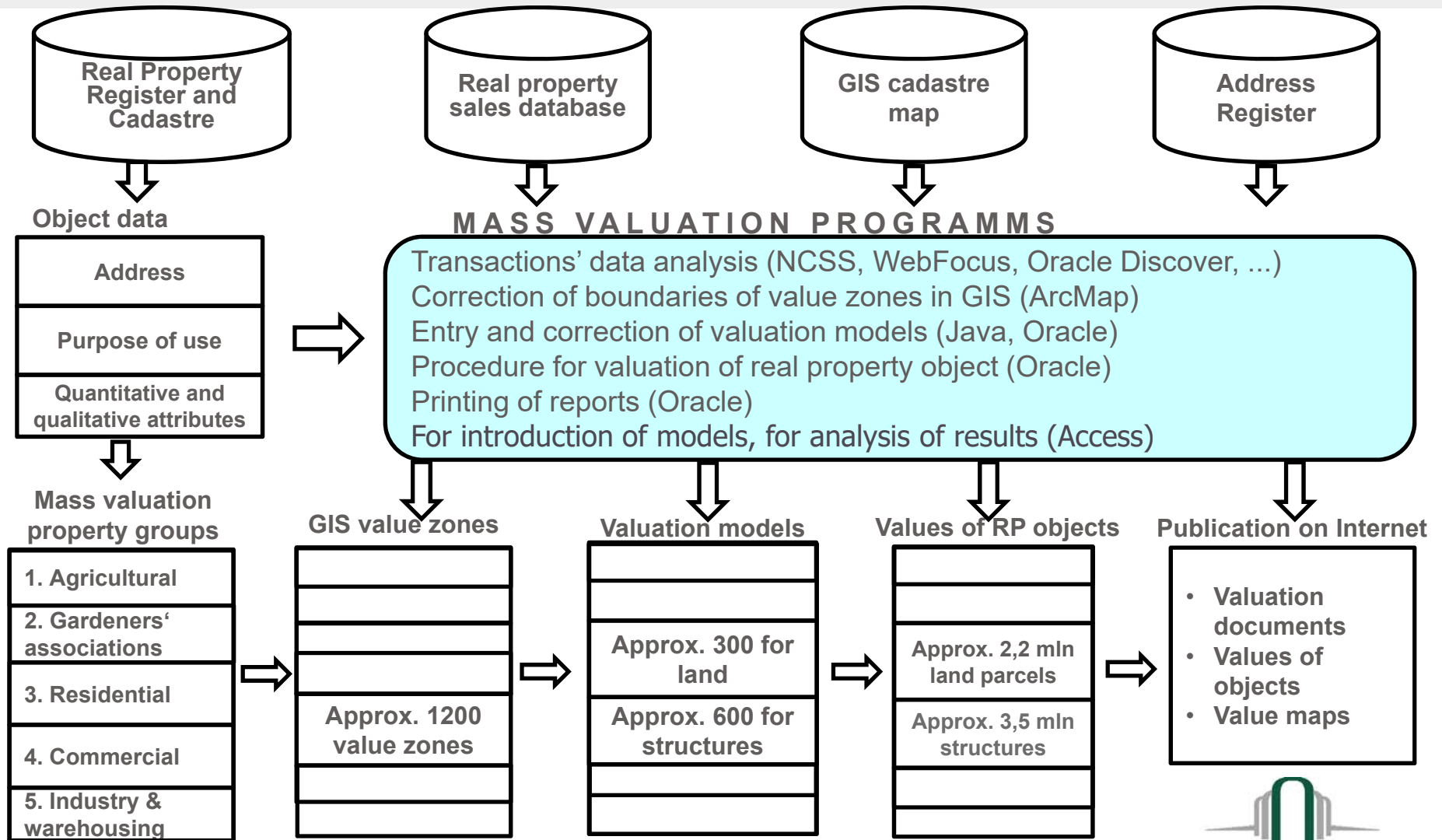
- Mass valuation system is built on the integrated **digital data** of real property cadastre and register and other main state registers.
- Mass valuation process is fully **automated**.
- Mass valuation **results are public** and published on the Internet.
- Mass valuation **results are easily applicable** 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 PROCESS



MASS VALUATION INFORMATION SYSTEM



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

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

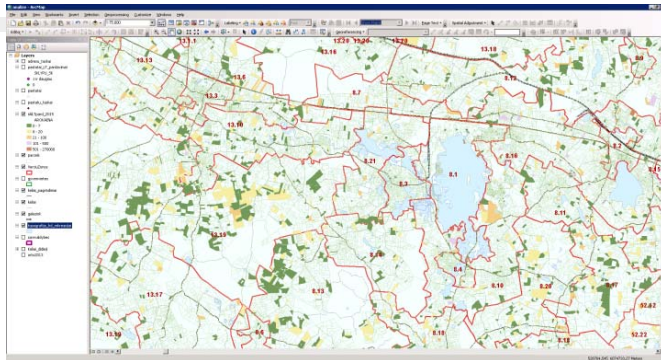
The outcome of specification: factors and zones (territories) are specified which may be important for estimating the average market value of real property.

VERIFICATION OF MODEL

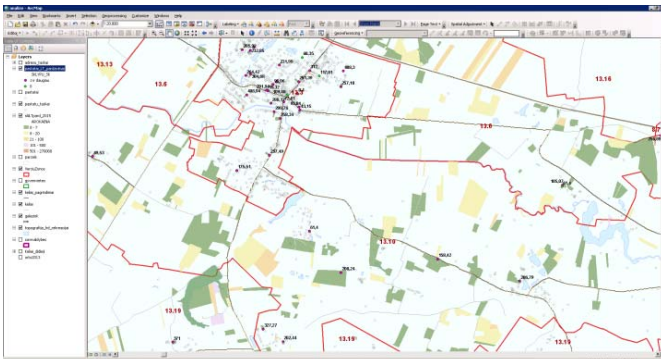
Assessment Ratio Section				Percentile Section of Vert_kain_sant				
	Actual	Predicted		Percentile	Value	95% LCL	95% UCL	Exact Conf. Level
	Price	Price	Ratio					
Number of Cases	108	108	108	99	1,9			
Mean	282511,9	282826,2	1,021112	95	1,2	1,201681	1,424567	95,42319
Median	256674	256951,9	1,022919	90	1,2	1,148404	1,234068	96,53123
Minimum	62791,5	76419,85	0,668298	85	1,2	1,12595	1,205105	95,47729
Lower Quartile	160000	157214,5	0,921705	80	1,1	1,08558	1,178912	95,97738
Upper Quartile	359800	354398,4	1,115624	75	1,1	1,073782	1,144089	95,44489
Maximum	1400000	1351200	1,920386	70	1,1	1,048822	1,127934	95,32707
Range	1,34E+06	1,27E+06	1,25E+00	65	1,1	1,044756	1,10963	95,64208
IQR	199800	197183,9	0,193919	60	1,0	1,025565	1,081001	95,07201
Variance	3,54E+10	3,32E+10	2,66E-02	55	1,0	1	1,070533	95,76827
Std. Deviation	188200,9	182127,7	0,163077	50	1,0	0,977732	1,046776	95,3283
Coef. of Variation	0,66617	0,643956	0,159706	45	1,0	0,959505	1,042496	95,67616
Ave Dev. from Median	124029,3	122469,1	0,117822	40	1,0	0,94638	1,020273	95,07201
Coef. of Dispersion	48,32173	47,66227	11,51816	35	1,0	0,92231	0,993853	95,64208
Weighted Mean			1,001113	30	0,9	0,910501	0,969968	95,36099
Price Related Differential			101,9977	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

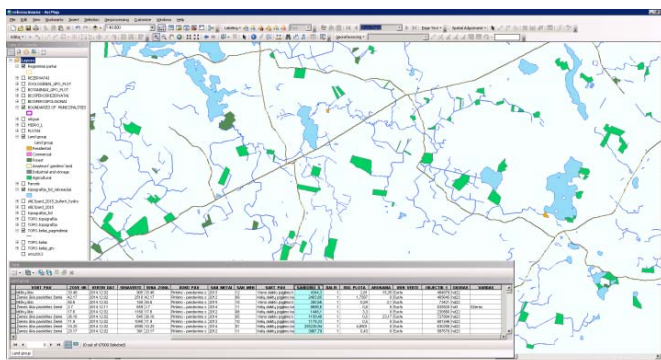
GIS IN MASS APPRAISAL



- Distribution of sales and sale prices



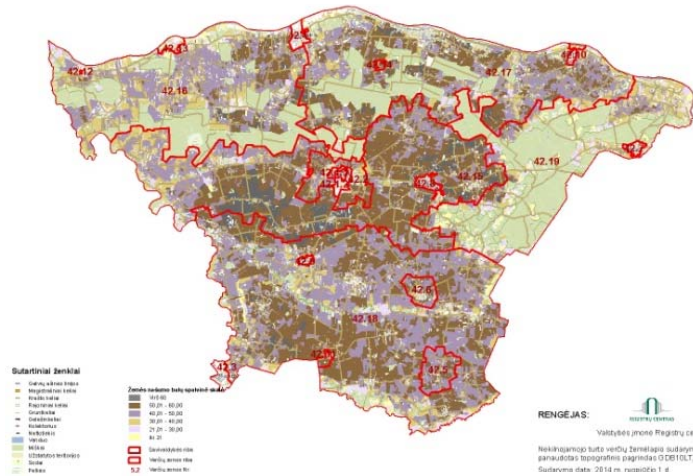
- Analysis of cadastral data



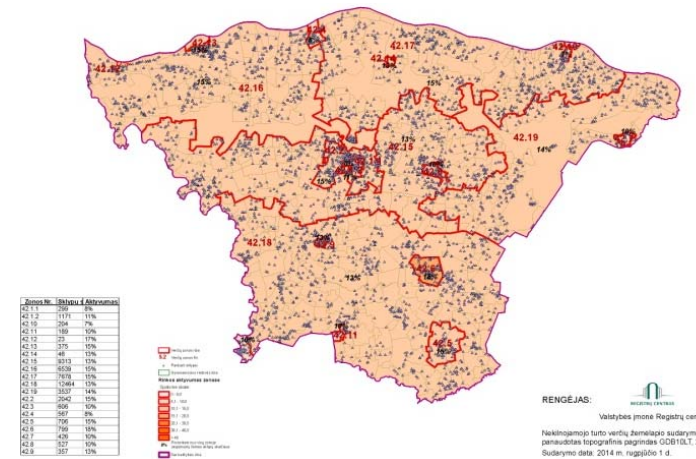
- Distribution of price influence factors

ANALYSIS OF CADASTRAL DATA OF LAND PARCELS USING ARCMAP

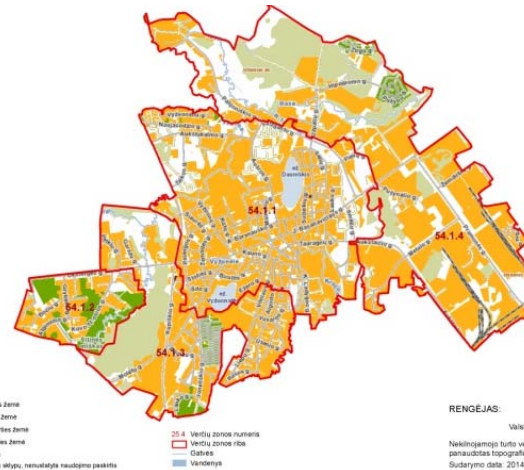
Soil productivity score (Šakiai district)



Sales of land parcels 2010.01.01-2015.08.01



Land structure according to the purpose of use (Utena city)



VALUE ZONES AND MODELS

https://web2.kada.lan...liaPaieska.do

https://web2.kada.lan/mv1/StvModeliaiPaieska.do

Pagrindinis meniu | Info

Vartotojas: A.PAŠKEVIČIENĖ

Pabaiga

Masinio vertinimo modeliai

Baigti Savivaldybė Šiaulių m. sav. Modeliai: G (statinių) galioja nuo 2015-01-01 Ieškoti savivaldybės modelius

Surasti modelį Modelio Nr

Modelių sudarymas ar taisymas. Pavadinimas:

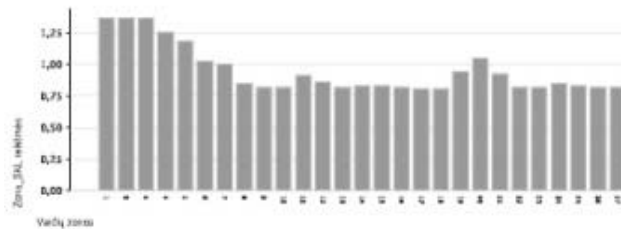
Pagrindinis tipas: Administracinė ir gydymo(n) Taikomas tipai: Administracinė ir gydymo(n) Daugiklis: Pasirinkite veiksmą Vykdyti

Modelis. DatId	Pavadinimas	Tipas	Taikoma tipui	Daugiklis
12100	19 Garažai	Garažai	Garažai	1
12101	19 Pagalbinio ūkio patalpos	Pagalbinio ūkio patalpos	Pagalbinio ūkio patalpos	1
12102	19 Pagalbinio ūkio pastatai	Pagalbinio ūkio pastatai	Pagalbinio ūkio pastatai	1
12103	19 Bendrabučiai	Bendrabučiai	Bendrabučiai	1
12104	19 Sodų pastatai	Sodų pastatai	Sodų pastatai	1
12105	19 Vieno-dviejų butų namai	Vieno-dviejų butų namai	Vieno-dviejų butų namai	1
12106	19 Kultūros, švietimo ir mokslo	Kultūros, švietimo ir mokslo(n)	Kultūros, švietimo ir mokslo(n)	1
12107	19 Administracinė ir gydymo	Administracinė ir gydymo(n)	Administracinė ir gydymo(n)	1
12108	19 Butai	Butai	Butai	1
12109	19 Poilsio ir sporto	Poilsio ir sporto	Poilsio ir sporto	1
12110	19 Viešbučių, prekybos, paslaugų, maitinimo	Viešb, prek, pasl,maitin(n)	Viešb, prek, pasl,maitin(n)	1

javascript:modeloAtributai()

Modelis Nr.: 12105, Zona SKL^(0,795) x Sn_SKL^(0,702) x ŠL_SKL^(0,856) x Duj_SKL^(0,829) x (1,1) ^ RkMt_BIN x (1,04) ^ Kanal_BIN x (1,19) ^ IsApl_BIN x Bpl_SKF^(0,948) x StMt_SKF^(0,875) x (1180 x Bpl_RKS -295 x PpNP_RKS -295 x RūsPl_RKS -295 x GarPl_RKS)

Verčių zonų Zona_SKL reikšmės



https://web2.kada.lan/mv1/StvModeliaiPaieska.do

Pagrindinis meniu | Info

Vartotojas: A.PAŠKEVIČIENĖ

Pabaiga

Masinio vertinimo modeliai: 12105 Vieno-dviejų butų namai Šiaulių m. sav. Taikomas: Vieno-dviejų butų namai

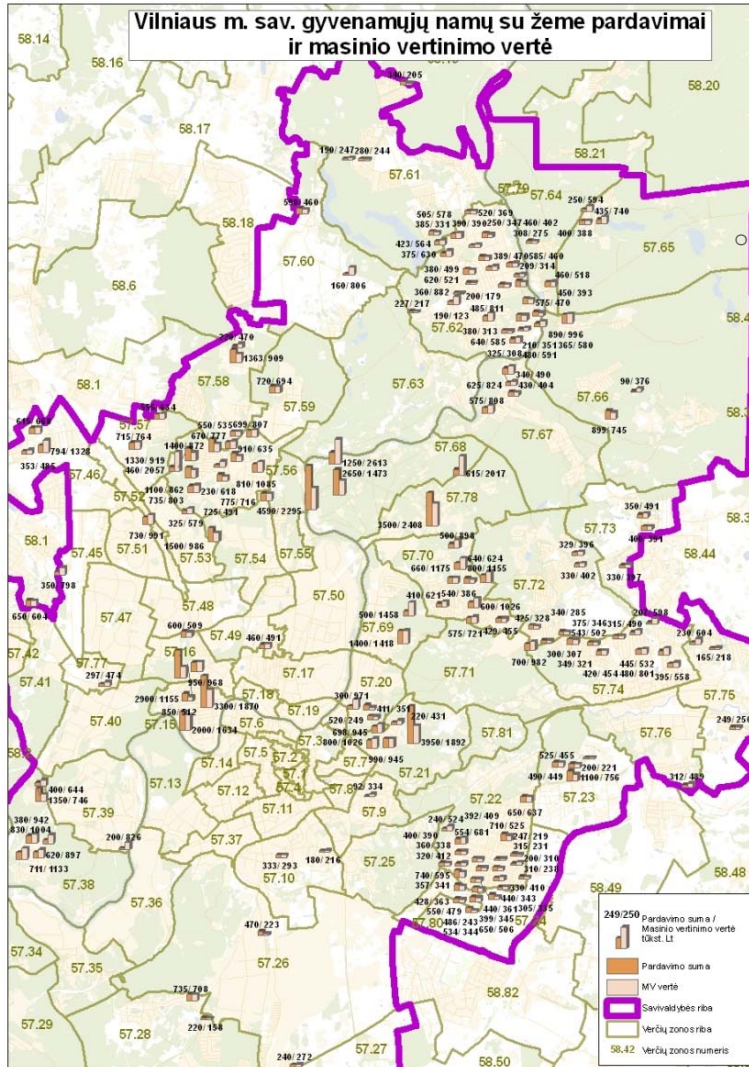
Modelių sudarymas ar taisymas. Pavadinimas:

Pagrindinis tipas: Administracinė ir gydymo(n) Taikomas tipai: Administracinė ir gydymo(n) Daugiklis: Pasirinkite veiksmą Vykdyti

Formulė: Surogiti formulę

ATRIBUTAS	SVTA	Tipas	Skaitl	Parametras	Veiksmas	ATRIBUTŲ REIKŠMĖS
Zona	Zona	Skalaras	SKL	0.795	SKL*PARAM	44.21 0.829
Savivaldybė	Sv	Skalaras	SKL	0.702	SKL*PARAM	44.23 0.810
Sėkmės	S	Skalaras	SKL	0.856	SKL*PARAM	44.24 0.85
Dujai	Duj	Skalaras	SKL	0.829	SKL*PARAM	44.25 0.831
Rekonstrukcijos pabaigos metai	RkMt	Binaris	BIN	1.1	PARAM*BIN	44.26 0.810
Nuotekų sėkmės	Kanal	Binaris	BIN	1.04	PARAM*BIN	44.27 0.810
Apimtyras	IsApl	Binaris	BIN	1.19	PARAM*BIN	
Bendroji plotas	Bpl	Rekoma	RKS	1180	RKS*PARAM	
Pagalbinis nenaudingas plotas	PpNP	Rekoma	RKS	-295	RKS*PARAM	
Ūkio (pažalio) plotas	RūsPl	Rekoma	RKS	-295	RKS*PARAM	
Garažių plotas	GarPl	Rekoma	RKS	-295	RKS*PARAM	
Bendroji plotas	Bpl	Skalaras funkcija	SKF	0.948	SKF*PARAM	
Statybos pabaigos metai	StMt	Skalaras funkcija	SKF	0.875	SKF*PARAM	

VERIFICATION OF RESULTS



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

RATIO STUDY

There are two primary aspects of assessment performance: level and uniformity.

- Assessment level relates to how close overall assessments are to market value.
- Uniformity relates to the consistency or equity of assessed values.

ZOVĖ_No	OBJ_ID	Street	Address	MZ_VALUE	MZ_PRICE	RATU	ZOVĖ_No	SUM_OF_TRANS	AVG_MZ_VALUE	AVG_MZ_PRICE	RATIO		
57.51	1311406	Galgos g.	2	865	847	0.98	57.1	33	1000	1095	0.97		
57.51	1311418	Galgos g.	2	335	323	0.96	57.2	13	1653	1733	0.95		
57.51	1311423	Galgos g.	2	317	313	0.98	57.3	17	1670	1629	0.97		
57.51	1311426	Galgos g.	2	824	802	0.96	57.4	18	1665	1699	0.98		
57.51	1311485	Galgos g.	23	765	733	0.96	57.5	100	1669	1801	0.93		
57.51	1311505	Galgos g.	23	760	714	0.94	57.6	46	1501	1582	0.95		
57.51	1311624	Galgos g.	23	768	690	0.90	57.7	29	1272	1327	0.96		
57.51	1144325	Galgos g.	23	755	728	0.96	57.8	6	1299	1274	0.99		
57.51	1144366	Galgos g.	23	755	728	0.96			943	1095	0.86		
57.51	1312025	Galgos g.	23	755	728	0.96			943	1095	0.86		
57.51	1132578	Galgos g.	23	755	728	0.96			1321	1695	0.9		
57.51	1144811	Galgos g.	23	755	728	0.96			1296	1335	0.94		
57.51	1144813	Galgos g.	23	755	728	0.96			871	917	0.95		
57.51	1144894	Galgos g.	23	755	728	0.96			1461	1499	0.97		
57.51	1311815	Galgos g.	23	755	728	0.96			1510	1598	0.95		
57.51	80271	Galgos g.	2	10620	10724	1.04			1692	1837	0.9		
57.51	242095	J. Karvaišio g.	2	10	10724	7011	13806	10257	0.97	1151	1224	0.94	
57.51	1335769	J. Karvaišio g.	3	10	11502	11143	7464	16236	11742	1.02	1629	1715	0.95
57.51	1335315	J. Karvaišio g.	4	17	9600	8664	7127	14462	9615	1.02	1443	1599	0.9
57.51	429708	J. Barišiaus g.	6	1	8310	8510	8510	7775	0.91	1488	1468	1.01	
57.51	428843	J. Barišiaus g.	8	20	6450	7159	2062	8957	6025	0.93	1057	1152	0.92
57.51	429998	J. Barišiaus g.	10	3	6952	6917	5131	8928	6427	0.92	522	488	1.11
57.51	430281	J. Karvaišio g.	11	16	6272	6052	4076	8374	6327	1.01	793	718	1.1
57.51	1402012	Laisvės pr.	12	39	5200	5042	4047	7858	5168	0.99	515	525	1
57.51	1189343	Laisvės pr.	13	27	5476	5303	4003	8075	5806	1.06	578	819	0.97
57.51	1335445	Laisvės pr.	15	21	5342	5263	2310	8610	5670	1.06	437	854	0.93

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

Dynamics of real property transaction prices

Dynamics of real property sales

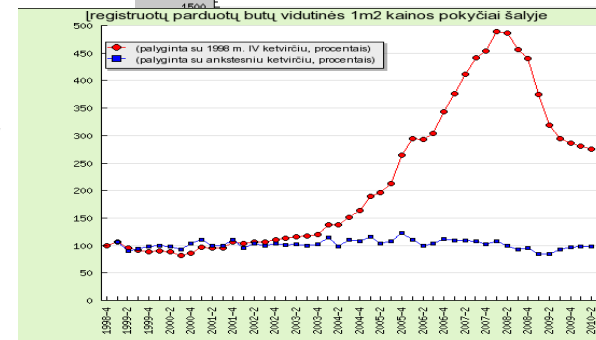
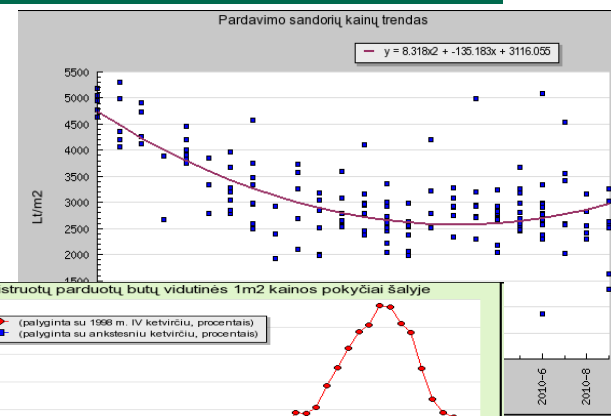
Administration of real property analytical applications

Calculation of housing price index

Value calculators

Individual enquiries and analyses

- ✓ 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.).





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