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EGB2005N – MODERN INFORMATION SYSTEM TO PROPERTY MANAGEMENT

Abstract: The article presents the property management system model in Poland. This paper work was written in order to show law regulations concerning property management, system architecture and its usability. The latter part of the article explains problems connected with the data quality of the property management system.

1. Introduction

In Poland the classical economy conversion into the electronic economy is also evident in local government units. Since 90's of the 20th century, public administration is undergoing constant computerization. At county offices and city departments running geodesy departments deal with the register of grounds, buildings and apartments being in the range of district or administrative district. Computerization of geodesy department has ended with the beginning of the 21st century. There are many cadastre databases functioning in Poland.

Cadastre databases consist of descriptive part: register of grounds, buildings and apartments, and of geometric part – map. In most of the cases systems' descriptive part is poorly integrated with the geometric part; however this process is still being developed and is inevitable.

New responsibilities put on the departments of geodesy, like administering possession of the Exchequer, resulted in the development of new departments: department of possessions or department of the fixed property. Most of the departments of possessions or departments of the fixed property, unlike the geodesy department, have no information systems allowing them to keep real estate register. Existing registers are based on systems of the filling register or spreadsheets. Next amendments

of the act on the management of fixed properties increased the level of reporting from managing possessions for superior bodies, which made the work impossible for offices because of old methods still being used. Creating and implementing computer based register of the fixed property became a priority for the local government.

This article will present the most functionally advanced system of handling of possessions EGB2005N developed by Intergraph. The system was built on traditional architecture client-server and is based on checked Microsoft's programming environment. Innovative EGB2005N system is founded on the advanced cadastral data processing covering the needs of the property management possessions system.

2. Law regulations

Basic deed in Poland, which is regulating the rules of exchequer's real estates management as well as local government units, is an act on the management of fixed properties from day 21 of August of 1997 [DzU 1997 No. 115 pos. 741]. This bill determines rules of:

- administration of estates which are owned by exchequer and local government,
- integration and division of the immovable,
- preemption of the immovable,
- expropriation of the immovable and return of expropriation immovable,
- share in costs of building the devices of technical infrastructure,
- evaluation of the immovable,
- occupational activity which subject is real estate management.

The bill forces the creation of the real estates register by county offices and city departments of the real estates owned by the Exchequer, Local Commune Administration, Administrative District or province.

The real estates owned by the Exchequer, the one which were not given into eternal use to other subjects, and real estates which are in eternal use by the Exchequer are described most broadly in this act. The register is to be created on the basis of existing real estate cadastral. Mayors, village mayors, and administrative district mayors are obliged to:

- keep the register of the real estates,
- evaluate the immovable,
- create a plan of use of immovable,
- count the charge due to the use of the real estate as well as vindication of the payment in arrear, set up a real estate register of immovable owned by the Exchequer.

Local government is obliged by the bill to report how Exchequer's real estates are being managed. An act of act on the management of fixed properties defines also rules of selling, giving into eternal use or permanent administration of the real estates owned by Exchequer as well as counting the charge for eternal use or permanent administration.

Excepting an act on the management of fixed properties, while real estate management is taken into consideration, a set of rules are as well defined in the following bills: act on the property of apartments [DzU 2000 No. 80 pos. 903], act on gaining the ownership of the fixed property by perpetual users [DzU 2001 No. 113 pos. 1209], act on the Goods and Services Tax [DzU 2004 No. 54 pos. 535], etc.

Data systems which are to be created on the needs of the database register must be consistent with the above mentioned bills.

3. Architecture of EGB2005N systems

The property management system EGB2005N is integrated directly with the Register of Grounds, Buildings and Apartments of the EGB2000 cadastre database, Online Cadastral KOL or any other cadastre database which allows exporting data into SWDE format.

By saying integration, we mean that the property management system relies on the register data of the cadastre database. The property management system EGB2005 is based on the thin client technology and is entirely devoted to be used in the Microsoft environment. The application is written in Visual C++ programming language and as a data server uses SQL Server. Figure 1 represents the flow of the data between the cadastre database and the property management system.

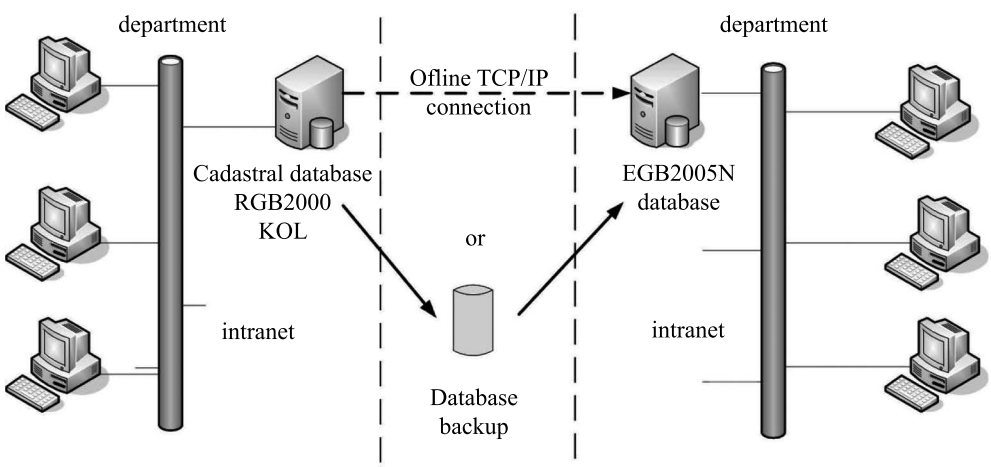


Figure 1. Flow of the data between the cadastre database and the property management system EGB2005N

Source: own work.

The property management system EGB2005N is established in a different department than real estate cadastre because data systems work in different departments and because of often separation of cadastre databases from the rest of the

administration office network. Database of the EGB2005N data system is updated once a week or once a month. Both the updating of the cadastre database more frequently and staying online all the time is not needed regarding that the number of object and subject (purchase, sell, integration or division of the grounds) changes is low. Backups are taking place by importing data from the cadastre database or online through the TCP/IP protocol in SQL or SWDE data format.

4. The functionality of the property management system

Geodesic data stored in the cadastre databases are the source of the data for the other data systems, for example AICS (Integrated Administration and Control System), or the property management system. The property management system EGB2005N cannot exist individually, that means without data from the cadastre system. The update process is fulfilled by the data copying module from the cadastre system and preparation module for the property management system.

The base of the property management system is a process of data preparation, which can be distinguished into: recognition of the changes of the subject and object data in the property management system, generation of the plot data, new payment cards generation and recognition of changes in the cards already existing.

The update process is based on the advanced algorithm of the cadastre data processing and the property management system data processing.

The property management system consists of three basic modules which are available for the data system user:

– real estate value module,
– charge for eternal use and permanent administration,
– temporary lease module.

Dependence between modules is presented on Figure 2.

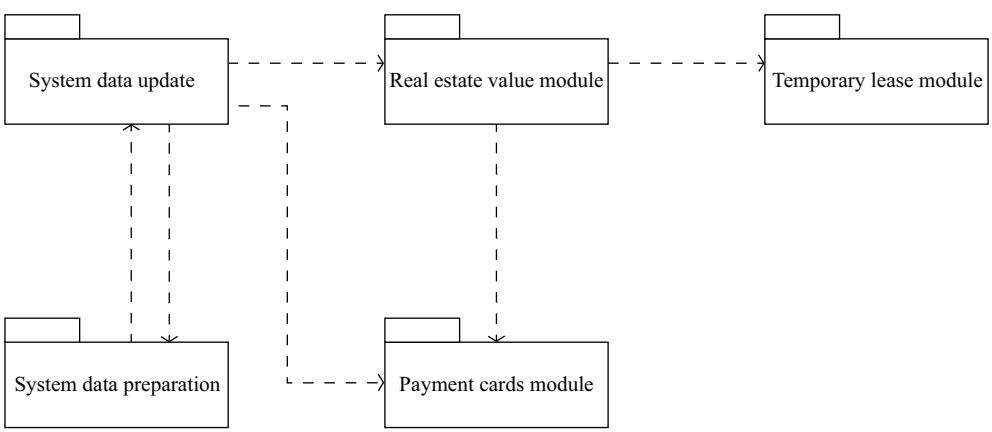


Figure 2. Modules of the property management system

Source: own work.

Property management system consists of several dozen tables grouped into a few various objects. On the basis of the subject (owners and administrators) and object (plot) data the database system generates payment cards for eternal use and permanent

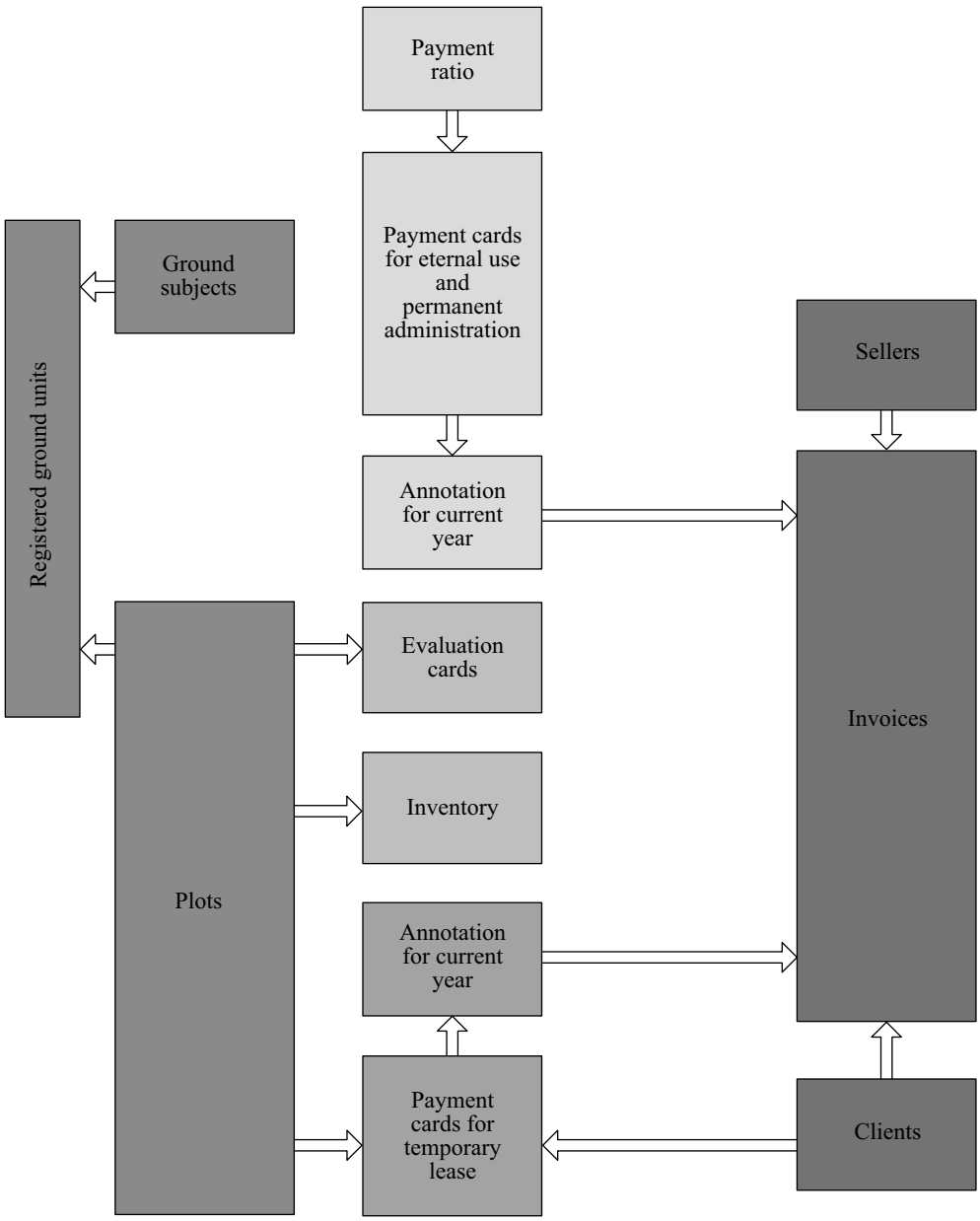


Figure 3. Connection between objects in the EGB2005N system
Source: own work.

administration and generates evaluation cards of the plots with the Figure's 3 stock. Payment cards supplied with the payment ratio make it possible for the system to generate annotation for the accountant in order to take charge. Real estate value module and payment cards module for eternal use and temporary administration rely on cadastre system. This looks different in the case of payment cards for the temporary lease module, where besides cadastre data (plots – objects of the lease) there is a need for external data entered by the operator (clients – subjects of the lease). Each module allows to get a number of reports beginning with the administration area grounds and ending with the income from the eternal use, permanent administration or temporary lease.

The real estate value module allows:

- initialization of the evaluation cards of the plots on the basis of the registry data,
- automatic establishing of the plot value on the basis of the estimative ground value of the each use in the area,
- keeping the evaluation card in accordance to the changes made in the cadastre database system,
- keeping the data of the supply of the Exchequer's, county offices', districts' or administrative districts' grounds; displaying and printing reports of the supply value,
- registering of many plot attributes among the other things: destination in the city's area management plan,
- automatic generation of the plot's stock numbers, displaying and printing reports of the stock accordingly to the Classification of the Fixed Assets,
- keeping the data of the apartments, charging for the real estate administration.

The payment cards for the eternal use and permanent administration module allows:

- initialization of the payment cards for the eternal use and permanent administration on the basis of the registry data,
- updating the payment cards accordingly to the changes made in the cadastre database,
- VAT maintenance; the one counted into the charge and the one addend into the annual payment,
- preparing and printing notifications about payment value and summoning payment notifications with VAT,
- automatic generation of the VAT invoices for the chosen payers,
- displaying and printing reports and different combinations,
- annual payments updates (cancellation of the payments).

The purpose of the last module – temporary lease module – is enabling lease registering and real estate leasing which are present in the property management database system. Similarly to the payment for the eternal use module, this module enables making combination of the reports simplifying registering of the income from the lease use or leasing of the plots which are in the stock of the Exchequer or county office.

Plot searching (Figure 4) in the value module or payment cards for the eternal use and temporary lease module is taking place after entering following data:

– owner of the plot (Exchequer, county office, administrative office, etc.),
– type of the owner (only owner, co-owner, eternal user, etc.),
– detailed data of the plot (county, area, plot number, Register of Deeds, street, etc.).

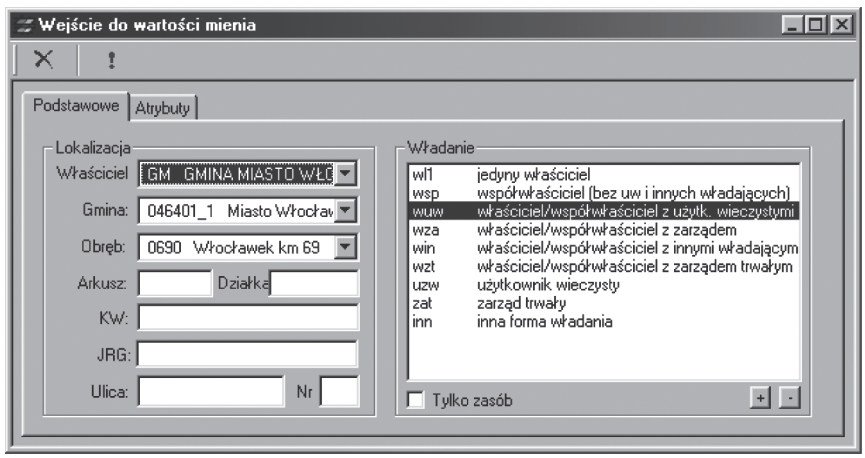
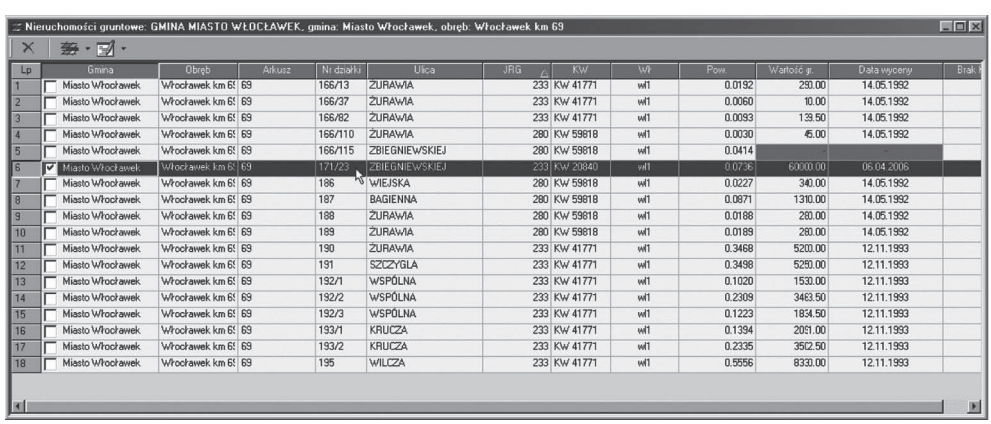


Figure 4. Dialog box of searching parcels in value module
Source: own work based on www.intergraph.com.

The result of the search is the list of the plots (Figure 5) on the basis of which the user can:

– view the plot data and the subjects connected to the plot,
– edit, add and delete following data: plot attributes, its destination, evaluation and so on.



Lp	Gmina	Obręb	Arkusz	Nr działki	Ulica	JRG	KW	Wł	Pow.	Wartość gr.	Data wyceny	Brak
1	Miasto Włocławek	Włocławek km 6	69	166/13	ŻURAWIA	233	KW 41771	wl1	0.0192	250.00	14.05.1992	
2	Miasto Włocławek	Włocławek km 6	69	166/37	ŻURAWIA	233	KW 41771	wl1	0.0060	10.00	14.05.1992	
3	Miasto Włocławek	Włocławek km 6	69	166/82	ŻURAWIA	233	KW 41771	wl1	0.0093	139.50	14.05.1992	
4	Miasto Włocławek	Włocławek km 6	69	166/110	ŻURAWIA	280	KW 59818	wl1	0.0030	45.00	14.05.1992	
5	Miasto Włocławek	Włocławek km 6	69	166/115	ZBIEGNIEWSKIEJ	280	KW 59818	wl1	0.0414			
6	Miasto Włocławek	Włocławek km 6	69	171/23	ZBIEGNIEWSKIEJ	233	KW 20840	wl1	0.0736	60000.00	06.04.2006	
7	Miasto Włocławek	Włocławek km 6	69	186	WIEJSKA	280	KW 59818	wl1	0.0227	340.00	14.05.1992	
8	Miasto Włocławek	Włocławek km 6	69	187	BAGIENNA	280	KW 59818	wl1	0.0871	1310.00	14.05.1992	
9	Miasto Włocławek	Włocławek km 6	69	188	ŻURAWIA	280	KW 59818	wl1	0.0188	280.00	14.05.1992	
10	Miasto Włocławek	Włocławek km 6	69	189	ŻURAWIA	280	KW 59818	wl1	0.0189	280.00	14.05.1992	
11	Miasto Włocławek	Włocławek km 6	69	190	ŻURAWIA	233	KW 41771	wl1	0.3468	5200.00	12.11.1993	
12	Miasto Włocławek	Włocławek km 6	69	191	SZCZYGLA	233	KW 41771	wl1	0.3498	5250.00	12.11.1993	
13	Miasto Włocławek	Włocławek km 6	69	192/1	WSPÓLNA	233	KW 41771	wl1	0.1020	1530.00	12.11.1993	
14	Miasto Włocławek	Włocławek km 6	69	192/2	WSPÓLNA	233	KW 41771	wl1	0.2309	3463.50	12.11.1993	
15	Miasto Włocławek	Włocławek km 6	69	192/3	WSPÓLNA	233	KW 41771	wl1	0.1223	1834.50	12.11.1993	
16	Miasto Włocławek	Włocławek km 6	69	193/1	KRUCZA	233	KW 41771	wl1	0.1394	2091.00	12.11.1993	
17	Miasto Włocławek	Włocławek km 6	69	193/2	KRUCZA	233	KW 41771	wl1	0.2335	3502.50	12.11.1993	
18	Miasto Włocławek	Włocławek km 6	69	195	WILCZA	233	KW 41771	wl1	0.5556	8330.00	12.11.1993	

Fig. 5. The list of real estate property
Source: own work based on www.intergraph.com.

The EGB2005N database system has very well developed ability of reporting from the real estate value module and from the payment cards for the eternal use and temporary lease module.

All the reports accessible in the database system are generated in the html format (Figure 6), text file CSV, PDF, Word or Excel files.

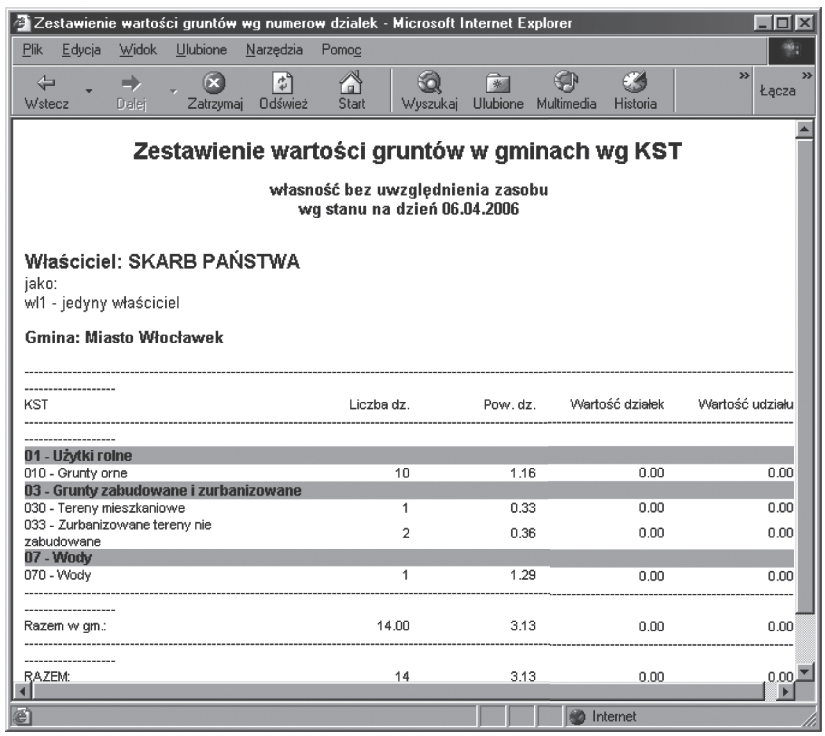


Figure 6. The example of the report from the plot value module
Source: own work based on www.intergraph.com.

In the here and now the EGB2005N database system is the most advanced system among other systems simplifying Exchequer's, county and administrative district's property management.

5. Quality problem in the property management database systems

The property management database system cannot work by itself without periodical support of the cadastre data. The data for the system can be derived from different cadastre database systems that allow exporting data which are consistent with the Standard of the Exchange of the Record Data (SWDE). The basic problem in functioning of the property management database system is the exported data quality. The errors in the imported data cause next errors in the grounds stock and

in the charging for the eternal use or temporary lease on the side of the property management database system. Further identification and elimination of the errors caused by the low quality register data costs much more time and money than clearing register data before importing it. Research (Figure 7) made on 5 databases of the register database systems shows that monitoring of the imported register data can lower the number of the wrong data in records to less than 1% (first four databases). In the last register database the monitoring of the data was not present and it caused the multiplication of errors by four.

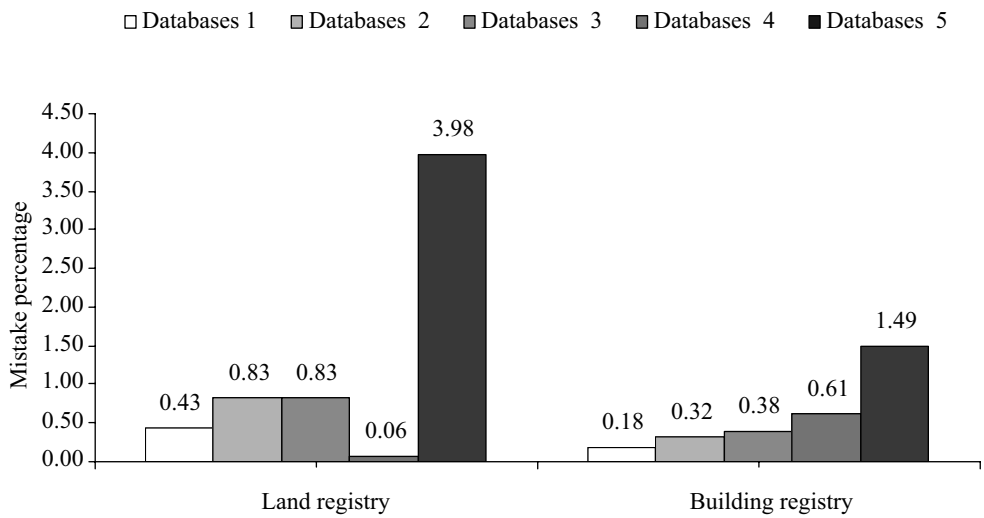


Figure 7. The quality of the descriptive data in the register database systems
Source: own work.

The next factors generating errors are users of the application and the application itself. Many errors derive from improper use of the database system because the users lack the geodesic and property management knowledge. Other errors are caused because of the application. Property management system doesn't lack errors in the source code and is still being developed.

6. Conclusions and future works

The sources of the data for the property management system EGB2005N are cadastre database systems. The main courses of the development are: greater integration of the database system with as many as possible cadastre systems and building interfaces which will connect property management systems with GIS, accountant and etc. systems. The property management system EGB2005N is supposed to be a system directed to the importing and exporting data from the other systems.

References

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DzU 2000 No. 80 pos. 903.
DzU 2001 No. 113 pos. 1209.
DzU 2004 No. 54 pos. 535.
Intergraph Corporation web site: www.intergraph.pl [01.05.2008].