Classification and Valuation of Municipal Real Estate for Execution of Municipal Functions

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The quality of satisfying the social and economic needs of residents by the municipality depends on the effective use of municipal real estate, its abundance and quality. The municipal property makes up the basis for their economic activities. To fulfil one of the main municipal goals, i.e. to promote and develop local government, a great deal of attention must be directed to the improvement of municipal real estate management, as well as the optimization and increase of management efficiency of real estate necessary for fulfilling municipal functions. Since municipalities own a great deal of real estate unsuitable for carrying out their functions, the paper presents a methodology for reducing the amount of real estate objects redundant for municipal functions. To achieve this, a distinction between functional-objective real estate for fulfilling municipal functions, and real estate that no longer has such a purpose has been made.

Keywords: *municipal real estate, real estate classification, real estate valuation, current value index.*

1. Introduction

In many countries municipalities are not only the owners, but also managers of real estate (RE). They control a large amount of real estate, including public buildings, infrastructure objects, schools, health care institutions, social housing and the surrounding land. They also own estate necessary for carrying out their administrative functions. It requires maintenance, foreseeing long-term objectives for its use and investment perspectives. Despite the fact that municipalities perform their functions daily, the most suitable real estate management portfolio is necessary for satisfying the public interests best (Kaganova *et al.*, 2000).

After regaining the independence, Lithuania and its municipalities took over not only a considerable amount of real estate, but also many shortfalls in its management. The lack of knowledge, experience and strategic approach has so far been the characteristic trait of real estate management in the public sector. Municipal or state institutions are often assigned functions on the basis of the owned real estate, although this should be the opposite case: the need for real estate should be determined by the functions of the state. This may be the reason why currently none of the Lithuanian municipalities has a real estate management strategy defining long-term plans for managing the owned property. The majority of Lithuanian municipalities had only approved *Real Estate Management Procedures* (Zukauskas, 2011).

Presently, only about 30% of major European cities are able to provide data on the amount and value of their public real estate (Deloitte Real Estate Advisory, 2011); however, the situation is expected to change soon. Real estate managers are beginning to acknowledge the benefits of professional real estate management as it would enable not only reducing the costs, but also aid in solving social and developmental issues as well as those concerning expansion of the cities. To reach this purpose collection of information is of primary importance (Halfawy, 2008).

One of the most relevant objectives to ensure more effective real estate management in the municipalities is to improve the quality of provided services. The reduction of costs for state and municipal real estate management would save the taxpayers' money. This may be done by applying modern principles of real estate management for administrating the property of the state, i.e. for its purchase, lease, maintenance and renovation.

According to the Law on *Self-government* of the Republic of Lithuania (Valstybės žinios, 2008, No. 113-4290), "municipal functions are the administrative and public service provision functions determined by the Constitution, ascribed by the local government, the given and other laws." In regard to real estate, the municipal function of providing public services is the key, because by doing so, municipalities exploit the owned real estate objects. When

providing services, municipalities face problems in the strategic management of real estate portfolio, investment into real estate, its maintenance, financial risk, redundant sales, construction or purchase of necessary buildings, and lack of strategic plans. For these reasons, it is advisable to classify the public services provided by municipalities by ascribing a real estate portfolio necessary for the provision of each public service.

Currently a unified or official classification of public services does not exist. As proposed by L. Lazdynas (2005), public services are divided into several groups according to the possibility to transfer the provision of the services to the private sector. The first group encompasses the municipal services that can neither be privatised nor transferred to the private sector (territorial planning, public infrastructure development, civil safety, traffic control, etc.). The second group includes municipal economic activities which are monopolistic by their nature or cannot be governed by market methods (public transport organization, water supply, etc.). Furthermore, the third group encompasses the activities that can be performed by the private sector (collection and management of municipal waste, transportation of passengers and freight, tourism organization, etc.). However, such a classification is rather confusing when it comes to ascribing the necessary real estate objects to separate functions.

Following the study "Analysis of the Organization of Municipal Public Service Provision" (2010), the services can be classified according to institutional links, functions and services the institutions provide, in which case the function is ascribed to the institution that provides it. One of the examples is the services provided by Municipal Social Support Centre. On the other hand, such a classification foregrounds the institution rather than the service. Moreover, several institutions may be providing the same services (for instance, a municipality may own several health centres, but they provide the same health care services).

Another method of classification proposed in the Study is based on the customer: the services are then grouped according to their format regardless of several institutions providing them. In such case, a group of services is ascribed a relevant package of real estate.

On the basis of the pros and cons of the mentioned classifications, this paper employs the classification of municipal public services in regard to customer. Thus, this classification and the structure of municipal real estate proposed by the paper provide for the distinction of real estate portfolio necessary for the provision of certain services (table 1).

Table 1. Public services provided by municipalities and the necessary RE

Services	Required real estate portfolio
Health care services	Non-residential buildings for the execution of municipal administrative functions; health care institutions, hospitals, primary health care centres outpatient facilities.
Social care services	Non-residential buildings for the execution of municipal administrative functions; residential buildings.
Basic/ compulsory education; pre-school, after-school, special education services	Non-residential buildings for the execution of municipal administrative functions; educational institution buildings; recreation and sports buildings.
Passenger and load transportation services	Non-residential buildings for the execution of municipal administrative functions; logistics centres, roads, streets, railways, airports, sea ports, runways.
Public transport services	Non-residential buildings for the execution of municipal administrative functions; roads, streets, underpasses, transport stops, traffic control equipment.
Central heating, water, electricity supply, household sewage collection and cleaning services	Non-residential buildings for the execution of municipal administrative functions; water-supply, sewage, electricity, heat engineering networks.
Public waste collection services	Non-residential buildings for the execution of municipal administrative functions; dumping ground.
Non-commercial, leisure services	Non-residential buildings for the execution of municipal administrative functions; public buildings, cultural/ artistic buildings; playing-fields; stadiums; museums; libraries; buildings for public entertainment events; public gardens, zoos, parks, botanical gardens; castles; manors, churches, leisure parks.
Tourism services	Non-residential buildings for the execution of municipal administrative functions; recreational buildings; relaxation buildings.
Cemeteries and cultural heritage, monuments	Non-residential buildings for the execution of municipal administrative functions; cemetery land, monuments, graveyards, regional, local buildings, building complexes.
Other	Free economic zones, industrial parks, land for building/house construction, agricultural land (arable, grazing, and gardens), forest land.

2. Methods

To diminish the number of municipal real estate objects the following tasks were accomplished: public services provided by municipalities and the necessary RE were classified, RE object valuation procedure was presented, the factors influencing the demand, supply and market value of RE were determined, the factors affecting the value of municipal

RE were distinguished, municipal RE was classified according to the purpose of its management, a methodology for the estimation of RE current value index was proposed, and the principal RE valuation methods were established.

After analysing mentioned tasks, strategic changes in municipal RE are planned by dividing RE into three principal groups; in the first group, RE in use, it is essential to include the costs of property exploitation, maintenance, renewal and repair. Similarly, in case of real estate in the second group, new RE, the costs necessary for RE construction, reconstruction, acquisition under agreements, gift, and use of RE taken-over from the state have to be assessed. Real estate out of use, ascribed to the third group, is property to be sold, leased, transferred, privatised, or its purpose is changed for the execution of different activities.

Table 2. Strategic changes in municipal real estate after valuation

RE in use	New RE	RE out of use
Exploitation and maintenance	Construction	Sale
Renewal	Purchase	Lease
Repair	Taken-over from the state	Transfer
Support	Received as a gift	Privatization
	Acquired under agreements	Refusal
	Lease	Change of purpose
		Reconstruction

3. Results

Real estate valuation is a long and complex process of determining monetary equivalent of real estate object value. This requires the assessor to have especially high qualification and deep knowledge in the valuation methods and instruments, as well as the condition of real estate (especially the segment in question), etc. Therefore, Fig. 1 provides the general scheme of real estate (RE) object valuation process.

Definition of value assessment
1. Address of RE object
2. Current use of RE object
3. Assessment of rights and limited conditions
4. Setting of value and date of valuation

Collection and analysis of information

1. About the object
History
Location
Description

2. General
Environmental-climatic
Social and ecological
Economic-political

Analysis of the most efficient use of RE object
1. Physical suitability
2. Legal validity
3. Financial possibilities
4. Maximum of market value income

Application of value method
1. Comparative
2. Income
3. Expenditure

Conformity of various assessment results and production of the report on the estimated value

Fig 1. *RE object valuation procedure*

The value of RE depends on many factors (Fig 2):

Demand, supply and market value of municipal RE

Physical
Land, climate, resources, soil, roads, municipal objects, buildings, structures, general outlook, attractiveness, etc.

Economic
Economic situation in the country, region, and local level, tendencies in income change, credit policy, interest rate, construction costs, electrical energy rates, transport services, public utilities.

Social
Tendencies in population change, ageing and rejuvenation, lifestyle and living standard, family size, level of education, *level* of criminality

Administrative
Limited and liberal zoning, standards and regulations of construction, taxation and financial policy, services of municipal offices: roads, engineering equipment, public transport, fire protection, environmental protection, etc.

Fig 2. *Factors influencing the demand, supply and market value of RE*

An important source of influence to the market value assessment is the period when the value is being assessed. Short-term market value is in part influenced by the demand, because supply fails to keep up with the changes in the former. On the contrary, in the long-term, the impact of supply becomes higher and thus stronger on the market value.

The change in the value of a RE object depends on a number of factors that emerge in different stages of the valuation process. The factors influencing RE value may be attributed to three different hierarchical levels (table 3).

Level 1 signifies the influence resulting from the interrelation of four main factors (social, economic, financial and political). This level analyses and assesses the factors of general nature, non-related to any specific RE object and independent of it. However, they indirectly influence the RE processes in the market and at the same time the RE object under valuation.

Level 2 denotes the influence of local factors, in larger part on the city or city district level. It analyses such factors as the location of the object, its physical properties, sales conditions, time factors and financing conditions. These factors are in immediate relation to the object under valuation as well as the analysis of analogous RE objects and contracts.

Level 3 encompasses the factors related to a RE object and, in larger part, conditioned by its properties. It includes the valuation of architectural-constructional and financial-running factors.

The influence of the factors may emerge in different levels at the same time, and this influence is assessed consistently, depending on the explicitness of the valuation and the type of value under assessment.

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Table 3. Factors influencing municipal RE value

Influencing factors	Factors under assessment
Level 1 (country)	
Economic	
Taxes for RE; provision of public objects for residents; financing of construction; living standards of residents	Condition and prospects of construction and reconstruction; supply; demand; RE market
Social	
Leisure; structure of residents; level of education and culture; needs	Dominant family size; housing density; RE market
Physical	
Ecology; natural resources; geographical resources	Technological solutions in land exploitation, geodesy and topography
Political	
Laws on mortgage; laws on construction; laws on taxes; laws on property; laws on RE operations; laws on ecology	Territory zoning; legal regulations on mortgage; law on credit policy; cadastre; law on RE valuation; political stability
Level 2 (city, municipality)	
Location	
Transport accessibility; existence of social-cultural objects; pedestrian accessibility	Arrangement of objects in the town (municipal) plan; condition of communication networks; adjacent environment
Physical properties	
Physical parameters; functional suitability and use	RE condition; attractiveness; comfort; construction and exploitation quality
Sale conditions	
Mortgages and surety; special contract conditions	Motives of salespeople and purchasers
Time factors	
Date of valuation	Dates of analogous contracts on RE objects
Financial conditions	
Credit due dates	Conditions for allocation of finance
Level 3 (building)	
Architectural-constructional	
Volume-layout indicators	-
Financial-running	
Income	Running expenditure; value of construction

As RE and its environment are in mutual effect, the surrounding factors and those related to the RE and influencing its value are determined during the process of valuation. Thus, four main factors defining the demand for residential RE may be distinguished as follows:

- customers' needs;
- residents' income;
- prices of residential housing;
- number of households in the residential RE market

The assessment of market value requires taking into account that it is also influenced by the period when the value is being assessed. In the short-term, the market value is affected by the demand because the supply fails to keep up with the changes in the former. On the contrary, in the long-term, the impact of supply becomes higher and thus stronger on the market value.

In order to reduce the amount of RE objects that are not suitable for fulfilling municipal functions it is vital to distinguish functional-objective RE, i.e. RE objects used for fulfilling municipal functions and RE that no longer has such a function (commercial property).

The given classification enables a differentiated selection of methods for the management and disposition of municipal RE.

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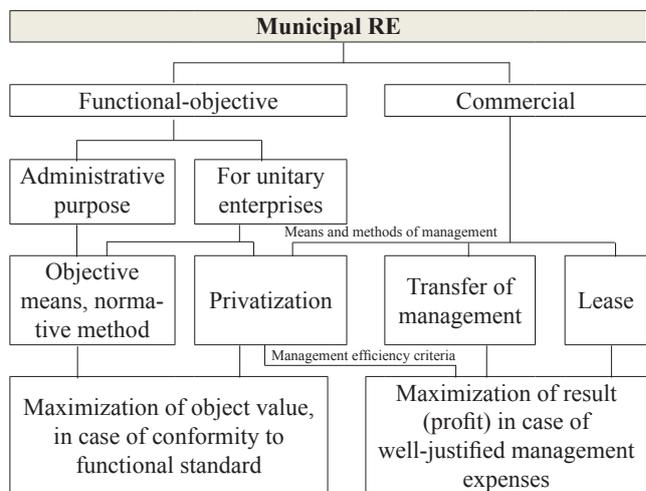
Fig 3. Classification of municipal RE according to the purpose of management

The given classification enables a differentiated selection of methods for the management and disposition of municipal RE.

A relevant task in this conception is to increase the income for RE that is set for privatization and no longer used to fulfil municipal functions.

Strategic objectives of municipal RE privatization, lease and transfer of management under the right of trust are similar in their nature, i.e. maximum income. Therefore, to establish a reasonable ratio between the RE objects for privatization generating one-off income, and those used to generate steady income (lease, management under the right of trust), the authors propose applying the municipal RE current value ratio (1):

$$V_e = \sum_{s=1}^{r} V_s^e + \sum_{n=1}^{j} \sum_{t=1}^{T} \frac{P_A}{(1+i_n)^t} + \sum_{k=1}^{m} P_p \Rightarrow \max(1), \quad (1)$$

where: V_e – current (present) value of municipal RE; s – serial number of municipal RE object for fulfilling a particular municipal function; r – number of municipal RE objects for fulfilling municipal functions; V^e – current value of RE object for fulfilling a particular municipal function; P_A – income from the nth municipal RE object transferred for

lease or management under the right of trust; j – number of municipal RE objects transferred for lease or management under the right of trust; T – number of lease periods when RE object is used under a lease of trust contract; t – serial number of a lease period; i_n – bank rate signifying the average profitability of the nth municipal RE object transferred for lease or management under the right of trust; P_p – one-off income from the privatization (sale) of the kth municipal RE object; k – serial number of municipal RE object for sale (privatization); m – number of municipal RE objects for sale (privatization);

It is worthwhile noting that this equation reaches the maximum value only when the following condition is fulfilled (2):

$$V_n^e > \sum_{t=1}^{T} \frac{P_A}{(1+i_n)^t}, \qquad (2)$$

where: V_n^e – current value of the nth municipal RE object transferred for lease or management under the right of trust;

This suggests that the value of a municipal RE object is the greatest (and also its management is effective) if the sale (privatization) of the object in the current period generates more income than during the whole period of its lease or management under the right of trust. However, this requires taking into account that municipal RE also has to be optimised. To be more precise, any RE objects for carrying out particular municipal functions, but not used for that purpose, should be transferred to the commercial municipal RE group. When the value of municipal RE for fulfilling municipal functions diminishes, the value of commercial municipal RE increases. In this way, the goal of municipal RE management optimization evolves to the task of increasing the municipal RE management effectiveness, which, in its turn, aids in improving the effectiveness of municipal budget use. In such case, the valuation of the whole municipal RE, including both the objects for fulfilling municipal functions and those of commercial purpose, becomes a relevant task.

The complex of municipal RE is the total of all RE objects owned by a municipality; it encompasses such objects as land, RE allocated to municipal enterprises, separate buildings, structures and premises. The authors claim that the complex of municipal RE is a specific, territorial-economic asset that, differently from natural resources, can assure rapid economic development of a municipality if used effectively.

The complexity and versatility of problems in the management of such an economically and socially relevant resource as municipal RE requires analysing it as a strategic resource, the effective management of which may only be assured by the use of strategic planning and management mechanisms. A long-term municipal development programme must be based on the development of its resources potential, primarily focusing on immovable resources, i.e. RE.

The management of RE, as a resource, provides for the development of its motion plan and its annual approval. The plan should include RE acquisition, use and transfer

(assignation) plans, as well as be supplemented with forecasts for at least two upcoming years and agreed with the order of current municipal budget and investment planning.

In Lithuania the value of RE is determined by applying the methods established by the International Accounting Standards Committee and approved by the decision No. 1049 (Zin., 2005, Nr. 76-2741) Government of the Republic of Lithuania on 29 September 2009. Thus, the methods include the following:

- comparative value (sale price of analogues);
- regenerative value (expenses);
- income value (income capitalization or cash flow discount);
- other methods authorised by the Government of the Republic of Lithuania and established by the international practice (mass valuation).

In practice there are three traditional RE valuation methods: comparative (or market) value, income value and regenerative (expense) value.

To establish the market value of RE the comparative value method is most often applied (Raslanas, S., Tupenaitė, L., 2007). The essence of this method is comparison, i.e. the value of RE is determined by comparing the prices of actual contracts on analogous objects at the same time taking into account small differences between the valued object and its analogue (Gasilionis, A., Kasperavicius, R., 2006).

A. Gasilionis and R. Kasperavicius (2006) explain that in the income value method, the value of an asset or business is estimated by capitalising (discounting) net income (cash flows) received from the use of the asset or business. This method is applied when the value of using the asset is expected to objectively show its market value in use.

The estimation of regenerative value is based on the concept of RE reproduction, i.e. speculating on the sum of money required to fully reproduce the valued object. On such basis the regenerative value is understood as the sum of rebuilding expenses used to create economic well-being as regards the RE. The expenses for rebuilding structures and equipment are determined on the day of the valuation, but also following the statistical research carried out in the corresponding year. For this reason, construction price indexes are used to recalculate rebuilding expenses on the day of valuation (Šulija, 2009).

Income value method

The value in use of the object is estimated applying the following formula:

$$V = \frac{VP}{r}, \qquad (3)$$

where: V – value in use; VP – annual operating income; r – Capitalization rate.

Operating income is calculated by subtracting operating expenses from gross income. Annual gross income includes the money from selling the production obtained from land exploitation (by the owner), or money received by the owner from the lessees of land, structures or other RE objects. Operating expenses encompass the expenses for the lease, exploitation and administration of RE (public utilities and other services) and overheads.

In a simplified case, the capitalization rate index may be compared to the interest bond rate or average bank interest rate (i.e. when the purchase of RE is viewed as an investment expected to generate no less profit than another alternative, in this case bank interest when the money is kept in a bank). However, it can also be estimated by the given formula:

$$r = \frac{VP}{PV}, \qquad (4)$$

where: VP – annual operating income from RE objects recently sold and similar to the valued one; PV – value of RE objects recently sold and similar to the valued one.

When cash flow discount method is applied to appraise RE generating income, one of the indicators of RE value is the current value of future income flow (DV). This means the estimation of the extent to which the profit received in n years will equal to the current value, since having invested an amount of money p, in a year it will equal to the current value that will have increased due to the discount coefficient r_d:

$$P_1 = DV \cdot (1 + r_d). \qquad (5)$$

Thus, after a year the current value will amount to

$$DV = \frac{P_1}{1 + r_d}. \qquad (6)$$

After n years the current value will make up

$$DV = \sum_{i=1}^{n} \frac{p_i}{(1 + r_{di})^i}, \qquad (7)$$

where: p_i – cash flows received in i^{th} year; r_i – discount rates of ith year.

Since in the end of the calculation period of n years, RE will still be valuable, it is relevant to estimate the residual value (RV), which can be defined as RE value at the end of the calculation period. Hence, RE income value in use will equal to the sum of discount future income and discount residual value (Aleknavičius, 2008).

Regenerative value method

This method consists of two stages of RE value estimation:
- estimation of expenses for rebuilding the object;
- estimation of depreciation value of the object. For this purpose, two following methods may be used:
- rebuilding of the object;
- replacement of the object with another one.

The object under valuation by the regenerative value method is thoroughly analysed and divided into elements, for the development, production, instalment or building (mounting) of which a database of market costs has been established. In other words, it includes scope (measurement) units and establishes the direct costs (materials, workforce, mechanisms, etc.) and overheads (design and management, storage, etc.) for the development, production, instalment or building (mounting) of the units as well as the average profit received by the developer, producer and builder (mounter) of the production.

If the purpose of the valuation is to determine the regenerative value, the total depreciation level of a RE object is estimated by adding up the depreciation of its separate construction elements and multiplying by the share of an element in the total value of the object:

$$Q_f = \frac{\sum_{i=1}^{n} q_i \cdot J_i}{100}, \qquad (8)$$

where: Q_f – total depreciation of a RE object (%); q_i – actual depreciation of ith element (%); J_i – weight of ith element in the total value of the object (%); n – number of construction elements.

The only advantage of this method is that it provides rather convincing results. Yet, they are always subjective because of the different level of expert qualification. The estimation of depreciation by applying the method requires a great input of time, work and finances, which is why it is rarely used. Another shortcoming is that its results quickly go out of date. Moreover, such valuation very often skips the functional and external depreciation, which provides very little information to perform an accurate RE object valuation.

4. Conclusions

There is still a lack of structured legislation or scientific research providing an integrated analysis and summary of peculiarities in municipal RE classification, appraisal and management. The variety of classification means to classify the property and their incompatibility often cause inaccuracies in the structure and value of municipal RE.

Not enough of attention is given to the estimation of actual value of municipal RE. This is often limited to legislation and reports on the owned asset submitted by municipalities.

To establish a reasonable ratio between the RE objects for privatization generating one-off income, and those used to generate steady income (lease, management under the right of trust), the authors propose applying the municipal RE current value ratio.

If the buildings were evaluated and grouped under the classification and evaluation methodology provided by the authors and a database of the available municipal RE was developed, the municipalities would be aware of the available type and amount of RE they own, which would facilitate the estimation of the need for RE to perform municipal functions.

This classification allows adequate assessment of the existing municipal real estate portfolio and development of new rational alternatives. Clearly established strategic real estate portfolio and management changes would ensure the satisfaction of public interests, ensure the appropriate financing sources, and encourage public–private partnerships.

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