

## COMPETITIVE URBAN DEVELOPMENT MODEL

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**Abstract.** The concept of urban competitiveness is difficult to describe unanimously, and in research references it is often identified with regional competitiveness. The European spatial development perspective maintains that regional competitiveness is directly determined by economic power of a city. The article includes analysis on concepts of regional and urban competitiveness. Analysis of research literature references on the urban competitiveness factors and models is conducted. From the majority of analyzed factors, one key factor is distinguished – strategic urban development plans, and a method, facilitating management of this factor, is offered. The objective of this study – to develop a competitive urban-regional development model from the sustainability perspective, which allows, by applying the established competitiveness factors, to assess its competitive economic, social and environmental position with respect to other cities. Research methods involve the analysis and generalization of research literature references.

**Keywords:** regional competitiveness, urban competitiveness, sustainable development, models of urban competitiveness, factors of competitiveness.

**Jel classification:** G18, O11, O18, P43, R11, R51, R58

### 1. Introduction

In recent years the increasing focus of research analysis is laid on competitiveness. However, none unanimous opinion exists so far. Two trends of the urban competitiveness concept are distinguished: competitiveness functions as an invisible hand, creating an efficient and proper distribution of resources among members of the society (Sheppard 2000), or competitiveness is approached as a process of evolution – where only the strongest survive (Darwin 1859).

In research literature references competitiveness is analyzed from three perspectives – company, urban/regional and national. It is quite complicated to distinguish between regional and urban concepts and their differences. Many researchers analyze the urban concept from two perspectives: as an individual, densely inhabited place – a city (Borja 1997; Vanagas 2003), or as a city-region (Porter 1997; Kotler 1993). This identification is oriented towards analysis of cities, which differ in size, and cities whose contribution to the general

national economy differs. Authors of this article employ the urban concept in the sense of the city-region – a cluster of cities and villages, existing in a particular location, with the central city, whose successful development is determined by a successful cooperation between cities and villages involved in the cluster.

Aiming to develop the urban competitiveness assessment model from the sustainability perspective, which allows, by applying the established factors of competitiveness, to assess its competitive economic, social and environmental position with respect to other cities, the analysis on determining factors of urban competitiveness is conducted and key factors, which will be included into the competitive urban-regional development model, are identified. Among key factors which affect competitiveness of a city – region, the existence and implementation of strategic urban development plans is distinguished. During the analysis of vision statements and priorities regarding the development of 53 cities (municipalities) it was established that

almost half of them – 26 out of 53, totally exclude considerations on competitiveness (Kromalcas 2010). A city must have goals set and strive for their achievement, continuously control the present situation and, if necessary, make amendments to the plans, and for this purpose the authors suggest applying the software target management model.

## 2. Analysis of concepts on urban competitiveness

The term *competitiveness* has derived from the Latin word *concurrentia*, which means a certain fight, collision, contest, competition. The concept of urban competitiveness is described differently by different researchers. Urban competitiveness is related to increasing markets within particular activities, thus maintaining and increasing the level of life among its citizens (Storper 1997). Urban competitiveness is considered from the perspective of six inter-related elements, i. e. infrastructure, human resources, quality of the living environment, institutions, efficient development networks, involvement in networks (unions) (Linnamma 2001). Urban – regional competitiveness is directly related to management, i. e. appropriate strategies and decision making, which is the basis for ensuring a long-time continuous development (Jian, Shen 2010; Piliutyte 2007; Shen 2004)). Concepts of urban competitiveness by different authors are provided in Table 1.

**Table 1.** Concepts of urban-regional competitiveness (made by the authors)

OECD (2005)	Under conditions of a free and fair market, the city can manufacture services and products which can meet challenges of international markets, thus permanently maintaining and increasing the real income of its citizens (employees).
Storper (1997)	Economy's ability to attract and maintain companies, occupying stable or increasing parts of markets within certain activities, thus maintaining or increasing standard of living of people – their participants.
Begg (2004)	Many-sided efforts of institutions, representing particular spheres, to strengthen local advantages by smartly managing particular characteristics, affecting the value of the area, as a location of various operational activities.
Sotarauta, Linnama (2001)	Consists of six inter-related elements: infrastructure, human resources, quality of living environment, institutions, efficient development networks, involvement in networks (unions).

End of table 1

Jian, Shen (2010), Piliutyte (2007), Shen (2004)	Directly related to management, i. e. a proper strategy and decision making is the basis for a successful continuous development.
Webster, Muller (2000)	Identifies with the company's (business) competitiveness, i. e. urban region's ability to manufacture and sell a set of products (goods and services), which are characterized by a high value, in comparison with similar production of other cities.
Bruneckienė, Guzavičius, Činčikaitė (2010), Bruneckienė, Snieška (2009),	The city's ability to employ factors, increasing urban competitiveness, for maintaining its competitiveness with respect to other cities.
Paliulis, Činčikaitė (2010)	Urban competitiveness - the ability to create due environment for business competitiveness and for increasing its competitiveness, thus maintaining high urban living standards and involvement in unions with other cities.
Kostainen (2002; cit. according to Piliutyte 2007)	Urban competitiveness – the ability to attract essential flows of information, technologies, capital, culture, people and organizations, as well as the ability to maintain quality of life and living standards, enabling companies, operating within the urban region, increase their own competitiveness.
Charles, Benneworth (1996)	Regional competitiveness – the ability to create value added and increase regional assets, by managing the capital and processes, attractiveness and aggressiveness, global and closeness strategies, as well as by integrating this into economic and social models.
Storper (1997)	Local competitiveness – ability to attract and maintain enterprises, occupying stable or increasing operational markets, and maintain or increase the local citizens' living standards.
EC (2001)	Regional competitiveness – ability to maintain a high and permanently increasing living and employment standards.

Generalizing concepts of urban-regional competitiveness, it is possible to assume that urban-regional competitiveness refers to ability to create appropriate conditions for business to become competitive and increase its competitiveness, thus maintaining high urban living standards and involvement in unions with other cities (Paliulis, Činčikaitė 2010).

Some researchers (de Vet *et al.* 2004; Kitson *et al.* 2004; Huggins 2003) argue that it would be most purposeful to relate urban-regional competitiveness to the development of such competitiveness factors, which ensure the increase in the quality of life, social welfare and sustainable development. In other authors' studies, the regional welfare is related to freedom of choice, citizens' health and quality of life, infrastructure of education and social justice (Reiljan *et al.* 2000). The significance of factors, affecting competitiveness, varied depending on the period. Analysis of the economic thought theory within 17th -21st century has revealed that in the 18th century competitiveness was related to production factors (capital, labor, land, natural resources); in the 19th century competitiveness was related to investments, and the mentioned factors were supplemented by new factors - abundance of production factors and investments; in the 20<sup>th</sup> century urban-regional competitiveness is related to investment, and among factors, affecting competitiveness, such factors as consumption, government's costs, net export, as well as previously mentioned factors of the 17<sup>th</sup>-19<sup>th</sup> centuries, such as the capital and workforce are distinguished; with regard to technological novelty, among factors, affecting urban-regional competitiveness, such factors as knowledge "know-how", innovations, investments in human capital, competent society, dissemination of knowledge, entrepreneurship, aggregate demand, international assistance funds, globalization are distinguished; with regard to information and knowledge, factors, affecting urban-regional competitiveness, include: agglomeration effect, learning, strategies of economic subjects and their implementation. In the 20th century urban-regional competitiveness is related to information and knowledge, and the following factors, affecting competitiveness, are distinguished: conditions of factors, conditions of demand, respective economic branches, corporate strategies, State performance, favorable conditions, knowledge and innovations, technologies, skilled workforce, physical infrastructure, cooperation between economic subjects.

The research literature references offer a big variety of determining factors of urban competitiveness (see Table 2). Some authors classify factors by the manner of their occurrence, Lengyel (2003), Bristow (2005), quoting Kresl (1995) – by the affect made on development; Reiljan *et al.* (2000) – by the opportunity to control the factors. Among classifications, most frequently mentioned in research literature, includes classification by internal and external factors. Bristow (2005) quoted Deas, Giordano (2001) who maintain that competitiveness is determined by the totality of primary resources within a geographical unit; and its

results are determined by results of the company which exploits the resources.

**Table 2.** Diversity of factors, determining urban competitiveness (made by the authors)

Author	External factors	Internal factors	Success factors
Cheshire, Hay (1989)	National economic activities, transport and communication costs; economic and financial mobility; diffusion of technology and cultural changes between the national and urban systems.		
Jacobs (1970), Castells (1989), Storper (1997), Hall (1998), Scott (2001), Florida (2002)		Innovation; information; knowledge; culture; creativity; local factors.	
Budd (1998)		Size of the city, local economy	
Begg (1999), Webster, Muller (2000), Turok <i>et al.</i> (2003), Florida (2002)		Knowledge and skills, qualified workforce, innovativeness, creativeness, local institutions, partnership, active community, local development strategies, physical capital, infrastructure, location, image	
Lengyel (2003)			Economic structure, innovation, availability of the city, personnel qualification, social structure, competence centers, living and natural environment, regional identity.

Although classification of competitiveness factors, employed by different authors, varies, all of them share the same opinion that competitiveness is determined by the totality of many factors, not by one factor. Besides, competitiveness factors are closely inter-related; thus, the development of one factor affects both the development of other factors and general regional competitiveness.

Author	Economic factors	Strategic factors	Area factors	Transferred factors	Created factors
Kresl (1995), Bristo (2005)	Production factors, infrastructure, location, economic structure, institutions of the city.	Efficiency of the government, strategy of the city, partnership between private and public sectors, institutional flexibility.			
Hugon (2000), Reiljan et al. (2000)			Natural resources, infrastructure	Qualified workforce, relationship between qualified workforce, companies and their relationship.	Public sector and administering, legal basis, economic policy pursued by the government

Recently authors, analyzing regional competitiveness, among factors affecting regional competitiveness distinguish such factors as innovations, information (Harmaakorpi 2004), knowledge (Piekkola 2006), culture and creativeness (Ceccato, Persson 2003; Wikhall 2002; Freundt 2002), business and living friendly climate (Rainisto 2003; Raunio 2000), personal relations and contacts (Bacci 2002); application and observing the principles on sustainable development is essential for competitiveness, as ecology and environmental protection are in direct relationship with the regional economic and social environment (Čiegis 2010).

Having conducted analysis on determining factors of urban-regional competitiveness, analyzed by different researchers, the following key factors of urban-regional competitiveness can be distinguished:

- *Competitiveness of companies.* Webster and Muller's (2000) consideration on urban competitiveness is quite acceptable – one of major conditions of urban competitiveness involves the existence of a competitive business, i. e. to manufacture and sell a set of products (goods and services), characterized by a high value (not necessarily the lowest price), in comparison with similar products of other urban regions.

- *Investment attractiveness.* A city must be attractive for investments, and then it will be able to create innovative products, increase production, and ensure high living standards. Development is not possible without investment. Within the global competitive environment this condition is essential for ensuring urban competitiveness.
- *Tourist attractiveness.* A city which is attractive for tourism, gains big profit. This also facilitates its awareness among other countries, by attracting investment and increasing its awareness.
- *High living standards.* This is one of major reasons, determining people's choice of the living place. A person with high income can satisfy his needs better, he feels happier when living in a particular place.
- *Education institutions.* Higher education is one of key factors, affecting the quality of working person's work results.
- *Geographic position.* A very significant factor, affecting communication with other cities and cooperation.
- *Involvement in unions.* A city, as a separate object, can not remain competitive in each sphere, thus, involvement in unions creates favorable conditions for supplementing particular spheres, where other cities have advantages.
- *Government, its efficiency, institutional flexibility.* Quality of urban management is a key factor of urban competitiveness.
- *Strategic urban development plans.* Each city must have a plan which would include objectives, pursued in the future,

The distinguished determining factors of urban-regional competitiveness and their inter-relationship are used for setting up the competitive urban-regional development model.

### 3. The urban competitiveness models

The research literature offers a variety of competitiveness models, which have both certain advantages and limitations:

„National Diamond“ model (Porter 1990).

The essential advantage – it combines into a solid system and provides a schematic description of the most essential factors, determining competitiveness; however, the stage of the national economic development is not considered, thus, its application for analysis on competitiveness of regional economies is limited. The model eliminates international activities and their affect on the national competitiveness; the Government is attached to

exogenous factors, and cultural, traditional and historical differences are not considered.

„*Double Diamond*“ model (Rugman, D’Cruz, Verbeke 1995). This model is widely recognized as a methodological basis, suitable for the assessment of small countries competitiveness, including regional competitiveness. When assessing regional competitiveness of a country, it is not clear which diamond would represent regional, national and international competitiveness. The model refers to analysis on advantages of national competitiveness, however, there are no indications regarding by whom and how these factors are developed.

„*Nine Factors*“ model (Cho 1994). The author of this model was trying to reveal by whom and how the national competitive advantage is developed. D. S. Cho’s efforts to emphasize the effect of human factor on competitiveness are considered significant for the assessment of regional competitiveness. Depending on the stage of the national economic development, the effect of factors on international competitiveness differs. From the systemic perspective the model is not justified sufficiently enough. It still remains unclear which indexes should be used for description of each human factor.

„*Competitiveness Cycle*“ models (Porter 1990; Cho, Moon 1998). Competitiveness cycle models, as the basis for approaching the national competitiveness as a process. Designed for analysis of national economies of big and small countries, but not for the assessment of regional competitiveness.

„*Regional Competitiveness Hat*“ model (Martin 2003). The model consists of several layers: results of regional activities, production volume, labor productivity and competitiveness factors. However, national or regional competitiveness is not comprehensively reflected.

„*Regional Competitiveness Pyramid*“ model (Lengyel 2003). The author of this model revealed regional competitiveness through GDP/per citizen, labor productivity, employment, import and export (regional openness) indexes. Based on theoretical analysis, the author identified regional success and development factors and their effect on competitiveness. However, the model fails to reveal the exceptional role of the region within national economy, and how it contributes to the increase in the international competitiveness of the country.

„*Regional Competitiveness Tree*“ model (de Vet 2004). The model facilitates revealing a complex relationship between regional competitiveness factors. The author emphasizes that the quality of the „soil“ (competitiveness factors) and efficiency of functioning of the roots, stem and branches system (results produced by the factors)

strengthens the crown of the tree and the quantity of its fruit (regional competitiveness). Fallen fruit feed the soil, and the cycle starts again. Exclusively economic indexes are referred to competitiveness factors by authors of this model; however, competitiveness is analyzed also from the social perspective. Indexes for measuring regional competitiveness still remain unclear.

„*Regional Competitiveness Labyrinth*“ model (Begg 1999; Atkočiūnienė 2009). The model is related to M. Porter’s (1998) competitive benefits theory. However, the model does not reveal the exceptional role of the region within the national economy and its contribution to the increase in international competitiveness. The international competitiveness aspect of the region is not revealed in detail.

„*General Urban Competitiveness*“ model (Sinkienė 2008). The model is based on the urban functioning process (with distinguished inputs, processes, outputs). The model also distinguishes between internal factors (micro environments – urban internal environments) and external factors (macro environments – global and national environments). However, the model does not consider a huge diversity of factors, as well as distribution of different factors by researchers.

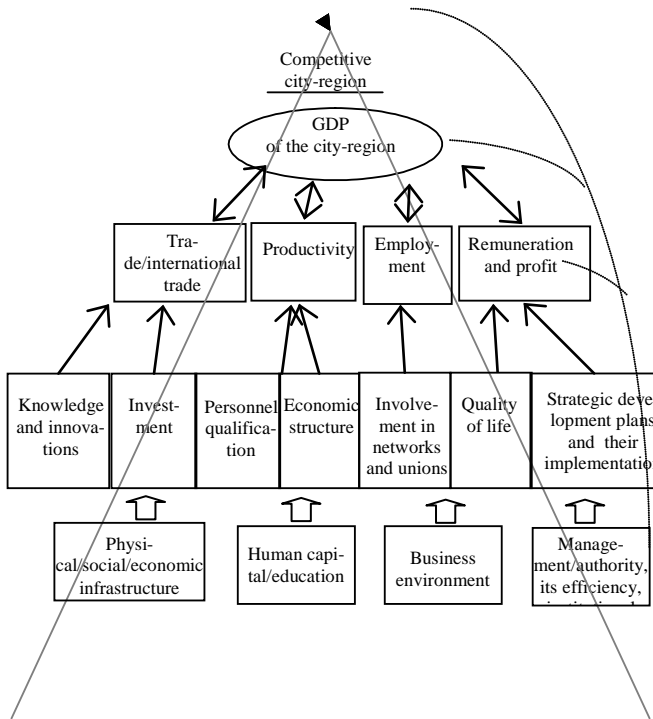
„*Regional Diamond*“ model (Snieška, Bruneckienė 2009). In this model factors are combined into a general competitiveness system and grouped into four groups: conditions for operational activities of the country’s region; demand-related conditions, increasing national regional competitiveness; factors, increasing competitiveness of regional companies; factors, determining regional development of clusters. Relationship between regional and national competitiveness is clearly identified. However, the model is not focused on the assessment of the national or regional exports competitiveness.

Having conducted the analysis of urban-regional competitiveness models, the following limitations are identified: The „National Diamond“ model fails to reveal a particular stage of the national economic development, as well as differences within international activities, culture, traditions, history; „Double Diamond“ model lacks indications regarding by whom and how the determining factors of competitiveness are developed; „Nine Factors“ model lacks specific indexes for description of the human factor; „Regional Competitiveness Pyramid“ model does not distinguish how the region performs its role within the national economy and contributes to the increase in the country’s international competitiveness; „Regional Competitiveness Tree“ model does not specify the indexes for measuring the regional

competitiveness; “General Urban Competitiveness” model does not consider a huge diversity of factors and their distribution. Consideration of advantages and limitations of the previously mentioned models allows assuming that there is a demand to develop a new competitive urban-regional development model.

#### 4. Competitive urban development model

The urban – regional development, which is only possible under innovative development conditions, directly affects the national economic development. Having conducted the analysis of urban-regional competitiveness models, the urban-regional competitive development model was developed (see Figure 1).



**Fig.1.** Competitive urban-regional development model (made by the authors, based on Atkočiūniene 2008).

The model comprises 5 levels: key factors, essential for the existence of a city – region (level 5), the level of probable solutions (level 4), factors which increase the urban-regional competitiveness, the task level (level 3), factors which are results derived from the solution level. And only the system of the previously mentioned factors facilitates the achievement of the intermediate result - the urban-regional GDP and the final result - a competitive city-region.

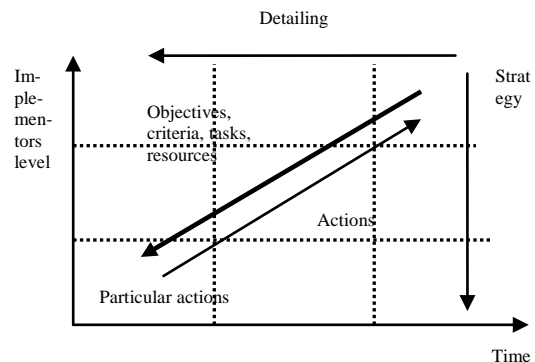
The basis of the competitive urban-regional development model (level 5) comprises the following factors: physical, social, economic infrastructure, ecology, human capital, education, busi-

ness environment and government, its efficiency, institutional flexibility. The probable solutions level (level 4) involves knowledge and innovations, investment, personnel’s qualification, economic structure, involvement in networks/unions, quality of life, urban-regional strategy. The tasks, problems level (level 3) includes the following factors: trade/international trade, productivity, employment, remuneration and profit. The intermediate goal of the city-region (level 2) refers to the regional GDP. The final objective (level 1) is a competitive city.

In pursue of the urban-regional competitiveness, strategic development plans and their implementation is among key factors. A city must have goals set and strive for their achievement, continuously control the present situation and, if necessary, make amendments to the plans, and for this purpose the authors suggest applying the software target management model (STMM) (Fig. 2).

The software target management model is based on the software net management, the latter being based on formulation of objectives and ensuring their achievement (Burkov et al. 2010, Irukov et al. 2009). The following questions should be answered when applying this method:

- Why and what should be done today, so that in the future to achieve the established objectives?
- How to achieve the objectives at minimal costs?
- How to maximally achieve the objectives or approach them with limited resources?



**Fig.2.** Basic operational scheme of the Software target management model

The urban-regional management system is aimed at implementation of the approved strategy development plans and pursue of specified objectives. This system involves: multi-project management – for the development of development programs; setting up the result-focused budget – an efficient development system which is focused on

assigning funds for works and services of a specified volume; results management (focused on motivation) - motivating participants of the system to focus on the pursued result and quality of actions performed, as this affects their remuneration; when analyzing management of a particular program and budget at a particular period of time, the authors distinguish the following stages:

- Formulation of objectives;
- Evaluating possibilities to achieve the priority objectives;
- Selection of actions and projects which will be developed in further stages; however, their feedback should make no less than 80% of the work input;
- Repeated adjustment of the expected results and required costs;
- Evaluating the need of additional costs related to pursue of the result;
- Monthly monitoring of incurred costs and achieved goals (planned-actual analysis);
- Analysis of quarterly results and probable adjustment of the plan;
- Foreseeing the permanent management;
- Report on the actual costs incurred and results achieved.

the management of processes, from setting up the objective till achievement of the result, thus reducing financial and other resources.

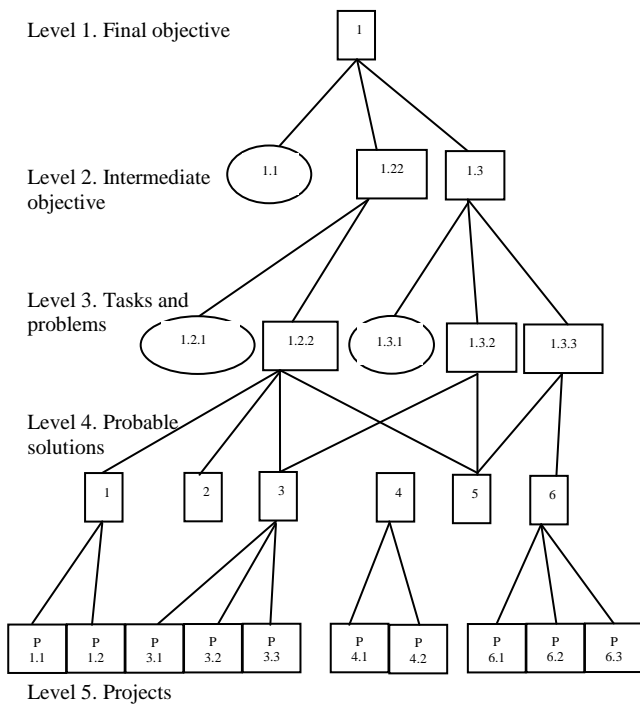
**5. Conclusions**

The city is approached as a city-region – i. e. a cluster of cities and villages in a particular location, with the central city, whose successful development is determined by a successful cooperation between cities and villages involved in the cluster.

Having conducted analysis of determining factors of urban-regional competitiveness, the following key factors are distinguished: physical/social/economic infrastructure, human capital/education, business environment, government, its efficiency, institutional flexibility, knowledge and innovations, investments, personnel qualification, economic structure, involvement in networks/union, quality of life, strategic development plans and their implementation, trade, international trade, labor productivity, employment, remuneration and profit.

The offered competitive urban development model consists of 5 levels: key factors, essential for the existence of a city – region (level 5), the level of probable solutions (level 4), factors which increase the urban-regional competitiveness, the task level (level 3), factors which are results derived from the solution level. And only the system of the previously mentioned factors facilitates the achievement of the intermediate result - the urban-regional GDP and the final result - a competitive city-region. The competitive urban development model, by applying the identified competitiveness factors, will facilitate assessment of its competitive economic, social and environmental position with respect of other cities.

One of key factors, determining urban-regional competitiveness, is distinguished – strategic urban development plans. For the management of this factor the authors suggest applying the software target management model (STMM), from setting up the objective till achievement of the result, thus reducing financial and other resources.



**Fig.3.** Software target management

By applying the software target model it is possible to assess the affect of the achieved results on the urban-regional indexes. Due to their huge diversity, the authors suggest applying a complex assessment of actions, which reflects the priorities of regional development. The model will facilitate

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