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Bottom-up Regional Economic Development: Competition, Competitiveness and Clusters

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In the economies developing and transforming as a result of globalisation processes, increasing localisation represents one of the most marked processes: while the importance of national economies (relatively) is decreasing, the economic role of regions and cities seems to grow. Global competition has intensified also in space, especially with the growing importance of knowledge-based economy. Interregional competition, which means the competition of regions and cities for scarce resources, global aims and so on, is increasingly prevalent. The economic characteristics of interregional competition differ form those of the competition of companies or on the labour market; consequently, the improvement of competitiveness can be described differently in the case of regions.

After reviewing the most important features of global competition, the present paper provides a detailed analysis of the concept and characteristics of interregional competition. Departing from the criteria of interregional competition, it reviews the concept of regional competitiveness and gives the pyramidal model serving the improvement of regional competitiveness. Based on this model it also outlines the development ideas, so called 'UFO model', aiming to improve the competitiveness of regions with different development levels.

Keywords: *interregional competition, regional competitiveness, cluster-based regional economic development*

1. Introduction

Increasing regionalization represents one of the most spectacular processes of the economies that develop and transform as a result of globalisation processes: while the (relative) importance of national economies is decreasing, the economic role of regions and cities seems to grow. Global competition has intensified also in space, especially with the growing importance of the knowledge-based economy. Interregional competition, which refers to the competition of regions and cities for scarce resources, global aims and so on, is increasingly prevalent. The modes of improving regional competitiveness and the regional economic development strategies are heavily dependent on the type of the given regions.

Regional economic development strategies are especially important for the new member states of the EU, since between 2007 and 2013 they will receive significant subsidies from the European Union's regional development funds to improve the competitiveness of their lagging regions. The analysis of this issue calls for clarifying various questions for the less developed regions. What do we mean by regional competitiveness and how can it be described and measured? Do the economic, social and institutional background and the cultural characteristics of a region influence regional economic development strategies? Which development strategy can most significantly improve regional competitiveness in the lagging regions?

After reviewing the most important features of interregional competition, this study provides a detailed analysis of the so-called “UFO model” serving as a cluster-based improvement of regional competitiveness. On the basis of this model we outline the regional economic development ideas aiming to improve the competitiveness of regions with different development levels. This model is suitable for the systematization of both top down regional policy and bottom-up regional economic development ideas, consequently it was also applied for the planning of the economic development strategies of the different region (nodal region) types of the Southern Great Plain region in Hungary.

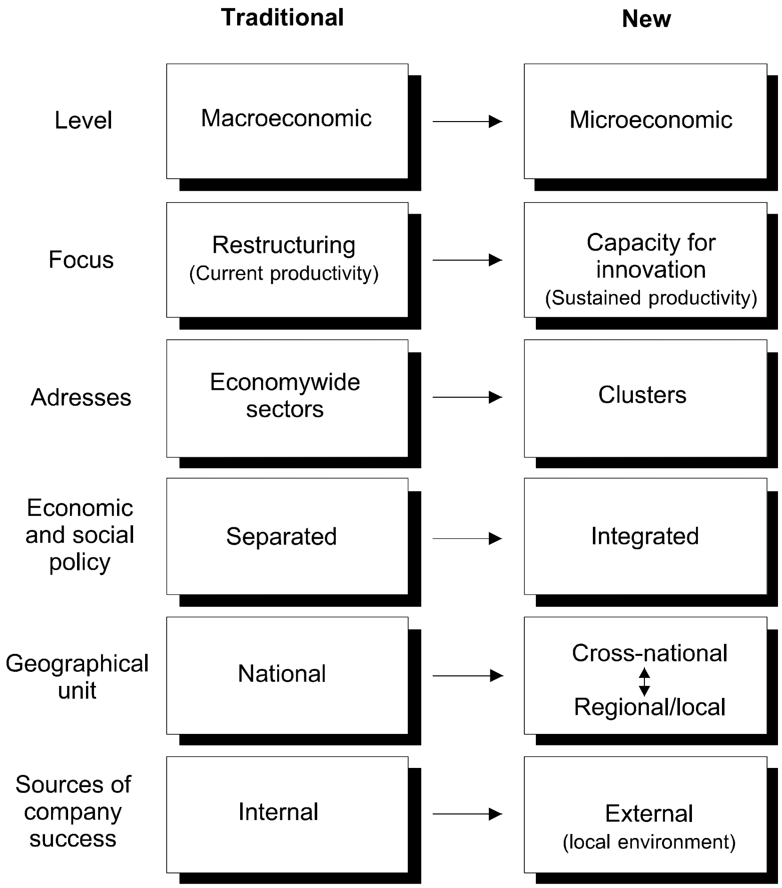
2. New economics of competition

Globalisation has radically transformed the criteria and characteristics of market competition as well; the majority of new economic political answers and of the strategic answers of companies to newly emerging questions generated by global challenges depart from a novel understanding of competitiveness. As a result of global competition, the formerly characteristic territorial processes of the economy also changed; a ’global economy’ is being shaped, where the former role of territorial levels undergoes reinterpretation. *Dicken* appropriately calls this newly emerging (world) economy ’new geo-economy’, which is characterised by an increasing, unprecedented and intense unification process of economic activities; the world economy may be seen as a new organic unit of interconnected elements (Dicken 2003).

Intensifying competition, which characterizes the global economy, significantly shapes the theory and also the practice of regional economic development. This brings us to several fundamental questions. Is there interregional competition, and if yes how can it be characterized? Are lagging regions able to compete with developed ones, and what sort of strategy should they develop?

Market competition amongst companies can easily be interpreted, but it is questionable whether the long existing rivalry of countries and regions should be considered competition or not. Two opposing views exist in this respect. According to the first opinion, while in the case of companies the concept of market competition is unambiguous, in the case of cities, regions and countries it is impossible to talk about real competition. In the other view competition among regions and cities exists, but its features essentially differ form those of the market competition existing among companies. The basic position of the trends departing from *comparative advantages* demonstrates the first approach well, while the schools accepting *competitive advantages* support the second one (Camagni 2002, Neary 2003, Pike et al 2006b, Sheppard 2000, Török 2006).

Figure 1. Transitions in competition



Source: own construction on the basis of Porter (2001, pp. 139-141.)

According to the theory of *comparative advantages*, if countries in international trade specialize in producing the goods and products, in which their relative labour productivity or their relative expenditure cost is more favourable, that leads to the development of an international division of labour, from which each country benefits (Krugman 1994, Krugman–Obstfeld 2002). This means that there is *no competition among countries* since free trade and the market automatisms governed by the 'invisible hand' generate a balanced development and create a favourable situation for each country that recognises its comparative advantages.

Therefore, it is useless to talk about competition among countries and to talk about competitiveness. Krugman's abovementioned thoughts are widely acknowledged and it has become commonly accepted in regional science that *the rivalry of countries and regions cannot be compared to companies' market competition* (Polenske 2004).

On the other hand, there is also relative consensus about the idea that there is not only rivalry among regions, but 'competition-like' features have also emerged: due to the effects of globalisation, the 'traditional' rivalry among cities, regions and countries has gained a new meaning by today (Begg 1999, 2002; Camagni 2002; Cheshire–Gordon 1998; Lever 1999; Malecki 2002, 2004).

The theory of *competitive advantages* reflects to the *new conditions of the global competition*. Michael Porter claims that today the theory of comparative advantages does not provide an acceptable explanation about the international division of labour (Porter 1990, 1998, pp. 322-324.). Porter's proposal to development is the *theory of competitive advantages*, which systematizes the development phases of countries and the new elements of the international (and regional) division of labour. The competitive advantage of a given country or region depends on economic structure, the development level of the institution system and the quality of its operation, governmental economic policies and ideas on regional development.

The competitive strategies of globally competing companies and the regional clusters exploit dynamic agglomeration economies. Defining the *new economics of competition*, Michael Porter (2001, pp. 139-141.) highlights six fundamental factors (Figure 1).

Formerly, the acting space of economic players and the conditions of competition were controlled mainly by macro-economic aspects like balanced budget, foreign trade balance, economic policies developed on the basis of inflation (monetary, fiscal, customs and industrial policies, etc). Today, however, economic growth and the development of a given country are primarily defined by *microeconomic bases* like the strategies of the dominant global companies and the local business environment. Obviously, governmental economic policies remain important but these have become highly similar in different countries (e.g. in the EU's member states) and their acting space has narrowed down due to the formation of global capital markets and the predominance of transnational corporations. The recognition of this has brought along a fundamental change in the economic policy of developed countries: instead of traditional investment promotion, industrial policy, infrastructural development, etc. that influence productivity merely in the short run, the main focus shifted to supporting the formation of a business environment that *improves innovation skills and capacity* by helping the business realisation of new ideas, the emergence of new lines of business and applying more effective company strategies. The improvement of productivity in a region depends on what types of new goods are produced, which new market needs are satisfied and not on the more effective production of old products.

The new economic policy does not focus on economic sectors and large companies, the ownership and market relations of which it can hardly comprehend and influence, but rather on improving the sources of the competitive advantages of companies. These competitive advantages derive mainly from company collaborations and positive local externalities. Furthermore, they are highly specific depending on localness, which can be exploited in a flexible way only by *clusters, networks and SMEs*. Formerly, improving economic conditions was almost exclusively the task of economic policy, while social policy mostly dealt with 'spending' the budgetary earnings, and the institutions, their agents and ministries representing the two policies were also distinct. Today, *economic and social policies* must work together, the two are closely intertwined, therefore, need to set a shared objective: to improve the welfare of the local population. It is impossible to design separate economic and social policies because in case of differing objectives these weaken each other, which quickly leads to deterioration in the given country's position in global competition.

Nowadays, besides national economies (and partly instead of these), supranational economies crossing national economies (e.g. the EU) and (subnational) regional economies have become *dominant territorial units*. Partly related to this, the sources of the competitive advantages of global companies are mainly local and depend on the local environment, which means that the external economies of scale (local externalities, agglomeration advantages) and the overflow of knowledge have become important. The recognition, that *innovation processes* basically have 'double ties' partly depending on the local environment (the local innovation climate) and on global networks (mainly among knowledge creation city regions), also seems more and more common (Varga 2006).

The above-mentioned thoughts related to the new economics of competition cannot be regarded as fully mature, but should rather be interpreted as tentative proposals or research concepts (hypotheses). However, real economic processes more and more justify these observations and it seems that the traditional approach to competition fails to describe reality. The strong competition generated by globalisation processes and the changed economic circumstances force economic players to come up with new answers.

According to Porter (1996), regions do not compete with one another like national economies, which means that they do not use various governmental (monetary, fiscal, customs, export promotion, tax, investment and other) economic policies, since they do not even have such policies. But their competition is not similar to that of companies either, since there is no single decision making centre in the region that designs and executes a regional competition strategy by focusing on prifit maximizing. Regions and cities compete by creating a *business environment that fosters the productivity improvement* and contributea to the success of the region's firms: specialised institutes of education, effective special infrastructure, information services facilitating innovation, enterprise-friendly administration, developing research and development institutes that meet the profile of clusters. Networks consisting of the various local groups (chambers, institutes, universities and so on) participate in creating the business environment.

3. Interregional competition

In connection with the territorial units we need to distinguish between competition among countries and among the different (sub-national) regions of a country. When analysing regional competition and competitiveness, Malecki (2002) underlines the fact that the regions seem to separate from the national economy more and more: today the development pace of the national economy depends on the economy of regions and cities as successful 'regional motors' and not vice versa. Companies can choose from a great variety of locations, therefore cities compete in 'attracting' the scarcely available profitable companies: not only financial benefits (tax discounts, promotion, etc.) but mainly the favourable business conditions (the quality of the infrastructure, the flexibility and standard of institutes in education, transparent legal regulations, etc.) are the decisive factor in the competition. „In short, competition among cities is real and has become 'fiercer'" (Malecki 2002, p. 930.). Interregional competition is a special type of competition that can be characterised with easily producible parameters and regional competencies (Budd–Hirmis 2004).

In the competition among the different regions within a country *scarcity* derives from two interrelated factors: investments made in the new market segments demanding special expertise and talented experts (Malecki 2002, p. 930.). The competition of regions is a skill 'sticking' or attracting investments and talented labour force and the main goal is "to sustain their attractiveness to both labour and capital" (Markusen 1999, p. 98). Not only the attraction of capital and creative employess from outside the region is necessary, but the attraction of tourists as well, and the local entrepreneurial skills also need stimulation. The results of interregional competition are similar to those of the competition among countries: in the successfully competing regions thewelfare (living standard) improves, employment and incomes (wages) are high, new investments take place, talented young people and successful businessmen move there, etc. (Malecki 2004, Polenske 2004).

Based on the abovementioned features the *definition of interregional competition* may be conceptualized as the following (Cheshire 2003, Cheshire–Gordon 1998, Gordon–Cheshire 2001, Lengyel 2003a): a *process that occurs among territorial units aiming to increase the welfare of the people living in the cities or regions by promoting the development of regional and local economy, a development that certain groups try to influence explicitly or often implicitly through local policies by competing and rivalizing with other territorial units.*

The definition of interregional competition described above is relatively general and can be interpreted for a wide range of territorial units. Taking into account also the practical characteristics of interregional competition, the following factors are important in interpreting the definition (Lengyel 2003a):

1. The *aim* of interregional competition is to improve the welfare of the population living in the region, what calls for the permanent increase of the income produced there. This income is distributed to a wide range of the local population especially through a high rate of employment.
2. The *players* of interregional competition are the territorial units: regions and cities, the interests of which are represented by *local groups* often competing with one another. Besides the local government, city council and its institutions, the representatives of the *local economic scene* and *civil sphere* are also involved jointly constituting a so-called regional network. The (city or county) *local government's coordinating* role is indispensable in this network.
3. We can only talk about interregional competition in case of a *bottom-up* regional and local economic development, when the local players design and implement their competition strategy independently.
4. The main instrument of interregional competition is the development and implementation of *local economic development ideas* facilitating the economic development. The creation of a business environment that generates an improvement in the income generating capacity of the local economy is obviously essential. The city or region's vision of future together with the ideas that lead to it must be made public so that enterprises and households can make their decisions (of implicit effect) with awareness.
5. Interregional competition is a *process*, which means that it has a dynamic approach and needs adaptation to constant changes. Therefore, it is necessary to rephrase actual goals regularly and shift focus among local groups based on which of them can best achieve the realization of these goals.
6. Interregional competition occurs primarily among the territorial units of the *same hierarchical level* (NUTS-system) and in the same competitive phase, so among cities or regions of similar development level and size. Therefore, an industrial region, for instance, is not a direct competitor of an agrarian region or a city region operating as a logistics-financial centre. Indirect competition among regions at different development levels also occurs but only temporarily, for the duration of certain projects.
7. Interregional competition *does not zero-sum game*, which means that winners do not necessarily gain advantages to the disadvantage of losers; instead, economic development is possible in each region or city simultaneously. Consequently, besides competition, conscious cooperation and harmonized development strategies (e.g. an airport in case of a larger scale infrastructural

investment) may prove beneficial, especially among neighbouring territorial units.

8. Beyond a conscious development strategy, interregional competition may also be influenced by *implicit (indirect)* developments not included in community programmes and unforeseeable synergic effects, especially the consequences of the decisions made by enterprises and households.

It is essential that interregional competition mostly occurs *based on economic aspects* and the major goal of the players participating in the competition is to generate a long-term and stable increase in the income of the region or city, that is, successful economic development. A region or city does not participate in this competition as a whole, but is divided in *various interest groups* often with conflicting interests.

The *results of interregional competition* are similar to those of the competition among countries: in the region successfully competing welfare (living standard) improves, employment and incomes (wages) are high, new investments take place, talented young people and successful businessmen move there, etc. (Camagni 2002, Malecki 2004). Naturally, in the less successful regions just the opposite occurs: welfare (living standard) deteriorates or stagnates, incomes fail to increase, there is a reduction in the number of work places, no new investments occur, unemployment increases, talented young people and successful businessmen leave, the population grows older, etc. However, contrary to company competition the results of interregional competition become apparent slowly, usually after long decades, especially owing to the low mobility of households.

Summarizing the competition among regions: it occurs with economic goals to achieve the constant improvement of welfare (living standard). In this competition regions compete by creating a business environment calculable and attractive for companies, by attracting or keeping successful enterprises and talented labour force. Each region must develop a *bottom-up competition strategy*: they must design a vision of future, concept and programmes and achieve wide public awareness this way orienting the local population, the inhabitants and enterprises excluded from active regional networks (Rechnitzer 1998). Regions can only be successful by actively implementing a bottom-up development strategy that departs from a widely accepted vision of future and harmonizing projects that have different economic development effects with the help of dynamic regional networks.

4. UFO model: cluster-based regional economic development

Successfulness in competition, or in other words, *competitiveness* has been one of the key concepts often used and quasi ’fashionable’ in many areas of economics over the past two or three decades partly due to the acumination of global competition. It is a fashionable term the use of which seems nowadays to be nearly obligatory. In Iain Begg's apt formulation: "improved competitiveness, as we all know, is the path to economic nirvana" (Begg 1999, p. 795.).

The objective of regional and local economic development is the improvement of the standard of living and quality of life of the region's inhabitants. Hence economic development and competitiveness are strongly connected, only those kinds of programmes belong into the competence of economic development which improves regional competitiveness.

Two major issues emerged in the debates aiming at the interpretation of competitiveness: on one hand, *how to define regional competitiveness and what indicators should be used to measure it*? On the other hand, *how can regional competitiveness be improved*, which governmental and local interventions may be regarded as successful? These two questions usually lie in the background of other professional debates too; while representatives of academic economics concentrate on the first one, experts of regional policy tend to focus on the second one.

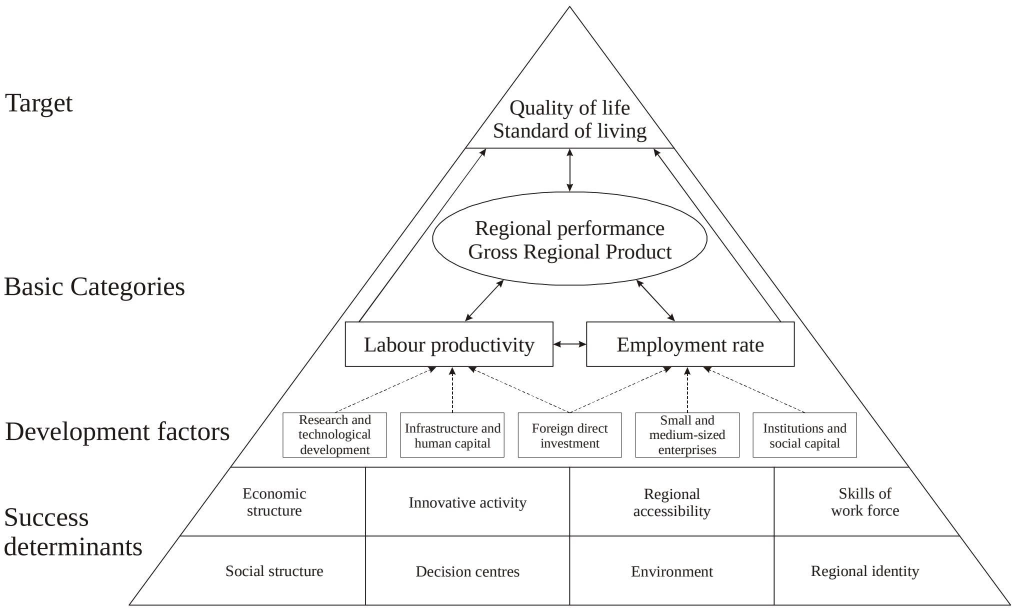
There were a number of attempts to define the new notion of competitiveness according to new global competition conditions in the mid 1990s. The standard notion of competitiveness *in the Sixth Regional Periodic Report of EU* (EC 1999): 'The ability of companies, industries, regions, nations and supra-national regions to generate, while being exposed to international competition, relatively high income and employment levels'. *In other words 'high and rising standards of living and high rates of employment on a sustainable basis'* (EC 2001). *In the European Competitiveness Report* (EC 2008, p. 15.): *"Competitiveness is understood to mean a sustained rise in the standards of living of a nation or region and as low a level of involuntary unemployment, as possible." In the report of Regional Competitiveness Indicators of UK* (DTI 2002): *'Regional competitiveness describes the ability of regions to generate income and maintain employment levels in the face of domestic and international competition'.*

Hence the *substance of regional competitiveness*: the economic growth in the region, which growth is generated by both a *high level of labour productivity* and a *high level of employment*. In other words, competitiveness means *economic growth driven by high productivity and a high employment rate*.

The notion of competitiveness obtained in this way cannot be used, however, to identify factors responsible for regional competitiveness or areas which are to be strengthened or developed by regional development policies and programmes for improved competitiveness. Since the notion of competitiveness can be seen as refining that of economic growth, it can often be observed that proposals for improved competitiveness combine traditional means of economic development with methods based on endogenous development.

The *pyramidal model of regional competitiveness* seeks to provide a systematic account of these means and to describe the basic aspects of improved competitiveness (Figure 2). 'This model is useful to inform the development of the determinants of economic viability and self-containment for geographical economies' (Pike et al 2006a, p. 26.). 'This is an aggregate notion, …, in a regional context, labour productivity is the outcome of a variety of determinants (including the sort of regional assets alluded to above). Many of these regional factors and assets also determine a region's overall employment rate. Together, labour productivity and employment rate are measures of what might be called 'revealed competitiveness', and both are central components of a region's economic performance and its prosperity (as measured, say, by GDP per capita), though obviously of themselves they say little about the underlying regional attributes (sources of competitiveness) on which they depend' (Gardiner et al 2004, p. 1049.).

Figure 2. The pyramidal model of regional competitiveness



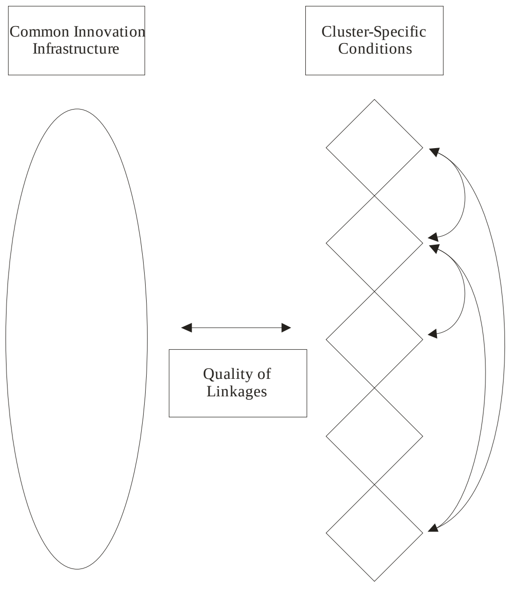
Source: Lengyel (2000, 2004)

The standard of living, prosperity of any region depends on its competitiveness (Begg 2002). Factors influencing regional competitiveness can be divided into two groups of *direct* and *indirect* components. Of particular importance are programming factors with a direct and short-term influence on economic output, profitability, labour productivity and employment rates (Huggins 2003, Lengyel 2004). But social, economic, environmental and cultural processes and parameters, the so-called 'success determinants', with an indirect, long-term impact on competitiveness are also to be taken into account (Enyedi 1996, Jensen-Butler 1999).

The elements of regional competitiveness are systematized by the pyramidal model, which reduces the components of economic development to connected factors (Enyedi 2009, Pike et al 2006b). Can competitiveness be improved by developing the same factors in all kinds of regions? What determines the success a regional development strategy?

The vitality of regional development strategy in a region is depend on regional innovative capacity. ‘This capacity is not simply the realized level of innovation but also reflects the fundamental conditions, investments, and policy choices that create the environment for innovation in a particular location” (Porter–Stern 2001, p. 5.). The regional innovative capacity depends on three broad elements: common innovation infrastructure, cluster-specific conditions, and quality of linkages (Figure 3). Porter has argued that traded regional clusters are capable of improving competitiveness and therefore proposed a cluster-based approach to regional economic development (Porter 2003b).

Figure 3. Elements of regional innovation capacity

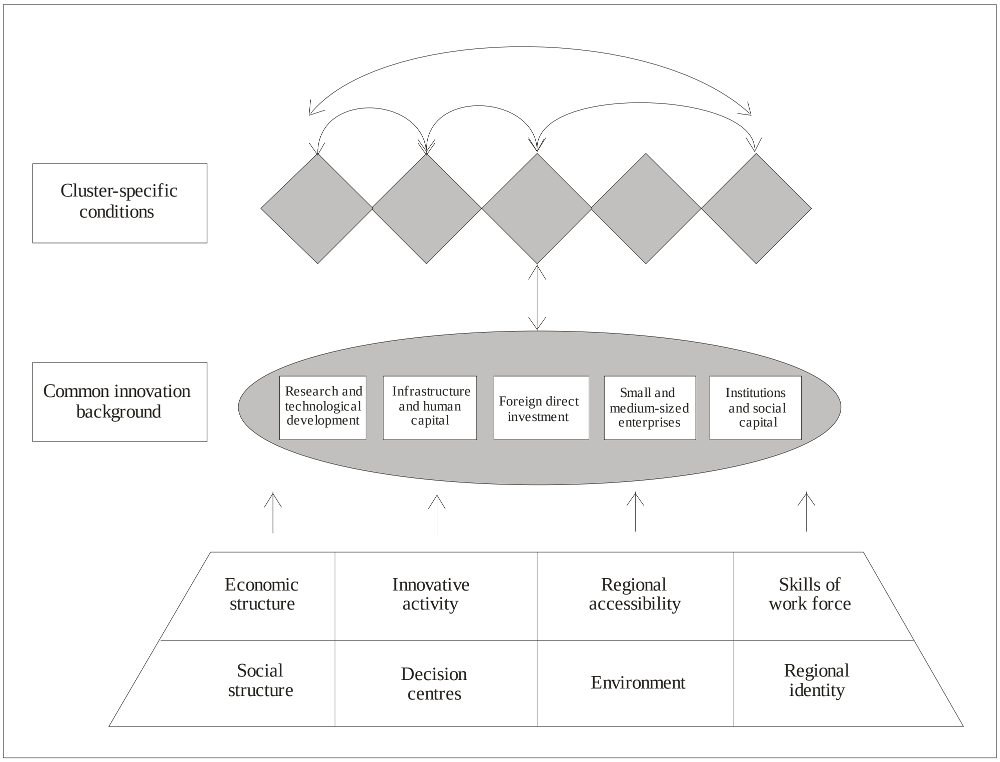


Source: Porter–Stern (2001, p. 5.)

In line with the structure of the pyramidal model and element of regional innovative capacity, we distinguish between four levels of bottom-up regional economic development programmes aiming to improve regional competitiveness (*Figure 4*): success factors, common innovation background, cluster specific conditions, and linkages. While on the basis of the pyramidal model the competitiveness can be measured and the influencing factors can by systematized, cluster-based development enhances the basic industries of the regions, an by doing so it reinforces specialization necessary for meeting the challenge of global competition.

On the basis of *UFO model* (*U*nconventional *F*ramework of *O*perational programming) we outline the regional economic development ideas aiming to improve the competitiveness of regions with different development types. The UFO model suitable for the systematization of both regional planning and cluster-based regional economic development ideas, consequently it can be also applied for the planning of the economic development strategies of the different subregion (nodal region) types.

Figure 4. UFO-model: the structure of bottom-up regional economic development



Source: own construction

Four levels of UFO model can be distinguished with regard to the objectives of regional development strategies and the various characteristics and factors influencing regional competitiveness (Figure 4):

- *Success determinants*: on the basis of the pyramidal models, the reinforcement of certain absent or weak background conditions of region's economy, which are the bottlenecks of regional development. Regarding these actions interregional competition does not emerge, fundamental public utilities and amenities must be guaranteed in the least developed regions as well. Thus within the meaning of cohesion all the regions must be supported that are in need.
- *Common innovation background*: such programmes aiming at the improvement of regional competitiveness, systematized on the basis of the development factors of the UFO model, that further the reinforcement of most of the industries' and enterprises' competitive advantages in the regions. The regional development strategy of the common innovation background depends on the development/competitive type of the region (see next shapter). In connection with the improvement of the common innovation background interregional competition can be observed among the similar regions. This is why the regional organization of bottom-up economic development is important, in order to support solely those regional programmes and projects that are able to improve regional competitiveness the most.
- *Cluster specific conditions*: in more regions it is possible that innovative clusters will emerge. In other regions the emergence of manufacturing and tourism clusters can be expected. Clusters generate very intense interregional competition. To develop similar industries are endeavoured also in other regions of the country, therefore only those regional economic development strategies will be able to succeed that are based on regional consensus and unity and that aim to improve the competitive advantages on the given industry's enterprises.
- *Linkages*: it is essential that there should be interdependence between programmes aiming to improve the common innovation background and clusters, because only this approach can result in the development of regional competitiveness.

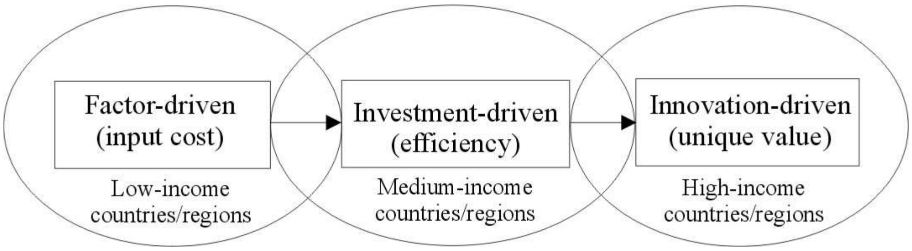
The UFO model can successfully be applied as a demonstration shame in purpose of systematizing development programmes of regions for improving regional competitiveness. Because of the interregional competition, however, in the nodal regions cluster-based programmes must also be developed and constantly managed with the involvement of the concerned enterprises.

5. Competitive regional development

Different 'market places' also occur in the global competition of countries, regions and cities. *Tödtling and Trippl* (2005, p. 1209.) describe three types of regions by problem areas and regional innovation deficiencies: peripheral region (organisational thinness), old industrial regions (lock-in), and fragmented metropolitan regions. In 2003 one of the research projects of the EU analysed the factors influencing regional competitiveness and how dominant the elements determining competitiveness are in different region types in order to create the foundation of regional policy between 2007 and 2013. During the research four 'theoretical' region-types were distinguished based on two dimensions, density of population and the growth rate of GDP (Martin et al 2003 p. 6-23.): non-productive regions, regions as production sites, regions as sources of increasing returns, and regions as hubs of knowledge.

Based on the characteristics of *competitive advantages*, Porter (2003b) distinguishes three stages in the countries' development built upon one another. On the basis of the amount of specific GDP and the competition strategies of global industry branches these are (Figure 5): factor-driven, investment-driven and innovation-driven phases. The three phases of competitive development designed for countries can also be applied in the case of regions (Lengyel 2003a). And these types are very useful to underlie the bottom-up regional development strategies of the regions.

Figure 5. Stages of competitive development of countries/regions



Source: own construction on the basis of Porter (2003b, pp. 26-28.)

The division of labour among the subnational regions of a country is different from that of different countries. A region cannot develop own economic policies; instead, its economy specializes as a consequence of market processes and central governmental development decisions. Nowadays, *knowledge-based economy* strongly shapes the specialization patterns of a country's regions with different development levels, and also changing the former characteristics of interregional competition (Grosz et al 2005, Lengyel–Leyesdorff 2010). Consequently, the three phases of competitive development should be specified based on the processes of the knowledge-based economy by using the specialisation of the *postfordist economy* (Cooke 2001, Lengyel 2003a).

Based on the differences among regions it is preferable to differentiate where knowledge is created and where it is only adapted (Asheim 2001, Bajmócy 2006, Lengyel B. 2005). In the case of competitive regional development only in the innovation-driven phase can it be stated definitely that competitive advantages derive from knowledge creation, while in the investment- and factor-driven phases they originate from the mere adaptation of knowledge. Less developed, lagging regions are in an exposed situation, certain features of the knowledge-based economy are present, but *neofordist characteristics* are decisive (Lengyel 2003a).

In harmony with the phases of competitive development *three types of postfordist regions* must be distinguished (Asheim 2001, Lengyel 2003a, Martin et al 2003):

- *Neofordist region*: factor-driven phase (regions with low income and input cost), regions as production sites,
- *Knowledge transfer region*: investment-driven phase (regions with medium income and efficiency), regions as sources of increasing returns, and
- *Knowledge creation region*: innovation-driven phase (regions with high income and unique value), regions as hubs of knowledge.

Neofordist and knowledge transfer regions differ from knowledge creation regions not only in terms of the sources of competitive advantages, but also because they are economically exposed and fragile, first of all in the transition economies (Enyedi 1996, Papanek et al 2008, Rechnitzer 2000). The decision centres of global companies hardy occur in less developed regions, so they demand knowledge less; rather the executive type activities of global companies are present here. Besides assembly plants, units of global companies selling products and performing service activities on the local market, local branches of international banks and insurance companies, and sometimes subsidiaries engaging in minor research activities also operate here. Naturally, most regions are 'mixed', but while neofordist and knowledge transfer activities and companies also exist in knowledge creation regions, the number of firms based on knowledge creation is close to zero in neofordist regions (Lengyel 2003b).

In the course of the debate on interregional competition, it is increasingly acknowledged, that regions with similar state of development compete with each other, while amongst the different types of regions there is rather rivalry (Camagni 2002, Malecki 2004, Polenske 2004, Hall 2001). Competition is especially intense among metropolises, but within the EU or a country there also exist interregional competition amongst nodal regions with similar state of development.

Concerning the three region types reviewed above, different development strategies must be applied, which means that *the improvement of competitiveness demands different measures based on the different types of regions*. These steps correspond to the phases of competitive regional development and at the same time indicate that competitiveness can be improved only with the help of complex programmes. The UFO model systematizes those economic development priorities that adjust to the real social-economic situation and the achievable (realistic) aims of the different region types. The improvement of regional competitiveness depends on the consistent realisation of these development strategies.

6. Bottop-up economic development with different types of regions

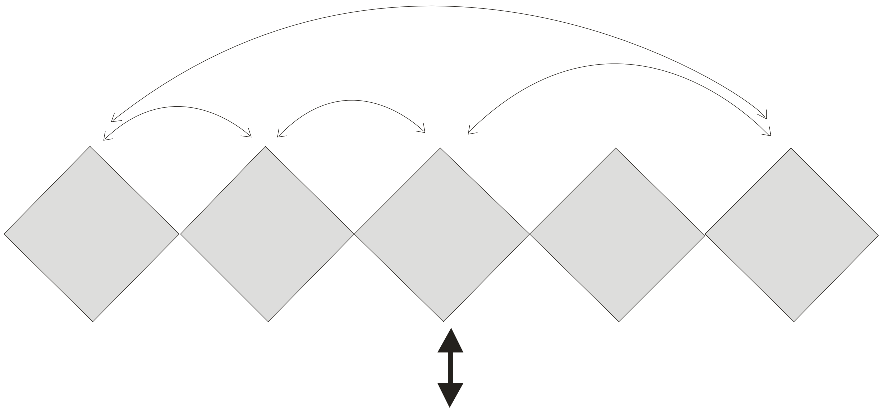
In the course of describing the features of interregional competition we emphasised that those regions compete with one another that have similar economic structure and are at the same level of development. At the same time, it is not enough to measure the competitiveness of regions, but we also need to outline what can be done to improve competitiveness. Furthermore, a special version of the UFO model can be designed, the elements of which are built upon the real opportunities of the given region type and may contribute to improving the competitiveness of the region. The elements of the common innovation background (basic factors of pyramidal model) are different in each sub-type.

The *neofordist region* is underdeveloped, it corresponds to a semi-periphery, the generated income (GDP/habitant) is low, and the economy is typically in the factor-driven phase. The development of infrastructure is insufficient, the education level of the labour force is low, the members of company management are not competitive internationally and part of the qualified labour force and talented young people leave the region (Lengyel 2002). The major goal focuses on developing the technical infrastructure (transportation network, energetics, etc.) and attracting the sites of global companies with prepared industrial areas, low local taxes, low wages, etc.

Local companies do not need *research & development* in neofordist regions, but as already mentioned, all of them purchase older technologies from abroad (Figure 6). Therefore, these companies do not have R&D units and they are not closely linked to development institutions either. Since there are no local company assignments, local university research and the related laboratories and equipment must be financed from governmental funds. In such regions support should target basic research, especially at local universities, and certain outstanding research laboratories to solve minor applied R&D tasks.

Regarding the elements of *infrastructure and human capital* as development factors, such regions should concentrate on developing the transportation networks that are usually less established and of low quality. Mainly motorways, airports, railroad systems, ports, logistic centres must be created that are essential for making the divisions of global companies targeting cost advantages settle. It is also advisable to design industrial areas (industrial parks) containing concentrated infrastructure, partly owing to environmental reasons. Vocational training cannot be transformed based on special company needs, but rather the quality of task-oriented schemes offering wide basic training in existing institutes must be improved.

Figure 6. Bottom-up economic development of neofordist region



Research and technological development	**Infrastructure and human capital**	**Foreign direct investment**	**Small and medium-sized enterprises**	**Institutions and social capital**
- Non-business and governmental R&D - Separated R&D - Laboratories, equipments	- Industrial parks - Transportation networks - Vocational training	- Locations of companies - Satellite platform district - Local business relations	- Networks of suppliers - Financial promotion - Entrepreneurial skills	- Enterprise-friendly administration - Business and technical higher education - Ability for local cooperation
Neofordist region				

Source: own construction

In the case of *investments coming from outside the region*, the divisions of companies must be attracted that are able to generate regional multiplicator effects by establishing a new activity. In the region these divisions and activities can work as the starting points of a structural change, which the local economic sphere is unable to achieve by itself. The embedment of global companies' divisions, the development of local business and personal relations must be encouraged with the help of various events, forums to enable information flow that can also be followed by business transactions later on.

In neofordist regions very few *small and medium-sized enterprises (SMEs)* are present in the traded sector, neither the business environment, nor the preparation level of these companies is enough for global competition. SMEs have insufficient international knowledge; therefore, the wide dissemination of modern entrepreneureal skills and enterprise culture is essential for their development. This should be understood as a *learning process*, SMEs can learn not only at courses but also from one another and from global companies too. One of the most important objectives is for SMEs to become the business partner or contracted supplier of settled global company units, because this way they can win a stable market and gain modern knowledge and business experience.

In a neofordist region the *institutions and social capital* are not market-friendly enough. Public administration organisations must be made to have ’enterprise-friendly’ customer services. As for training programmes available in higher education institutions, the technical, business, economic training necessary for the successful operation of enterprises is either missing or is of poor quality, so support must be lent to launch, strengthen and disseminate these programmes, so that modern business training can become part of the curriculum in each higher education scheme.

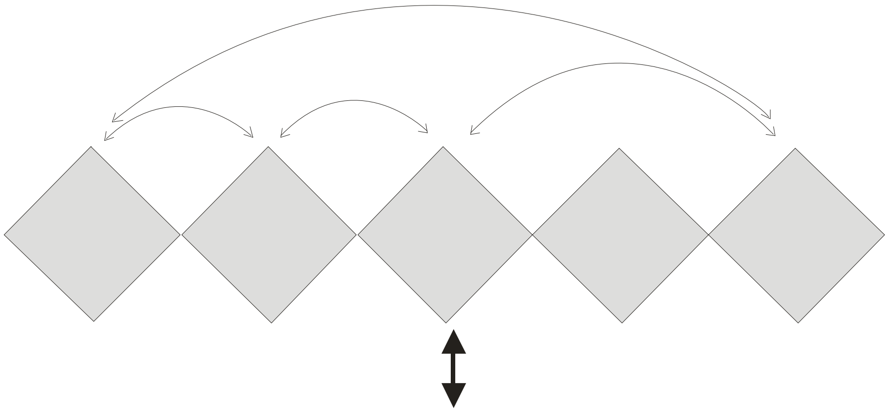
Knowledge transfer regions are usually medium developed, the most important goal of economic development lies in continuing the structural change by keeping existing companies and creating work places with higher added value. These regions are in the investment-driven phase, they have traded large companies with local headquarters, which already have a network of local SMEs as their contractors. Transportation infrastructure is developed; therefore, the *improvement of the local business environment* is in focus. The education level of the labour force and the training structure already correspond to the needs of the economic sphere, retraining programmes and courses to improve managerial skills are frequent (Lengyel 2009).

In knowledge transfer regions the need for *research & development* has already emerged, local traded companies also create development units assigning an increasing number of applied research part-tasks to local development companies and research institutes (Figure 7). In the course of economic development, the harmonised research and development activity of companies and institutes must be encouraged. In order to assist smaller companies the establishment of agencies, institutes and other bodies dealing with technology transfer must be facilitated.

Infrastructure and human capital are relatively developed and the transportation network has been established. Support must focus on the institutions and agencies of the business infrastructural background (training institutions, consulting companies, etc.) that satisfy actual company expectations. In harmony with the emerging R&D needs, institutions contributing to the improvement of innovation capacity (innovation centres, incubators) must be created (Bajmócy et al 2007). Strengthening local strategic industry sectors can define their needs precisely concerning the qualification of the labour force, so special training programmes related to these must be developed.

Among the *investments coming from outside* knowledge transfer regions, only those need promotion, whose activities are in harmony with the developing regional strategic industry sectors already present. The embedment of companies with bases outside the region must be encouraged by increasing the circle of SMEs acting as local contractors. This way more and more elements of the global companies’ value chain can be present in the region, what not only stimulates the economic growth, but also helps to improve employment.

Figure 7. Bottom-up economic development of knowledge transfer region



Research and technological development	**Infrastructure and human capital**	**Foreign direct investment**	**Small and medium-sized enterprises**	**Institutions and social capital**
- Applied R&D - Coordinated R&D - Technology transfer	- Innovation centres, incubators - Business infrastructure - Task-oriented vocational trainings	- Supported investments - Satellite-Marshallian industrial district - Local value chains	- Horizontal networks - Business services for start-up - Trainings for managers	- Decentralized administration - High education by local business needs - Non-profit organisations
Knowledge transfer region				

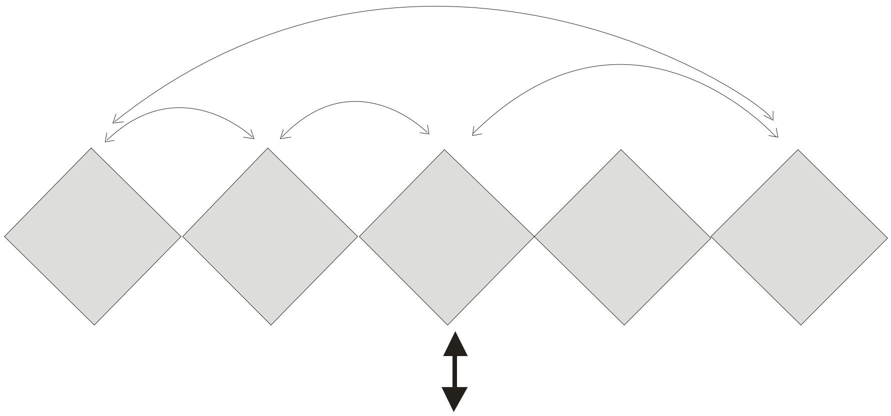
Source: own construction

In knowledge transfer regions more and more *small and medium-sized enterprises* (SMEs) operate in the traded sector, and are prepared for global competition. In order to strengthen these SMEs, the development of their horizontal networks, clusters must be helped. The formation of start-up companies related to the activities of developing strategic industry sectors must also be encouraged mainly with business incubator programmes.

In these regions the role of *institutions and social capital* is increasingly important. Fast and reliable public services are essential for the successful global competition of developing strategic industry sectors and strengthening SME networks. Therefore, it is necessary to decentralise administration, since only regional and local governments present in the region can take measures effectively and flexibly. Local higher education must be encouraged of design training modules corresponding to the labour force needs of strengthening local strategic sectors this way ensuring the prepared labour force supply for companies.

In knowledge creation regions economic output is high, these regions are in the innovation-driven phase and the regional centres of significant global companies are situated here. Administration is decentralised, a cluster-based economic development is set as an objective partly due to this to improve the business environment necessary to strenghten the competitive advantages of global companies with local headquarters. Developing the background of innovation capacities is in focus, scientific parks, universities, incubator programmes, venture capital and other schemes have an important role.

Figure 8. Bottom-up economic development of knowledge creation region



Research and technological development	**Infrastructure and human capital**	**Foreign direct investment**	**Small and medium-sized enterprises**	**Institutions and social capital**
- Harmonised business and non-business R&D - Integrated R&D - Innovative milieu	- Science parks - Communications networks - Problem-oriented trainings, retrainings	- Attracting decision centres - Hub-and-spoke district - Local supporting and related industries	- Clusters - Venture capital - Business incubators for spin-off	- Collaboration among administration and businesses - Cluster-oriented high education - Regional identity
Knowledge creation region				

Source: own construction

In knowledge creation regions *research & development* is of high quality, governmental and business R&D performs harmonised research based on the needs of clusters (Figure 8). The innovation environment is developed, the institutional system and the local society equally place emphasis on supporting collaboration in the frameworks of research programmes (Török 2006, Varga 2009).

Infrastructure and human capital equally follow innovation expectations. Transportation and business infrastructures are developed, the most important objective lies in improving the scientific infrastructure: to establish scientific parks and communications networks. In the traded sector vocational training, especially retraining must shift from task-oriented to become problem-oriented, since more and more innovative experts are needed who are able to make individual decisions and perform work independently.

Among investments coming from outside the region the most important effort targets attracting the decision centres of international and governmental organisations and global companies. The settlement of supporting and related industries must be encouraged in order to strenghten clusters. To improve employment, support must be lent to cooperations among SMEs and global companies with local headquarters.

The rate of *small and medium-sized enterprises* of traded nature is high, their competitive advantages must be strenghtened by creating clusters. The growing number of innovative SMEs demand various forms of venture capital, therefore, it is important to encourage the creation of such services. Spin-off companies departing from universities and employing creative graduate and doctoral (Ph.D.) students and young lecturers must be assisted with different incubator programmes.

The *institutions and social capital* equally support cluster-based economic development. Higher education satisfies the needs of local strategic sectors and clusters striving to launch training and research programmes of high scientific quality. Regional networks operate effectively and regional identity is strong. Mechanisms have been developed to handle conflicts emerging in the collaboration of the various organisations of the decentralised administration and the private sector, the local economic governments and non-profit organisations.

Concerning the three region types reviewed above, different economic development programmes must be applied, which means that *the improvement of competitiveness demands different strategies based on the different types of regions* (Table 1). These steps correspond to the phases of competitive regional development and at the same time indicate that competitiveness can be improved only with the help of complex bottom-up programmes. The UFO systematises those economic development priorities that adjust to the real social-economic situation and the achievable aims of the different types. The improvement of regional competitiveness depends on the consistent realisation of these development programmes.

Every contry is heterogeneous, since it consists of subnational regions with significantly different state of development. Due to the strong interregional competition, bottom-up strategies must be developed in all regions. These should refer to reinforcement of clusters beside the common innovation background. This is the only way that provides an opportunity for the improvement of regional competitiveness.

Table 1. Elements of common innovation background of the distinct types of regions

	Research and technological development	**Infra-structure and human capital**	**Direct investment outside from region**	**Small and medium-sized enterprises**	**Institutions and social capital**
Knowledge creation	Harmonised business and non-business R&D Integrated R&D Innovative milieu	Science parks Communi-cation networks Problem-oriented trainings, retrainings	Attracting decision centres Hub-and-spoke district Local supporting and related industries	Clusters Venture capital Business incubators for spin-off	Collaboration among administration and businesses Cluster-oriented high education Regional identity
Knowledge transfer	Applied R&D Coordinated R&D Technology transfer	Innovation centres, incubators Business infrastructure Task-oriented vocational trainings	Supported investments Satellite-Marshallian industrial district Local value chain	Horizontal networks Business services for start-up Trainings for managers	Decentralized administration High education by local business Non-profit organizations
Neofordist	Non-business and governmental R&D Separated R&D Laboratories, equipments	Industrial parks Transportation networks Vocational training	Location of companies Satellite platform district Local business relations	Networks of suppliers Financial promotion Entrepreneuri al skills	Enterprise-friendly administration Business and technical higher education Ability for local cooperation

Source: Lengyel (2003a)

7. Summary

This study reviewed the most important questions related to interregional competition and regional competitiveness. Globalisation processes, their interregional characteristics and global competition lead to the development of a ’new economic space’. With the emergence of the knowledge-based economy the international division of labour also transforms and the role of regions in the postfordist economy must be reconsidered. Three basic region types can be distinguished that participate differently in the international division of labour. The acceleration of global competition has resulted in the increase of competition among regions, or more precisely, nodal sub-regions.

Due to the special characteristics of global competition, the concept of regional competitiveness must also be defined. There is abundant literature on competitiveness with certain well-known approaches, out of which especially the concept of standard competitiveness common in the European Union seems adequate in case of the regions not only for scientific analyses but also for regional economic political applications. The concept of standard competitiveness is partly linked to the thought of economic growth; therefore, it also leans on theoretical economics, although it also has strong regional political and economic development aspects that brings it close to the questions of business sciences as well.

For the interpretation of regional competitiveness a pyramidal model was established that offers a complex frame for the measurement and improvement of competitiveness. It does not only make a proposal concerning the indicators applicable for measuring competitiveness, but also systematises economic development ideas depending on the types of regions. The logic of bottom-up regional economic development is demonstrated by the UFO model, which connects the approach of competitiveness and the practice of cluster development in the different types of regions.

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