

Sustainable Development and Knowledge Based Economy Creation Initiatives in Lithuania

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Abstract: The future of the European Union lies in the sustainable development and in the creation of the knowledge based society and knowledge based economy. This means that key issues that require *strategic decisions* are to be considered as issues of creation of the knowledge based society and knowledge based economy. This publication analyzes a new approach towards the way how *long term strategies* designed to create knowledge based economy in the European Union should be prepared. This approach is a result of *scientific research* the object of which has been *creation of the knowledge based economy in the situation of the enlargement of the European Union*. The objective of the completed research has been the proof of the fact that *key priorities for creation of the knowledge based economy is the urge of technological advancement and enhancement of compatibility and productivity* using such opportunities as *specialization of national and regional economies, creation of clusters and their networks*, as well as *the development of so called economic “oases” and hyper-clusters* in the entire economic space of the European Union, in Lithuania as well as in other countries.

Keywords: sustainable development, knowledge based society and economy, networks of clusters and economic „oases“, European Union, Lithuania.

1 Introduction

Sustainable development in Lithuania and in the European Union in general is very close linked to the creation of the knowledge based society and knowledge based economy.

This means that key issues that require strategic decisions of creation of the knowledge based society and knowledge based economy are to be considered as issues of the sustainable development.

The essence of these issues could be revealed in the following: *how* should the knowledge based society and knowledge based economy be created in the European Union?

Striving to find answer to this question determines the necessity of elaboration and implementation of appropriate *strategies for creation of knowledge based society and knowledge based economy*. In its turn, in order to ensure elaboration and implementation *appropriate* concepts and methodologies of preparation and justification of strategic decisions should be used.

The sustainable development, quantitative increase and qualitative development of the European Union is a very complex process of both quantitative and qualitative transformations. The necessity for sustainable development, for the creation of the knowledge based society and knowledge based economy and for the changes within the European Union is determined by a number of *problems*.

Necessity to respond to the development problems of the European Union determines main *challenges*. Over the last decade greater possibilities to ensure *quantitative increase* can be observed in the European Union, whereas in the sphere of *qualitative development* numerous difficulties and unpredicted obstacles can be seen. For this reason qualitative development of the European Union should receive priority consideration: we suggest that prospects of the European Union are basically influenced by creation of the *knowledge based society and knowledge based economy*.

Knowledge based society and knowledge based economy is a new stage of social and economic development indicating that *a society of a new type* is being formed which is characterized by *new quality of life and new possibilities for further modernization*.

Summarizing the completed research allows us to conclude that in addition to the already developed research directions some *new and greatly prospective* directions might *additionally* be elaborated: one could expect that the research in the directions mentioned above could allow to define *new approaches* towards the *concept* of the knowledge based economies, and the assessment of the conditions necessary for successful implementation of such economy. It is especially important for the *new approaches* to thoroughly prepare and implement the *strategies* designed to create knowledge based society and knowledge based economy.

2 Sustainable development and knowledge based economy creation: networks of clusters and “oases”

The networks of clusters, economic „oases“ and rational specialization of regional economies could be describe as a priority prerequisite, ensuring possibilities for creation of knowledge based economy in the European Union. Contemporary economic principles and practices confirm that in *efficiently operating economic systems their surplus value is created at greater extent*. This statement works in all cases where ways to increase efficiency and compatibility on the scale of both particular economic subjects and large national and regional economic systems (Boldrin, M., Canova, F., 2001; Bond, E., Syropoulos, C., Winters, L.A., 2001; Chortares, G.E., Pelagidis, T., 2001; Redding, S., Venables, A.J., 2004). The main precondition to ensure high efficiency and compatibility of any economic system is to achieve that any economic system should be *properly specialised*. Hummels, D., Ishii, J., Kei – Mu Yi, 2001; Huseman, R.C., Godman, J.P., 1999; Melnikas, B., 1997; Olsen, T.E., Osmundsen, P., 2003).

For the sake of the rationalization of the national or regional economic system various means may be implemented. These means should create a *solid complex*, and have to be *long-term* and *consecutive*. The idea of the means should ensure that the entire economic system of particular region or country is developed as a *large macro-cluster or hyper-cluster*. These large macro-or-hyper-clusters may be *multi-profiled* and oriented towards *creation* of different and diverse *final products*, and it is very important to create final products that are compatible in *global markets*.

It is obvious that large macro – or- hyper- clusters in particular countries or regions should meet the following requirements:

- large clusters of this kind function as *open systems*, maintaining both internal and external economic and technological relations in international and global markets,
- *inside* of the large clusters of this kind various specialized clusters can be created within incorporated diverse institutions of science, research and education, enterprises of production and services, business incubators, parks of science and technology, centers for innovation, and industrial, trade, transportation and communication companies.

Development of large economic systems in a way of *clusterization* may be of great variety. A very prospective method to implement this way is creation of *regional (territorial) or sectorial “oases”*.

In general “oasis” can be explained as an *economic system, possessing extremely advantageous political, legal, economic and other conditions for activities and development*. These conditions are as a rule exclusive and in their presence the “oasis” as economic system receives various privileges or extremely beneficial environment is created for it. “Oases” can be established on behalf of political will of a *state* or even a *group of states*: by the way, the idea of regional “oases” is very viable in the improvement and implementation of regional policy of the European Union, with the intentions of creation of “oases” not only in particular countries, but also regions, comprised of regions of different countries.

Regional “oasis” is one where exceptionally advantageous conditions for economic development are created in a territorially outlined area (region). This area may coincide with systems of administrative territorial division of particular countries or may not.

Sector’s “oasis” is one where exceptionally advantageous conditions are created for particular branch of economy, and particular segments of business or public sector.

Creating and developing “oases” it is very important to consider demographic situation, possibilities to attract, concentrate human and financial and other resources, as well as possibilities rapidly expand various innovations.

The idea of the “oasis” and opportunities to promote this idea in the situation of the development of the European Union has been described quite comprehensively (Melnikas, B., 2002, 2003, 2004).

Summarizing the statements given above, we may confirm that the concepts of *proper rationalization of national and regional economic systems*, as well as concepts of creation of *macro-or-hyper-clusters* and “oasis” are of great importance, ensuring progress in the entire space of the European Union.

The idea of clusters, their networks and “oases”, oriented towards rationalism of specialization of regional economies is very promising, when creating *the knowledge based economy* in the European Union.

The *strategies for clusterization and rational specialization of regional economies* should include both *the strategies oriented towards integration* and *the strategies oriented towards synthesis*. The idea of the *strategies oriented towards integration* is to ensure *high efficiency and compatibility of different regional economies and different sectors* of both in the integral economic space of the European Union and in global markets. The idea of the *strategies oriented towards synthesis* is to achieve *that major sectors of economy on the scale of the whole European Union* operate as *integral undivided systems*. Each sector of this kind as a system should possess a *very high level of technological development* and should be a *leader* in the corresponding sphere of economy *on the worldly scale*. Orientation towards the challenges of this kind requires that within these strategies the following decisions are made:

- on the scale of the entire European Union *the networks of regional and sector clusters as well as “oases”* should be created and mutually developed: each element in the networks of this kind could become *rationally specialized* which would allow to make sure that *the network as a system is of a state-of-the-art level of productivity and technological advancement*,
- *the networks of regional and sector clusters as well as “oases”* should be *specialized*: subsequently, the networks of this kind on the scale of economic space of the European Union are *mutually complementing* and function based on partnership,
- *the networks of regional and sector clusters as well as “oases”* that are created in the European Union *can operate outside the European Union*: this will ensure the viability of economic structures of the European Union and their compatibility in the global markets,
- the networks of regional and sector clusters as well as “oases” in the future should be an organizational basis for the *economies of the entire European Union*: the networks of

this kind should be understood as the *key structural elements of the economy of the European Union*, as well as a *key organizational structure of the knowledge based economy* (it is obvious that in any of these networks high intellectual, information technical and other potential should be accumulated ensuring rapid and efficient headway of technologies and leadership in the global markets).

3 Bridging science and business together: Lithuania's achievements and the starting position for move towards knowledge based growth

Every country possesses its own strengths and weaknesses, opportunities and threats. There are some strengths, weaknesses, opportunities and threats for knowledge based economy creation in Lithuania.

Large European and multinational corporations (e.g. BT, Buckman Labs, Nokia, Siemens, etc) are the early adopters of new thinking. They first realized that high initial costs of research, human/intellectual capital costs, etc, are efficiently spread only over longer periods and larger geographical areas. The vision they have, specifically their new-frontier mentality and the ability to develop integrative thinking across functional areas of business, not only at the highest management levels but, what is even more important, at lower management levels resulted in knowledge-sensitive enterprise cultures and the resultant organizational learning regarding new business models and strategies.. Lithuania will need to develop higher added-value market niches that will precisely call upon the Lithuanian capabilities to create an entrepreneurial economy that is integrated continentally and globally.

At the present time in Lithuania five programmes of integrated research, higher education and business centers (valleys) are under preparation. The integrated research, higher education and business center (valley) is a research, higher education and knowledge-intensive business potential concentrated in a single territory, which has a common or related infrastructure and purposefully contributes to the creation of knowledge-based society and knowledge-based economy.

By developing valleys in Lithuania it is sought to create clusters of research, higher education and knowledge based economy of an international level, to speed up the creation of knowledge-based society and to strengthen Lithuania's competitiveness.

Valleys in Lithuania are created seeking to concentrate, renew and optimize the infrastructure, which would enable state-of-the-art technologies and other most promising sectors of science, technologies and business to be developed, relations between scientific research and higher education to be strengthened, close interaction between scientific research, science, higher education and knowledge-intensive business to be ensured, as well as to engage in training researchers and other specialists.

Also, it is sought to develop scientific co-operation of the highest level on the national and international scale, to attract necessary foreign investments of great intellectual potential, and on the basis of research and higher education, as well as knowledge intensive business to create clusters of knowledge based economy.

At the present time the following centers are working on programmes and have already presented the improved visions: Vilnius *Saulėtekio technologijų slėnis* (Vilnius Sauletekis Technology Valley), *Vilniaus Santaros slėnis* (Vilnius Santara Valley), the Kaunas integrated research, higher education and business centers Nemunas & Santaka, the integrated research, higher education and business center (valley) for the development of the maritime sector of Lithuania(Klaipeda).

Knowledge economy organizations are successfully created near Universities in different countries. Very successfully towards this direction are developing our neighbors-Nordic countries. In recent years Finland and Sweden twinkled their resources for R&D especially in the last

decade that influenced growth of high tech level of production in exports of those countries. Vilnius University and Vilnius Gediminas Technical University, well known Lithuania's corporate leaders: ALNA, SONEX, OMNITEL, BITE GSM, EKSPLA, Laser Research Institute, the members of the Knowledge Economy Forum of Lithuania were founders of this public unit. In February of 2004 this project was joined by municipality of Vilnius, which became shareholder of this establishment. In reality "Sunrise valley" accumulated theoretical and practical potential of the best Lithuanian research Institutes, Universities, think tanks, consultants, firms and organizations and is ready to tap into the growing stock of global knowledge and adapt it to local needs.

In the long run (till 2015) "Sunrise valley" the largest unit of Lithuania's knowledge cluster must be developed into the largest innovation centre in the Baltic states, where high added-value products and services will be created. Such a vision for "Sunrise valley" in the year 2005 was predicted by International Consortium "Centre for Strategy and Evaluation Services", famous Technological parks from Great Britain, Sweden and experienced local business partners. According to the evaluations by the year 2015 in territory of 2,5 ha about 150 new high tech enterprises with more than 3000 employees will be created, among them: Innovation Center for the development of laser and IT as well as the formation of business incubator and a scientific-technological park.

4 Conclusions and recommendations

Creation of the knowledge based society and knowledge based economy in the European Union is a very complex, long-term and ambiguous process.

Key *challenges and priorities* that require main attention when creating the knowledge based society and knowledge based economy are the following:

1. The basis for creation of the knowledge based economy in the European Union is the implementation of *the universal principle of "creation of a new quality"* designed to complete the following: development of the society and economy of a new type is going under concurrent *processes of integration and synthesis*; when creating the knowledge based society and knowledge based economy in the European Union *integral cultural space* should be created, when creating the knowledge based society and knowledge based economy in the European Union *the strategies oriented towards integration and synthesis* should be created and implemented;

2. In the *strategies* designed to create the knowledge based economy in the European Union main emphasis should be put on the following *priorities*: *rational specialization* of national and regional economies, ensuring *high compatibility* both in the European Union and in global markets, transformation of national, regional and sector economies into the *macro –or hyper –clusters* and *systems of such clusters*, development of *clusters and networks of economic "oases"* in the entire space of the European Union, further development of *clusters and networks of economic "oases"* as *key organizational structures* characteristic to the system of the European Union;

3. In the situation of the further development of the European Union the following provisions should be implemented: issues of modernization and compatibility increase for the national, regional and sector systems should be tackled *in the strategies oriented towards integration*, issues related to creation of the *integral and undivided* knowledge based society and knowledge based economy should be tackled *in the systems oriented towards synthesis in the entire space of the European Union*.

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