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CONTRIBUTION OF EU STRUCTURAL FUNDS ASSISTANCE TO THE DEVELOPMENT OF ECONOMIC ENVIRONMENT THROUGH COLLABORATION OF BUSINESS AND SCIENCE IN LATVIA

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Abstract. The article analyses the good practice of Finland, which reconstructed the path changing towards building innovation-based economy, and Denmark, where the several programmes for network building and enhancement of collaboration between entrepreneurs as well as entrepreneurs and research institutes were introduced successfully, in order to make recomendations for development of economic environment in Latvia. The authors consider, that in the case of Latvia, at first, the government must take action in order to establish the macro-level environment that enables conditions for innovative self-renewing systems as well as introduce schemes that would facilitate knowledge spillover and commercialization, promote business activities of academic staff and researchers, as well as formation of networks and clusters.

Keywords: regional development, competitive economic environment, innovation, clusters, networking.

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JEL classification: R11, O29, O31, O33, O38, H52, H59

1. Introduction

According to The Global Competitiveness Report (2010–2011) Latvia is considered to be a country in transition between efficiency-driven and innovation-driven economy. This means that soon, the development of the country would be impossible by improving productivity, adopting existing technologies or making incremental improvements in other areas. The role of country's competitiveness will be in its ability to innovate. Entrepreneurs in these countries must design and develop cutting-edge products and processes to maintain a competitive edge. This requires an environment that is conducive to innovative activity, supported by both public and private sectors. In particular, this means sufficient investment in research and development (R&D) especially by the private sector, the presence of high-quality research institutions, extensive collaboration

in research between universities and industry, and the protection of intellectual property. In the period of crisis, it will be important to resist pressures to cut back on the R&D spending – both at the private and public levels – that will be so critical for sustainable growth going into the future (Global Competitiveness Report 2009–2010 2009).

Several authors in Latvia have been writing about innovative activities (Boļšakovs 2008), innovation process and system (Dimza 2003), knowledge society (Karnītis 2004), the role of higher education institutions in economic development (Sloka, Vilciņa 2009; Vīksne 2010; Mazūre *et al.* 2009). Many studies on the research policy are carried out in the world about science, technology, innovation and growth systems, and the choice between neutral and non-neutral policy instruments (Aghion *et al*. 2009), science policy issues (Beeseley 2003), learning organisation and national systems of competence building and innovation (Lam, Lundvall 2007), knowledge spillovers, entrepreneurship and regional development (Audretsch, Aldridge 2009), but there is lack of studies regarding the effect of EU structural policy instruments on economic environment of Latvia as an EU region.

According to The Global Competitiveness Report (2010–2011), Latvia is ranked the 70th out of 139, while Estonia – 33rd, Lithuania – 47th, and Finland – 7th. The Global Competitiveness Report has evaluated 12 pillars. Latvia performs the worst at market size (rank 95), financial market development (rank 86), macroeconomic environment (rank 84), business sophistication pillar (rank 80), and innovation pillar (rank 77). According to The European Innovation Scoreboard (2009) Latvia is ranked the third last, only Bulgaria, Turkey and Romania show worse performance in the Innovation Index than Latvia. Latvia is considered to be a "catcingh-up country" with growth above the average in the European Union (EU-27), Finance and Support below the average, and Human Resources performance above the average.

Taking into account the poor performance of Latvia in the international indexes mentioned above, as the research problem of the article is the lack of economic environment for knowledge spillover and commercialization, business promotion activities of academic staff and researchers, as well as formation of networks and clusters.

Therefore the authors consider it important to analyse the successful practices of Finland and Denmark, specifically Finland's path toward an innovation-based economy and Denmark's networks of collaboration among entrepreneurs and research institutes.

The aim of the research is to make recomendations for use of Finnish and Danish experience in development of the economic environment through collective efficiency approach in Latvia.

To reach the aim, the authors set the following tasks:

1. To analyse theoretical aspects of regional development and innovation theories.
2. To analyse Finnish and Danish experience of development of the economic environment through collective efficiency approach.
3. To make recomendations for development of economic environment using EU structural funds in Latvia.

The following economic research methods were used for tackling the tasks: grouping, graphic illustration and the monographic descriptive method. Analysis and synthesis were used in the paper to study the problem elements and synthesize coherencies. The authors studied legal framework in Latvia and scientific publications in regional development, innovation economics, innovation policy, research policy, and innovation systems.

The analysis of research institutes in Latvia is based on statistical data obtained from the Central Statistical Bureau of Latvia, Eurostat and the information included in Reports on Higher Education in Latvia (figures, data, tendencies) acquired from the Ministry of Education and Science during the period 2003–2009 and unpublished data from The Joint Information System of EU Funds.

Comparative, analytical and historical methods have been mainly used in the article, taking into consideration the large amount of scientific literature.

2. Teoretical aspects of regional economic environment development

The currently performed practically oriented research (Tsipouri 2005; Staber 2005; Musyck, Reid 2007; Srholec 2007; Fagerberg *et al.* 2010; Hall, Rosenberg 2010; Prodan, Drnovsek 2010) supports use of systemic approaches toward innovation policy. For example, governments or regional entities use economic tools, such as creation of self-sustaining innovative regionally located industrial clusters, building collaborative innovation networks in the region. These activities can mitigate dependency, even with unfavourable preconditions, even if the past development and the present economic structure of a given region have created unfavourable preconditions, and a reorientation may be successful.

Theoretical developments are not limited to the regional innovation system – innovation policies have also drawn on other theoretical models notably industrial clustering and learning regions. The first concept derives from scholarly work undertaken to explain the rise of industrial districts, high-tech regions or regional production clusters and other success stories, in a sense bringing together "economic geography with the evolutionary school of technological change" (Hassink, Shin 2005). The concept of a learning region introduced by K. Morgan (1997) emphasizes the idea that actors in regional development are strongly connected to each other as well as open to learning processes between regions and from within the region. Thus policy-makers in learning regions may escape path-dependency and learn from past mistakes at an institutional level (Musyck, Reid 2007).

The innovation-oriented regional development strategy of small regions has to focus on specific roles it can play in larger innovation networks beyond its boundaries. A particular problem of less developed regions is the very small number of firms which have the capability to make effective use of the innovation support offered. Furthermore, such regions usually also lack research organizations, a suportive service industry and

qualified labour. The low density prevents the emergence of comprehensive innovation networks within the boundaries of the region, and it is therefore very important to support the establishment of links of regional firms to innovation partners outside the region. This should be an explicit objective of innovation support in less developed regions (Kaufman, Wagner 2005).

Regional change is ultimately the result of enterpreneural activity, in which innovations (new or improved products and processes, new management styles, locations) are the key factors. Entrepreneurship calls for risk-taking initiatives in a competitive economic environment. It encourages innovative activity and puts a region at the forefront of economic progress. Thus, entrepreneurial culture is a prerequisite for the wealth of regions. A region that hosts entrepreneurial capital and knows how to use it may be expected to be a winner in a competitive economic game (Fischer, Nijkamp 2009).

K. G. Persson (2010) in his book "An Economic History of Europe: Knowledge, Institutions and Growth, 600 to the Present", corroborated two important expectations:

1. Relatively poor European nations had above-average growth rates once they entered the phase of modern economic growth, and there was convergence of income levels in the long run.
2. Late starters tended to grow faster the bigger the income and technology gap separating them from the leading economies. That is true for late starters like Ireland and former socialist economies like the Czech Republic, Russia and the Baltic States which, unusually, missed most of the gains from technological catch-up in the Golden Age. To some extent, it was the Cold War policies that denied the Socialist bloc access to superior technology, as well as an effect of misdirected investment policies.

The lesson for late starters suggested by K. G. Persson (2010) is easy to state but difficult to learn: "There is almost free access to better useful knowledge, but make sure you create the institutional set up to absorb that knowledge."

The research performed by I. Dzemyda and B. Melnikas 2009 concludes, that there are different tendencies of R&D impacts for social and economic development issues in various European Union cohesion regions. In the European Union regions where cohesion is stimulated expenditure of business sector for the R&D activity statistically creates preconditions to increase the GDP per capita, labour productivity per hour worked, but the expenditure of public sector has a weak negative statistical relation with the GDP. The expenditure of the higher education institutions for the R&D activity statistically creates preconditions to increase the number of students, but we can not notice any statistical link on the economy indexes. It is notable that number of patents applied to the EPO and the patents granted by the USPTO has statistically creates preconditions to rise labour productivity per hour worked and the GDP per capita. (Dzemyda, Melnikas 2009)

The survey performed by Adekola and colleagues (Adekola *et.al.* 2008) indicated that competitive business environment serves as the main driving force for development of innovative activities. The necessity of suitable institutional infrastructure that allows adoption, diffusion and profitable use of innovative technologies enhances (Grundey *et.al.* 2008).Taking into consideration the statements elaborated by researchers of the theoretical approach of the regional development theories; the authors are convinced of the necessity to analyse Finnish and Danish experience of development of the economic activity of entrepreneurs in the economic environment through collective efficiency approach.

3. Enhacement of collective efficiency in Finland

Latvia as a region of Europe has begun to work towards development of economic environment especially due to the recent crisis which underlined the necessity to change the path of development building innovation based economy.

The authors consider important to analyse the example of success-story of Finland that led to sophisticated competitiveness indicators and was gained by establishment of innovative environment due to success of regions.

In addition to self-renewal, creative tension can be considered a key factor in innovation-based regional development. The ability of self-renewal cannot be generated or maintained by external control but is rather born spontaneously of the creative tension generated by interaction and leadership.

Tension refers to a state that is characterised by excitement and fascination along with anticipation of the future bringing along something new and different, and/or a state of anticipation characterised by insecurity as to the consequences of future events and action.

Tension is born of opposite or sufficiently diverse forces existing simultaneously and calling into question the prevalent modes of thinking and/or operation and the status quo between two or more phenomena. In the development of regions, the said phenomena may include, for example, relations between organisations or the difference between present and future development with regard to a tangible matter.

Creativeness entails producing unprecedented and original products, processes, ideas and modes of operation utilising information in a manner that creates new and diverse ways of observing and interpreting familiar issues and phenomena.

Creative tension is not generated in the programme-oriented development of regions because the means do not challenge vision and visions do not challenge means. Instead of creative tension, a black hole of strategic work is born between the present and the future. Visions, strategies and means have to a too great extent been considered issues involving planning techniques, leaving their inherent tension underutilised (Ståhle, Sotarauta 2003).

The Fig. 1 shows that only joining all forces that are available to a region the common goals can be met.

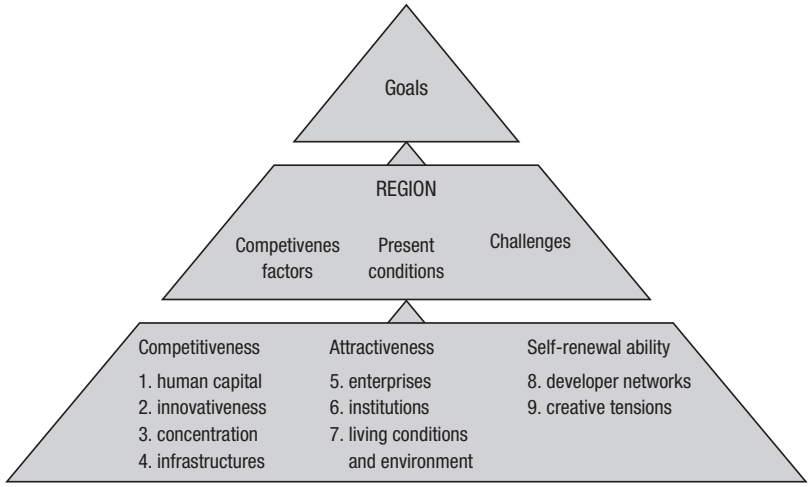

Fig. 1. Assessing the Competitiveness of a Region (Source: Parliament of Finland, Committee for the Future, Assessing the Competitiveness of a Region, Ståhle, Sotarauta 2003)

The sheme shown in the Fig. 1 is used in the regions of Finland. As a good example where it can be observed is Aalto Living Lab is the T3 area – one of the real-life collaborative platforms in Finland. This is based on the cooperation between the City of Espoo, Aalto University, and the companies and other stakeholders operating in the area. T3 development is based on the Vision of the Helsinki Metropolitan Area: "The capital region is a progressive world-class business and innovation centre bolstered by science, art, creativity, learning ability and high-quality services. The success of the area promotes the wellbeing of its inhabitants as well as that of all Finland. The metropolitan area is developed as a united, functional region with its surroundings closely integrated into nature, providing a comfortable place for living, learning, working and entrepreneurship" (Markkula 2010).

T3 consists of three colabrative, but interdependently co-operative parts:

1. Science and technology.
2. Art and design.
3. Business and economy.

M. Markkula (2010) expresses the characteristics of T3 model as an equation:

$$i \rightarrow WB = T^3 + e^3,$$

where:
i – innovation;
WB – well-being;
T^3 – Tiede, Taide, Talous; Science, Art, Economy;
e^3 – eettisyys, esteettisyys, elämyksellisyys; ethics, aesthetics, experience.

The Committee for the Future considers that the creation of conditions for self-renewal should be established as the central objective of regional innovation policy. Focal issues in terms of self-renewal are motivating regional players, creating a shared vision, networks based on trust and mutual dependence, free and open information flows, and mastering the timing of actions (Ståhle, Sotarauta 2003).

The Finnish researchers P. Ståhle and M. Sotarauta (2003) have described four basic requirements for an innovative environment, i.e. self-renewing development:

- players: identity, sense of belonging and charisma;
- networks: links, trust and mutual dependencies;
- knowledge management: information flows and communication;
- mastering timing: situation awareness and the courage to act.

The identity of the players in a self-renewing system, the strength of their sense of belonging and their willingness to invest time, energy and resources are of the essence. Networks are the most significant mode of operation of self-renewing systems. Functioning networks are created by close links between the players, trust and multilateral, positive dependencies. An innovative system must always be built on a platform of free, open flows of information and ample communications. Without these factors, the system cannot be dynamic. In respect of innovations, the deciding factor between success and failure is often proper timing. Windows of opportunity do not remain open forever; they must be recognised and appropriate action taken. Ample, multilateral interaction is basic conditions of these principles, which are in playing at all times at the micro level in relationships between people, determining the dynamics, quality and opportunities for innovation of an environment. On the other hand, circumstances can also be created top-down, starting at the macro level with decision-makers bringing into being an environment that enables these conditions to be met. The creation of conditions for self-renewal occupies centre stage in innovative regional policy. At the core of development are learning networks of developers, innovative environments and leadership that generate creative tension and thus provides encouragement (Ståhle, Sotarauta 2003).

4. Use of Danish experience in Latvia

The authors find it nesesarry to look at Danish experience also because Denmark had similar characteristics and problems of economic environment as Latvia – inter-firm cooperation of this nature is not a part of the country industrial culture (Humphrey, Schmitz 1995), in Denmark, the capitalism model is based on the German holding model as in Latvia, but the American shareholders' model, which is centered on the stock exchange not on the bank, is in Finland (Boronenko 2009).

There is a lack of well-developed cooperation among entrepreneurs in Latvia (Boronenko 2009). The SWOT analysis of the research institutes in the field of agriculture performed by Meženiece and her colleagues (2010) showed that the main

weaknesses are lack of cooperation with entrepreneurs, lack of experience in the project implementation, and aging of scientific personnel in the research institutes operating in the field of agriculture as well as threats – decrease in the R&D investments, low prestige of scientific activities, and unfavourable tax policy to entrepreneurs investing in R&D should be diminished using internal strength – highly qualified researchers and scientific stuff – combined with opportunity to switch orientation to applied research as well as science-intensive production and availability of EU structural funds assistance (total amount 268,55 million euro during programming period 2007–2013) (Meženiece *et al.* 2010).

The Danish Networking Programme was triggered by the recognition that SMEs, i.e. the backbone of the Danish economy, are ill-equipped to deal with global competition. Networking was thought to be the answer and was defined as cooperation between firms aimed at raising competitiveness, in particular at creating new business opportunities, such as developing and marketing new products that deploy significant strengths within individual firms; establishing agents and distributors in new markets; pooling of individual products into complete product ranges. The network programme aimed to stimulate Danish companies in large numbers to overcome their resistance to cooperation. This was why a process approach was particularly important. There are a number of hurdles in this process which need to be overcome. In order to create an interest in networking, examples need to be found of initiatives which have some relevance for and strike a cord with the local enterprises. The next critical gate is that of identifying a viable network idea. The third hurdle is that of convincing a group of firms to pursue the idea and take ownership of its progress. Convincing firms that they need a feasibility study before they push ahead is also critical. These are the main challenges for the network broker. Best practices are methodologies, tools and promotion material which help brokers to overcome the above mentioned barriers (Humphrey, Schmitz 1995).

The other collective efficiency stimulating programme with yearly financing of 13 million euro is Centrecontract-scheme objective of which is to intensify the corporation between universities, private companies and the Authorised technological service institutes. However, the Centrecontract-scheme is unique in the sense that it brings together all three parts of the innovation system, not just two of them as in the other schemes (Christensen 2000).

The Technology Incubators programme that was crried out in Dermak (year 1998–2003) offers state-financed seed-capital to entrepreneurs in combination with counselling and training, premises and administrative services. The objective was to bridge research environments, innovative entrepreneurs and finance companies in order to develop and transfer research and innovative ideas to commercially sustainable innovative projects and enterprises. Technology Incubators as opposed to traditional science parks or Business Innovation Centres is that they provide both knowledge and capital for innovative entrepreneurs. Thus, the overall purpose of the Technology Incubators is to support new, small innovative companies in Denmark by securing a closer interaction

between innovative entrepreneurs, research and capital about the development of new products and services (Christensen 2000).

The Danish Ministry of Trade and Industry initiated the business-related sector programme Business Development in Central and Eastern Europe in 1994. The sector programme comprises three sub-programmes. The Business-to-Business (B2B) programme has been the main sub-programme of the business-related sector programme. The B2B programme has been operational in the period from 1994 to 1998. The overall objective of the B2B programme is to support the development of a strong private sector in Estonia, Latvia, Lithuania, Poland and the St.Petersburg region (program countries) with a focus on strengthening the SME-sector. The scheme is interesting for several reasons. First, it shows that it is possible to stimulate cross-border co-operation and networking (CCN) with positive outcomes. Secondly, it shows that partners in ccn do not necessarily have to be equal in terms of development stage or competencies, unlike in R&D-co-operation where equal or high competencies are essential. This scheme shows that benefits could be complementary: the parties may have different benefits from the co-operation and networking. Thirdly, although one should generally not push firms to co-operation and networking with partners they have not chosen themselves, or would have collaborated if there had been no subsidy. The scheme does show that it is possible to gain from ccn subsidy. In particular, as was the case in the two schemes described earlier in this paper, stimulating CCN with different types of partners may be efficient for long-term competence-building, but many also involve direct, positive effects (Christensen 2000).

New public credit registry in Latvia started sharing data on loans, improving access to credit information. Registering property is easier due to simplified procedures, including allowing payment of registration fees and stamp duties at the land registry in year 2009 (Doing Business 2010).

Latvia reduced the time to export and import by introducing electronic submission of customs declarations. Latvia introduced a mechanism forout-of-court settlement of insolvencies to alleviate pressure on courts and tightened some procedural deadlines in year 2010 (Doing Business 2011).

Latvian economic clustering experience has begun in 2000 since the State Support Programme “Support of Industrial Clusters Restructuring”, as a result, formation of several clusters has been declared. Although, this project did not lead to the formation of really functioning clusters, it made a great contribution to the Latvian economic clustering process by spreading the idea about the necessity of cluster formation. Since 2007 Latvian state cluster policy is determined by State Support Proramme “Custer programme”, which is aimed at elaboration of cluster strategy and raising financial support for the development of cluster competitiveness in the form of open competition until year 2013 (Boronenko 2009).

The authors suggest using EU structural funds assistance for programming period 2014–2020 to elaborate the assistance programme which would strengthen business and

science collaboration using mentoring approach where academic staff and researchers (especially PhD students and young researchers) could learn from the entrepreneurs how to start up and do business. Such programme would enhace business and science cooperation as well as set the base for network building in a different and eventually more effective way because of the changed roles, where scientists are learning from entrepreneurs.

5. Conclusions

According to the study that is carried out, the authors conclude that regional change is ultimately the result of entrepreneurial activity in which innovations (new or improved products and process, new management style, locations) are key factors. Entrepreneurship calls for risk-taking initiatives in a competitive economic environment. It encourages innovative activity and puts a region at the forefront of economic progress. Thus, entrepreneurial culture is a prerequisite for the wealth of regions. A region that hosts entrepreneurial capital and knows how to use it may be expected to be a winner in a competitive economic game (Fischer, Nijkamp 2009).

The lesson for late starters of building knowledge economy sudgested by K. G. Persson (2010) is easy to state but difficult to learn: "There is almost free access to better useful knowledge, but make sure you create the institutional set up to absorb that knowledge."

In concert with regional development theories the authors are convinced of the necessity to analyse Finnish and Danish experience of development of the economic activity of entrepreneurs in the economic environment through collective efficiency approach.

The Danish expirence is more convenient for Latvia than the Finnish one, because in Denmark, the capitalism model is based on the German holding model as in Latvia, but in Finland there isthe American shareholders' model, which is centered on the stock exchange not on the bank (Boronenko 2009) and inter-firm cooperation of this nature is not a part of industrial culture in Denmark neither in Latvia.

The authors suggest using EU structural funds assistance for programming period 2014–2020 to elaborate the assistance programme, which would strengthen business and science collaboration using mentoring approach where academic staff and researchers (especially PhD students and young researchers) could learn from the entrepreneurs how to start up and do business. Such programme would enhace business and science cooperation as well as set the base for network building in a different and eventually more effective way because of the changed roles.

The further research is needed for deeper evaluation of National innovation system and basic indicators of measuring EU structural funds assistance impact on innovativeness development in Latvia, taking into account the previous research as well as good practise of Denmark to create the most efficient allocation of EU structural funds in Latvia.

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ES STRUKTŪRINIŲ FONDŲ PARAMA EKONOMINĖS APLINKOS KŪRIMUI PER VERSLO IR MOKSLO BENDRADARBIAVIMĄ LATVIJOJE

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Santrauka

Straipsnyje analizuojama kitų šalių geroji praktika, siekiant suformuoti su Latvijos ekonominės aplinkos plėtra susijusius siūlymus. Analizei pasirinkta Suomijos geroji praktika, pagrįsta inovacijomis ekonomika ir Danijos programos, susijusios su tinklo kūrimu ir bendradarbiavimo stiprinimu tarp verslininkų ir mokslinio tyrimo institutų. Autoriai mano, kad Latvijos atveju vyriausybė turi imtis atitinkamų veiksmų, siekdama sukurti makrolygmens aplinką, kuri leistų taikyti įvairias sistemas, palengvinančias žinių sklaidą ir komercializaciją, skatintų mokslininkų ir tyrėjų aktyvumą verslo veikloje, taip pat formuotų tinklų ir klasterių plėtrą.

Reikšminiai žodžiai: regioninė plėtra, konkurencinė ekonominė aplinka, inovacijos, klasteriai, tinklas.

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