

## REGIONAL INNOVATION POLICY AND SYSTEM - CASE OF LATVIA

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**Abstract:** *The increasing popularity of the concept of „regional innovation system” has been driven in part by greater international competition, lack of efficient traditional regional development models and policies in many regions around the world. The paper aims to describe situation on innovation policy and system of Latvia. The paper is organised as follows: Section 1 provides the theoretical background, summarising the understanding of the nature of regional innovation system. Then, Section 2 deals with regional innovation policy theoretical aspects. In Section 3 innovation policy of Latvia, key government players and European Regional Development Fund (ERDF) influence on innovation policy is discussed. Section 4 concludes innovation system and policy situation in Latvia. The methods used are: monographic, graphical method and case study.*

**Key words:** *innovation policy, regional innovation system.*

**JEL classification:** O2; R1.

### 1. Regional innovation system – different types and approaches

„Regional innovation system” is one of the most influential concepts in the development of the regional science (Cooke et al., 2000; Iammarino, 2005). The concept is experiencing a rapid development since the 1990s, based on non-linear, social process, which is influenced by some of the system elements and factors (Edquist, 2005). RIS origins are found at NIS theoretical framework (Lundvall, 1992) and in principle, the RIS approach is naturally linked to a broader, more general literature on Systems of Innovation, which encompasses not only regional systems, but also national and sectoral ones (Edquist, 1997) Cooke and others (2000) define the regional innovation system as a system in which businesses and other organizations are systematically related to interactive learning in the social environment. Doloreux (2003) sets out four main elements of the RIS: companies, institutions, knowledge, infrastructure and regional innovation policies. Companies are economic agents, which are important for the innovation system, because they provide knowledge diffusion. He also concludes that the RIS approach encompasses various concepts of “industrial districts”, „innovative milieu”, and „learning regions” to the greatest extent. RIS can also be perceived as a transposition of a national system of innovation on the regional level.

Asheim (1998) distinguishes between three types of RIS: a) territorially embedded RIS; b) regionally networked RIS and regionalised national innovation system; c) regionalised national innovation system. He describes each of the RIS forms following: territorially embedded *IS* - firms base their innovation activity mainly on localised, inter-firm learning processes without much direct interaction with knowledge generating organisations (i.e. R&D institutes and universities). The best examples of *territorially embedded IS* are networks of SMEs in industrial districts. These territorially embedded systems provide bottom-up, network-based support through technology centres, innovation networks, or centres for real service providing market research and intelligence services. Another type of RIS is the *regionally networked IS*. The firms and organisations are also embedded in a specific region and characterised by localised, interactive learning. However, through the intentional strengthening of the region’s institutional infrastructure, for example,

through a stronger, more developed role for regionally based R&D institutes, vocational training organisations and other local organisations involved in firms' innovation processes these systems have a more planned character involving public-private co-operation. The networked system is commonly regarded as the ideal-type of RIS: a regional cluster of firms surrounded by a regional 'supporting' institutional infrastructure. Cooke (1998) also calls this type 'network RIS'. The regionally networked innovation system is a result of policy intervention to increase innovation capacity and collaboration. The third main type of RIS, the *regionalised national innovation system*, differs from the two preceding types. First, parts of industry and the institutional infrastructure are more functionally integrated into national or international innovation systems,- innovation activity takes place primarily in co-operation with actors outside the region. An innovation system incorporates mainly the R&D functions of universities, research institutes and corporations. Second, the collaboration between organisations within this type of RIS conforms more closely to the linear model, as the co-operation primarily involves specific projects. Within such systems, co-operation is most likely to arise between people with the same occupational or educational background. One special example of a *regionalised national innovation system* is the clustering of R&D laboratories of large firms and/or governmental research institutes in planned „science parks”.

The systems of innovation approach (Edquist, 1997, 2001) argue that innovation should be seen as an evolutionary, non-linear and interactive process, requiring intensive communication and collaboration between different actors. Interaction between agents is a necessary condition for an RIS efficient functioning. Interaction and communication has to be a process within companies as well as between firms and other organisations such as universities, innovation centres, and educational institutions, financing institutions, standard setting bodies, industry associations and government agencies. The aim of this interaction and communication is concerned with the flow of economically useful knowledge among those organisation, taking the form of learning processes that support the generation and diffusion of innovation. The „knowledge infrastructure” is mentioned organizational infrastructure that is needed to support innovation. „Knowledge infrastructure” applies for both the public and private organizations, such as knowledge parks, technology parks, technology incubators in particular industries, laboratories and similar facilities, which include innovation infrastructure. RIS is dependent not only on the amount of knowledge generated by businesses and institutions, but also on how these organizations interact with each other. Elements constitute the essence of the interaction, guiding the process of developing their own RIS system. Three important things to be noted on the RIS are as follows: first, the RIS is a social system, and secondly, it involves more interaction between participants (private and public) that occur in a systematic manner, thirdly, a systematic approach is provided to enhance the region's capacity for learning.

Autio (1998) argues the RIS system consists of two interdependent subsystems. Subsystem consists of 2 branches: the companies, their customers, suppliers and competitors, and institutional subsystem, which consists of a number of institutions (public research institutes, technology transfer contact, universities) involved in knowledge creation and diffusion process. In the ideal case, there are intensive interactive relationships within and between these subsystems facilitating a continuous flow or exchange of knowledge, resources and human capital. Economically developed regions of these two subsystems have close interactions that provides long-lasting and continuous knowledge generation, diffusion and application. Inappropriate or missing interaction or links between the different actors and organisations involved in the innovation process may constitute a major RIS deficiency. Two types of problems are common within the system's network dimension: a poor innovative performance may result from a lack of communication and cooperation between the RIS elements leading to an insufficient flow

of knowledge and technology. Too strong ties between innovation relevant organisations can lead to serious lock-in effects undermining the innovation capabilities of regional economies. Hence important is distinguish that traditional RIS approach emphasizes local factors in promoting innovation, opposite researches points to the critical knowledge from outside (Bathelt et al. 2004; Boschma, Wal, 2007). Some local companies - often leading-ones in the region - acts as a „knowledge initiators” (Owen-Smith, Powell, 2004); searches for and absorb knowledge from outside the region and county in the other RIS. If external links are poorly developed, the region suffers from a limited access to international pools of resources and knowledge. This may be critical as in most cases they have to complement the local ones. Interactive learning between the actors of the system is emphasised especially in territorially based systems of innovation (Gregersen & Johnson 1997).

The RIS efficiency may vary based on characteristics of region. Innovation systems in metropolitan regions are most likely to be different from innovation systems in rural regions having less diversified and different economic sectors. Moreover, due to regional specificity, social and cultural context, and institutional and support organizations, the RIS will differ between regions with similar economic and industrial structures. Innovation capacity therefore, unevenly distributed between disparate spatial areas. In describing the relationship between innovation performance and regions, Malecki (1997) argued that large urban areas are expected to have higher rates of innovation, more rapid adoption of innovation, and higher proportions of skilled workers than smaller places.

## **2. Regional innovation policy – concept and development**

Regions are considered to play a crucial role in the European Research Area, bring policy measures close to the citizen, bridge the EU level and the local level. Those are important bases of economic co-ordination at the meso-level, although the level of regional administration can differ quite a lot across various countries. In varying degrees, regional governance is expressed in both private representative organisations, such as branches of industry associations and chambers of commerce, and public organisations, such as regional agencies with powers devolved from the national (or, within the European Union, supra-national) level to promote enterprise and innovation support (Asheim et al., 2003a; Cooke et al., 2000).

It makes sense to regionalize innovation policy for the following four reasons (Fritsch/Stephan, 2005): First of all, innovation processes are taking place unevenly in geographic space. This is partly due to the variety in endowment with production factors and with industrial sectors. Second, innovation networks function differently in various regions. Third, innovation activity is crucial for economic development and growth on the regional as well as on the national level. It is important to realise that economic development and growth on the two different levels might conflict. Fourth, using various policy approaches in different regions enables countries to gain much more varied experiences, thereby enabling regions to learn from one another. The identification and the localisation of relevant supporting points for leveraging the effects of public policies require an in-depth knowledge of the actors that are committed, of their history within the space considered, and of their impact in the innovation process that is at stake (Hamdouch, 2008).

In the 1990s, the concept of innovation policy has changed from a research and technology policy to a more holistic innovation policy that integrates other political sectors, such as education and competition and regulatory, regional, agricultural and foreign policies. This results from a new understanding of R&D infrastructures, changes in economy (i.e. globalisation), increasing co-operation between different sectors of the

economy, increasing role of ICT and knowledge transfer and new paradigms in economic theories (Lundvall & Borrás 1997; Biegelbauer & Borrás 2003). When knowledge creation and transfer are considered the most important devices for economic growth and well-being, creating and sustaining innovations are regarded as the keys to improved global competitiveness (Cooke 2004; Corona et al. 2006). Therefore, the role of innovation policies and, especially, the tools used to promote companies' innovation activities are emphasised. Recent theories also emphasise that companies' ability to innovate does not solely depend on the entrepreneurs, as also communities, and especially regions, have an effect on innovation processes (Corona et al. 2006). This is why the focus of innovation policies in the 1990s lay on institutions, especially on creating bridging institutions, and networks.

Lundvall and Borrás (1997: 37) define innovation policies as „elements of science, technology and industrial policy that explicitly aim at promoting the development, spread and efficient use of new products, services and processes in markets or inside private and public organisations. The main focus is on the impact on economic performance and social cohesion”. The major objective of an innovation policy is to enhance the learning ability of firms, knowledge institutions and people. An innovation policy should also cope with the possible negative effects of the learning economy, such as social and regional polarisation (Lundvall & Borrás 1997: 38). However, Tödtling and Trippl (2005: 1204) state that innovation and regional policies emphasising high-tech and knowledge-based or „creative” industries are targeted at successful regions.

### **3. Innovation system, policy and key institutions in Latvia**

#### **3.1. National and regional innovation policy development in Latvia**

Innovation policy development in Latvia started relatively late – comparing to other EU countries. In 2001 National Innovation Concept was the key original background document for innovation policy in Latvia. It defines the core concepts of „innovation”, „innovation policy”, national innovation system”. The need to support an innovation-friendly environment, to develop modern infrastructure across the whole country, to develop national science and research policy, technology transfer, and the necessity to develop all this within a supportive legal environment was discovered. The process of policy design in Latvia in general is becoming more structured and in line with established practices of policy making, yet proper and efficient application of the introduced tools is sometimes still questionable.

Since then innovation policy has been developed and implemented in a variety of documents and action plans with the „Entrepreneurship, Competitiveness and Innovation Promotion Programme for 2007-2013” (program). The aim of program is to promote the capacity and efficiency of the national innovation system with the main directions of activity for innovation development envisaging facilitation of knowledge and technology transfer, establishing favourable institutional environments for innovative activity, and promoting cooperation of science, education and the private sector, as well as supporting development of new products and technologies.

Since Latvia as a whole corresponds to a single NUTS 2 region there is no formal regional innovation policy in terms of the EU definition. Moreover, although there are 5 NUTS 3 regions these are statistical and not administrative entities. Accordingly, Latvia's national Innovation Strategy does not specifically separate activities into regions rather it targets the national science and research institutions, which are located in larger cities. Policy takes the form of demand-driven support to state, municipal and private businesses (wherever they are located), support measures for science research address existing

universities and science institutes. Thus there is no regional administration and no separate strategy at the regional level. One exception to this is the activity „Co-financing to the investments in micro, small and medium-sized enterprises operating in the specially assisted areas”. However, this is not primarily an innovation promotion activity.

Latvian policy-making process needs significant reforms in order to promote the recovery and development of the existing innovation system due to weak results of national innovation capacity. In many cases the needed changes focus on governance or interventions that are not very expensive but that support the development of capacities and institutions needed for the future. Larger investments can initially be financed from the Structural Funds (SF) and then gradually transferred to the state budget. The primary challenge for the funding of innovation policy in Latvia is the availability of the funds. Due to the sharp decline in government funding for research and innovation in the past few years the funding of innovation has been mainly supported from the EU SF. Therefore it is highly likely that a discontinuity in funding may arise in 2014-2015 as experience shows that in Latvia each funding cycle starts with a time lag of several years.

One of the main challenges being reported during the past few years is the development of close collaboration between research and business sectors still persists since beginnings of 2000.

The innovation policy trends and cycle have been closely bound to the EU Structural Funds (SF) programming period, specifically the national innovation strategy prepared for the years 2007-2013. The action plan for the implementation of the above programme contains measures that can be described as being directed towards strengthening and generating knowledge flows among actors in the national innovation system.

In recent years, there have not been any national innovation policy discussions, though innovation policy issues have been informally discussed. Overall, the existing situation is somewhat alarming because the majority of research and innovation support measures mostly rely on available funding from the Structural Funds, which will end when the current programming round will finish at the end of 2013.

### **3.2. Key policy formation institutions in Latvia**

According to Innovation Policy Progress report (2009) "External assessments point to the fragmented nature of policy formulation" and the fact that there is room for improved inter-ministerial coordination in Latvia as well as the need for a closer integration of R&D and innovation policy. While in numerical terms the number of organizations involved in the innovation governance system of Latvia seems sufficient, there is a continuous lack of a high level coordinating body in this domain. There are key governmental bodies coordinating Innovation policy development: those are 2 ministries: Ministry of Education and Science and Ministry of Economics.

The Ministry of Economics, according to author's view, plays key governance role in innovation policy process development at national level. The Ministry develops policy documents for further submission to the Cabinet of Ministers. The main implementing bodies of innovation policy in Latvia are the Latvian Investment and Development Agency, the Latvian Guarantee Agency and the Mortgage Bank of Latvia. The Latvian Guarantee Agency under the Ministry of Economics is charged with implementation of the tasks defined in the national economic policy with regard to aid provision to SMEs to help them attract new investments. The mechanisms include direct financial aid for implementation of innovative business ideas as well as credit and loan guarantees (including export promotion). In its turn, the public holding company Mortgage Bank of Latvia provides credit resources for business companies on favourable terms and various public funding schemes for start-ups. The Ministry of Economics has the Department of Business Competitiveness that includes the Division of Industry and Innovation.

The Ministry of Education and Science implement innovation policy through the national research programs and specific EU SF and other donor programs. The Ministry covers those support measures involving an R&D component, with public research organisations as the primary target group. The Ministry discharges its responsibilities and duties in the field of research and innovation through its Department of Science, Technologies and Innovation.

The Latvian Council of Science, an institution under supervision of the Ministry of Education and Science, is mandated, among other things, to enhance implementation and coordination of R&D and innovation policy.

At the parliamentary level, the main body dealing with innovation policy is the Commission on Education, Culture and Science with a sub-commission on the Steering of the National Development Plan (NDP). On the political level, the Prime Minister's Cross-departmental Coordination centre coordinates the national development planning, starting from January 2012. Several advisory bodies, such as the Latvian Academy of Sciences, the Commission of Strategic Analysis (under the supervision of the President of Latvia), the Employers' Confederation of Latvia and the Latvian Chamber of Commerce and Industry, exert an influence on policy-making by means of both proactively approaching the policymakers and providing their input on the process of public consultation. No new committees or advisory bodies have been set up during the reporting period specifically to monitor and advise policy-makers on innovation.

The role of State Regional Development Agency (STDA) in innovation process fostering formally is active, but as far agency executes activities of Ministry of Environmental Protection and Regional Development than there are usually other priorities; agency concentrates mainly on development and coordination of work of municipalities with less attention on regional innovation fostering. Some changes are in process at the moment (2012) within Ministry, as for next programming period it works on new policy guidelines with development of approach and concentrating efforts to boost regional innovation.

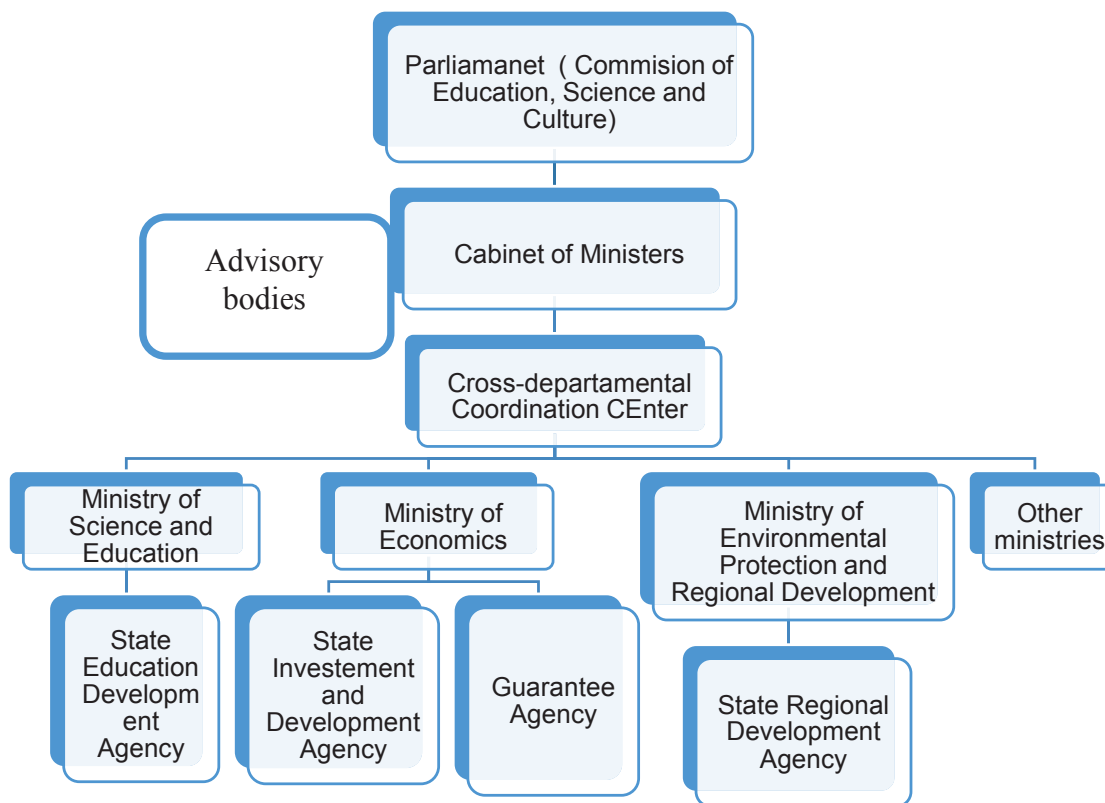


Figure 1. The institutional framework for innovation policy.

Source: Authors' own interpretation.

**To summarize, innovation policy formation model - the missing point is the close cooperation in between Ministries and coherent actions.**

### 3.3 Role of ERDF at innovation policy support

The ERDF is pivotal to the implementation of innovation policy in Latvia as it focuses on support in Latvia innovation and its commercialisation. The Operational Programme 'Entrepreneurship and Innovation' (OP2) contains most of the innovation support measures co-financed by the structural funds in Latvia (71%) with OP3 'Infrastructure and services' providing another 17%, so that ERDF funding accounts for about 88% of the funding of innovation support measures. OP2 has three priorities within which the key broad measures that include innovation activities are: measure 2.1.1 „Science, research and development”, measure 2.1.2 „Innovations”, measure 2.2.1 „Accessibility of financial resources”, measure 2.3.1 „Business support activities” and measure 2.3.2 „Business infrastructure and improvements to equipment”. The first is aimed at research institutions and the biggest funding goes towards development and improvement of research infrastructure (EUR 146 million). Direct measures take two forms: grants aimed at supporting new businesses, product development and promotion of high value added activities and financial instruments such as loans, guarantees and equity support for the

development of enterprise competitiveness and higher risk activities. Financial instruments for enterprises seeking to improve their competitiveness have been allocated about 33% of OP2 innovation intervention funding (EUR 217 million); improving science research infrastructure and quality 25% (EUR 168 million) and support to enterprises for the creation, production, and sales of innovative technologies and products 22% (EUR 146 million); the formation of business incubators and technology competence centres and financing for SMEs in under-developed regions 13% (EUR 86 million). Some of these measures, e.g. risk capital and support for new products, are successors to 2004-2006 programmes.

Boosting applied research capacity and innovation capability with EUR 550 million or 67% of the allocated funding from a total of EUR 821 million, is the policy area that receives the largest funding. The idea is to enhance the capability of research institutions to generate new science and new technologies. Research institutions will receive ERDF support for their physical infrastructure, such as buildings, laboratories and equipment, and also for Expert Evaluation Network. The aim is to increase the commercialisation of the research output of both the public and private sector actors. Within this broad policy area a second focus is on supporting investment in technology-intensive firms which demonstrate innovation in the commercialisation of new technologies. Innovative SMEs and entrepreneurs will be able to access selected measures of support. This is expected to encourage further innovation and technology commercialisation, in anticipation of broadening the base of home-grown technology-intensive firms in Latvia in the long run. ERDF support will also be applied to creating an innovation-friendly environment, with EUR 161 million (20%) of the total budget. Key policy measures include upgrading broadband infrastructure throughout Latvia to access the latest information and communication technologies such as broadband internet, 3G/4G wireless networks and public access to networked computers and public databases. In addition to physical ICT infrastructure, a variety of value-adding services will be developed further such as e-health, e-government, e-learning and e-inclusion. The third focus of ERDF support is to improve knowledge transfer related to innovation nationally and internationally. EUR 110 million (13%) has been allocated for the process. These measures are intended to help develop effective technology transfer centres and cooperation networks operating to improve the commercialisation of research. Technology transfer will be implemented together with research institutions and existing local or foreign technology firms as partners, or in new SMEs as high-growth businesses for commercialising new technologies.

## **Conclusions**

1. Regional innovation concept has significant role in regional science and different classification approach exists. Besides that it is argued that RIS efficiency vary based on characteristics of region and is affected not only by economical, by also by social and cultural context.
2. European Research Area puts efforts to develop meso-level or in other words - „region”.
3. In Latvia, institutional framework of innovation support system is concentrated on 2 directions, based on approaches of Ministry of Economics and Ministry of Education and Science. Even there are efforts to create sustainable innovation support infrastructure, lack of cooperation between ministries indicates on critical need initiate programs and tools to support industry and academia research.
4. There is lack of coordinated regional innovation policy and Ministry of Environmental protection and regional development concentrates on municipalities' development, but so far had no interest in forming regional innovation support policy.



5. Latvian policy making process needs significant improvements in order to promote the recovery and development of existing innovation system.
6. The funding of innovation system in Latvia, mainly supported by EU funds, which is recognised as main risk factor for long term innovation policy and system formation.

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