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Regional innovation strategy as a policy instrument

Abstract

The historical, cultural, political and economical disparateness of eventual trans-boundary regions makes the learning process of building regional identity, single economic space rather complex. The creation of a cross-border regional innovation strategy can play important role in enhancement of the interregional and international cooperation and competitiveness. This is particularly true on the parallel background of regionalisation of innovation systems in the most European countries. Also, former ideas of a success of innovation policies in developed countries and/or regions can be applied in lagging regions as well, taking into account special conditions and to fashion the regional strategy according to the character of the region of consideration. Cross-border regional innovation strategy as a tool for developing cross-border economic relations has a good chance to utilise regional integration effects in conditions of non-cooperating border regions and in enhancement of the interregional and international cooperation and competitiveness.

1. Regional innovation and regionalisation process

Efforts in the Research, Technology, Development and Innovation (RTD&I) both at national or regional level have been linked in the economic literature with higher growth rates, competitiveness and many other factors. Hence, the regional policy in the former post-communist countries should be more concentrated on the promotion of innovation to close the technology gap, especially in less developed regions. The main policy and indicator challenges at the present time deal with problems of change and transition, and on substantial issues related to the knowledge economy. For understanding the dynamics of innovation and knowledge creation in a wider social and economic context requires new methodological approaches for measuring quantity and quality of the process are required to be discovered, as well as to propose new policy mixes reflecting dynamic economic and societal changes. Governance should aim at the improvement of the system of public communication on RTD&I programmes. A system for monitoring each step of innovation policy implementation should be introduced with appropriate benchmarking and evaluation. The regulatory reform and governance should include several political aspects such as stronger market competition, education and culture with a greater focus on innovation, and high-quality training in innovation-related subjects. The regional governance system is in a process of changing toward more networking structure and away from hierarchical structures to a multilevel governance system. Also, there is a growing interest in study of pressures and interactions between the regional and national science policies. Globalisation brings diminishing importance of national borders and in such a new situation, regions happen to be more accountable for their own development. Regionalisation at the end of the first decade of the 21st century has a new shape resulting from the European Lisbon strategy aimed to make the EU "the most dynamic and competitive knowledge-based economy in the world capable of sustainable economic growth with more and better jobs and greater social cohesion, and respect for the environment by 2010".

Economic concepts of regional competitiveness based on innovations and knowledge-based economy on one side and economic and social territorial cohesion, strong regional policy orientation on the other side, result in the concepts of learning regions, regional innovation systems and regional competitiveness.

An increasing interest has emerged in literature, which focuses on the importance of knowledge, learning and innovation to the economic success of firms, regions and nation-states (LUNDVALL, 1988; FORRANT, 2001). New theories emphasise the role of human and social capital in regional growth and development as missing elements of its explanation. Publicity of human and social capital has become an important point of policy discussions. Regional strategic planning and decision-making postulate high quality of human capital and the involvement of citizens as a form of social capital to be mobilised to facilitate actions. Negotiating and building alliances and partnerships among different local and government institutions located in the region, universities, private sector interests and non-profit organisations is a crucial task, but hard to manage. The difficulties are compounded in the former communist countries facing their heritage of central-planned economies.

Regionalisation has been emerged partially from the New Institutional Economics, developing an approach, emphasizing efforts to upgrade the regional and local supply side infrastructure of entrepreneurial skill. The main difference between neo-institutionalist and neo-liberal theories is the alteration of the original assumptions about human behaviour and individual or state motivation. Aggregate social outcomes do not arise spontaneously from interaction between rational and perfectly informed individuals in pursuit of self-interest (POP, 2002). Neo-institutionalists believe that actors operate in an environment already structured by institutions. It is suggested to favour bottom-up, region specific, longer term and plural actor based policy actions. New institutionalism highlights two essential concerns:

- economic behaviour is embedded in networks of interpersonal relations and therefore crucially influenced by aspects such as trust and cooperation,
- economy is shaped by enduring collective forces - these may be formal institutions as well as informal or tacit institutions such as habits, routines and norms.

Innovation takes a central role in the process of economic development, when defining it as a product, process and organisational innovation in the firm as well as social and institutional innovation at the level of industry, region or nation. Innovation is considered as an interactive process – it is no longer seen as a linear process, the importance of feedback loops is now placed in the centre. Traditional approach (early works of J. Schumpeter and others) have emphasized R&D as the origin and driver of a successful innovation strategy. On this view, innovation is seen as a linear process, originating in R&D labs, and culminating in the introduction and marketing of new products and processes, (MOWERY and ROSENBERG, 1989). Also, innovation is shaped by a mixture of institutional routines and social conventions. Ever more habitual behaviours embodying knowledge - often tacit in its nature, as well as aspects such as trust are viewed as being at the heart of the innovation process. This approach leads to the concept of *social capital*, understood as networks, norms and trust that facilitate cooperation for mutual benefit. Social capital increases, supports and explains the benefits of investment in physical and human capital.

At regional level, this concept leads to the notion of learning region. Learning regions as a phrase is accredited to Richard Florida (FLORIDA, 1995). After his introducing the notion many authors have taken it up, although from various perspectives. An interesting idea is to refer to the learning region as a tool. To explain this, the definition of learning region by ASHEIM (2001) is borrowed; it is “increasingly organized co-operation with a broader set of civil organizations and public authorities that are embedded in social and regional structures.” Thus as an appropriate tool a network of institutions based on a partnership is considered that fosters

development strategies. By using networks the learning region turns to be flexible and creative in adopting new ideas that were approved by open-minded institutions and are to be carried out by leaders who possess the spirit of entrepreneurs. The learning region is based on the understanding that economic growth is at present dependent on innovation and at the same time, innovation is dependent on the creation, dissemination and application of knowledge.

Since economic development can be understood as a process of innovation activities, innovation emerges as the engine of growth and the role of institutions is an essential variable, "the national innovation system became an important part of national industrial policies" (LUNDVALL, 1992). As the conditions of regions in the regionalisation process are gradually changing over the time, what brings – in accordance with learning regions concept - new challenges such as change of the regional governance system toward more networking structure, embedding together cooperation and competition, away from hierarchical structures. Regionalisation accompanied by decentralization of power and resources leads to a situation when regional (innovation) policies started to play more important role. Innovation as a means of competitiveness for firms has a new form of means of regional development, and the main difference is in its added emphasis on networking among regional actors. National innovation systems in their nature are not primarily built to take into consideration regional aspects RIS, and networking is possible only on a base of geographic proximity of actors. The first research works on regional innovation systems are conceived under the influence of empirical studies on developed regions.

There is a question if regional innovation systems should be seen and assessed as policy tools for achieving regional growth generally, including less developed regions and to be adopted e.g. into European regional policy. Along with the theoretical studies, European Commission built up broad institutional and information support on innovation and launched regional innovation strategy projects in several waves, enabling to get empirical results. The Cohesion Policy intends to contribute to increasing growth, competitiveness and employment by incorporating the objectives of the Lisbon Strategy and the words "innovation" and "knowledge" are probably the most frequently used terms in European policy. Regional innovation strategies, operational programmes and measures in favour of research, technological development and innovation (RTD&I) or more generally 'competitiveness' have been designed and funded with the support of the Structural Funds since the early 1990s.

In spite of many efforts on regional, national or European level, the technology gap remains extensive. European regions are expected to gain a competitive advantage based on innovation, rather than cost. This means, as written above, to promote tough and close partnerships among the public sector, academic sector, agencies dealing with RTD&I and innovation, and the private sector. Establishing of networks and clusters should develop the exchange of knowledge and facilitate integration of innovation into production and services, resulting in the creation of well functioning regional innovative systems. As regards innovation performance, there exist vivid regional disparities. Among innovation leaders there are Nordic regions and regions with high economic performance such as in Germany, United Kingdom, Netherlands, etc. Also, metropolitan regions are among those with high innovation performance, including some new acceded countries. Economic domination of the metropolitan urban regions is typical for the new acceded countries in general.

2. Regional innovation strategies as a means of change

Although there have been success stories in strategies to better structure innovation policies in some regions, (CHARLES et al, 2000) showed the difficulties in achieving success in regions where some form of successful innovation system had not been established. This is a particular problem in the post-communist countries, where the process of decentralisation and

regionalisation was launched only in the beginning of the first decade of the 21st century. Since 1994, more than 120 European regions have received grants to create a regional innovation strategy in the frame of the EU projects.

Figure 1: RIS regions.
Source: http://www.innovating-regions.org

There has been a condition that the projects are implemented by the regional authorities in co-operation with the universities, regional development agencies and experts, and according to the general methodology. A coordination body of the programme is The Innovating Regions in Europe (IRE) Network (http://www.innovating-regions.org) with an aim "to facilitate the exchange of experience between regions interested in regional innovation policies, strategies and schemes, and to improve access to good practice".

The main objective of the RIS projects is to create a strategy for the period of 10 years focused to development of technologies and infrastructure such as technology and innovation centres, technology industrial parks, incubators, spin-in and spin-off processes, financing systems of innovation entrepreneurship, etc. Target group or users of the RIS project results are mostly technology-oriented innovative companies active in the region and RTD organisations. Regional innovation strategy projects have been implemented in four basic waves and covered almost the whole European Union and some of the regions of associated countries (the highest number of uncovered "white areas" are located in France):

Table 1: Four waves of RIS projects. Based on sources of IRE Network.

EU Programme	Characteristics	Countries and number of projects (in brackets)
RIS: Regional Innovation Strategies 1994 – 2001	34 plus 71 projects implemented in the framework of RIS/RITTS. 25 RIS+ projects were launched to support regions in the implementation of specific measures and projects stemming from their RITTS/RIS strategies.	Austria (1), Belgium (2), Finland (1), France (2), Germany (3), Greece (5), Ireland (1), Italy (3), Netherlands (1), Portugal (2), Spain (8), Sweden (1), United Kingdom (4).
RITTS: Regional Innovation and Technology Transfer Strategies 1994 – 2001		Austria (3), Belgium (1), Denmark (2), Finland (3), France (6), Germany (10), Greece (4), Iceland (1), Ireland (1), Italy (8), Netherlands (5), Norway (2), Portugal (1), Spain (8), Sweden (6), United Kingdom (10).
RIS-NAC – Regional Innovation Strategies in Newly Associate Countries 2001 – 2004	19 projects, first RIS projects in Central and Eastern Europe, Each region was accompanied by at least one other region that had already undertaken a RIS project.	Bulgaria (1), Cyprus (1), Czech Republic (3), Estonia (1), Hungary (4), Latvia (1), Poland (5), Romania (1), Slovakia (1), Slovenia (1).
New RIS – Regional Innovation Strategies in new Member States and Associated Countries 2005–2008	34 projects in the new Member States and Associated Countries, Each region partnered with at least one other region that has already undertaken RIS project.	Bulgaria (4), the Czech Republic (1), Estonia (1), Hungary (1), Israel (2), Lithuania (2), Malta (1), Norway (1), Poland (7), Romania (5), Slovakia (6), Switzerland (2) and Turkey (1).

The creation of RIS has to be done by utilisation of the special methodology that is derived from the RIS project preparation methodology but includes also all specifics that emerges from its cross border character. In general RIS methodology consists of three main stages. The methodology can be illustrated by the following picture:

It is interesting that in many new accession countries, regions have only recently been established as political and administrative units. In two cases, projects involved a cross-border region RIS (the Czech Republic/Poland and Hungary/ Slovakia. The crucial and critical is the period just after the formal end of a RIS project, when the implementation phase of the innovation strategy is to be launched. Regional authorities have no more any support for implementation from EU sources and there is a challenge to utilise the potential of knowledge, visions and ideas, regional networking, strategic intelligence and enthusiasm, which have been developed in the region during the project.

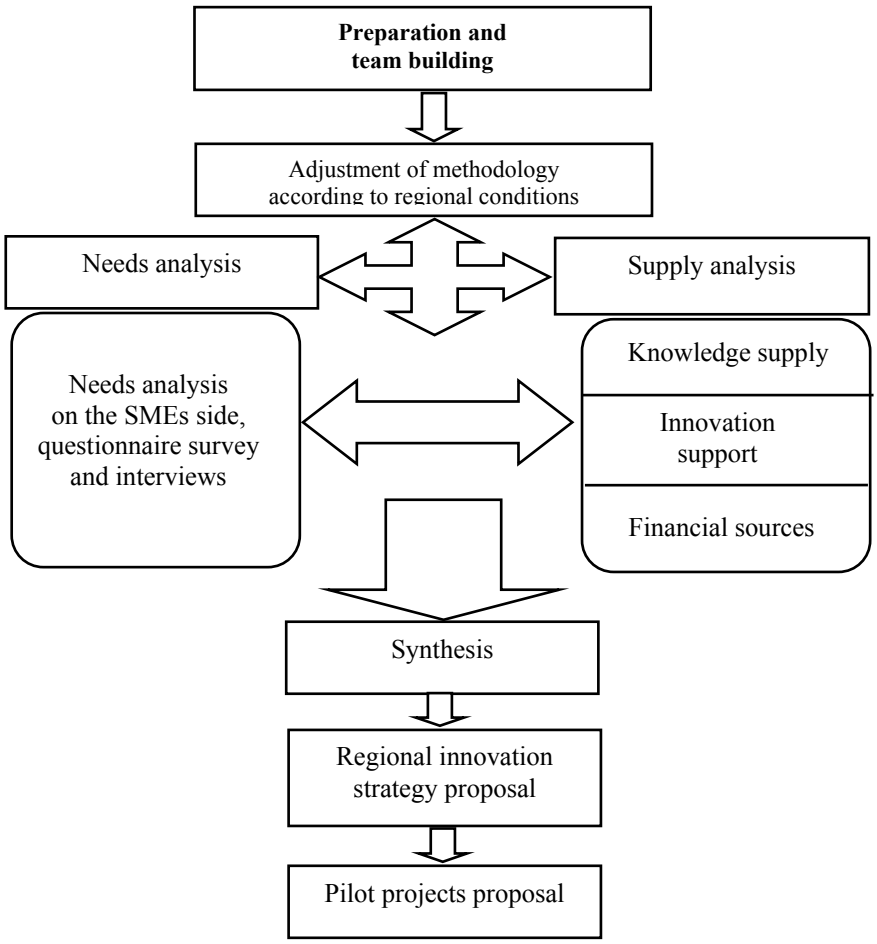

Figure 2: Methodology of RIS. HUDEC, 2007.

RIS projects have an impact on changes of innovation system in Slovakia, the creation of RIS in all the regions resulted in revolutionary reconstruction of the fully centralised national system of innovation to a new structure including regional innovation centres (RIC) in each of the NUTS-3 regions. Four main innovation policy tools are going to be supported in the new model:

- innovation centres
- technology platforms
- computerisation
- knowledge bases

Each of the regions has a chance to drow up a policy mix corresponding to regional specific needs, business environment, strategic priorities and situation in creation, application and diffusion of innovations. Thus, RIS projects may have a progressive “rolling stone” impact on changing regional strategic priorities, regional networks and cluster building, as well on regionalisation of innovation systems. All of the effects mentioned are building stones of the regional competitiveness concept.

The regionalised model of innovation system is shown in the following picture:

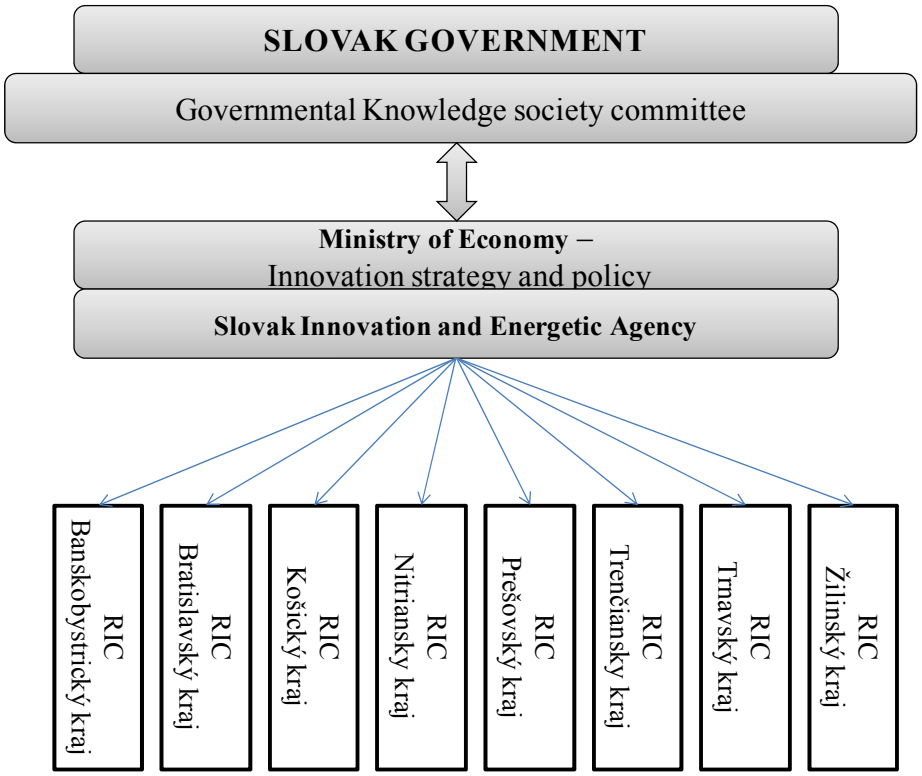

Figure 4: The new concept of National Innovation System in Slovakia.

3. North Hungary and Eastern Slovakia and regional innovation

Essential factors of regional disparities in the Central Europe can be recognised as proximity to western borders (poles of growth), urbanisation, diversification, quality of infrastructure, the level of human and social capital, entrepreneurial tradition, and their historic-cultural background (KOCZISZKY, 2006; HUDEC - URBANČIKOVA, 2007; KOCZISZKY, KUTTOR, 2006). It is not surprising that during the transition period, capital cities and western regions have been generally much more successful, while eastern and rural regions are lagging behind. Regions with higher innovation and proximity to poles of growth have much better chance to adapt to the new circumstances of the EU market as those regions marked with „the signs“of peripherality. The difference between the regions of interest and corresponding capital regions seems to be huge although the regional disparities can barely be measured just using one and very questionable indicator as the GDP per capita. Before the year 2007, both Eastern Slovakia and Northern Hungary were in ranking of the NUTS-2 regions ranked among the ten lowest regions. Optically their position improved, as the change from EU25 to EU27 in 2007 caused that the fifteen lowest regions in the ranking are all in Bulgaria, Poland and Romania (EUROSTAT News Release, 2007). In spite of many initiatives in this area on regional, national or European level, the technology gap remains substantial, what can be illustrated by the GDP comparison:

Table 2: Regional GDP per capita. Source: Eurostat 2007

Region NUTS-2 level	GDP per capita in 2004 of the EU27 average
Eastern Slovakia (Východoslovenský kraj)	42,3 %
Bratislavský kraj capital region of Slovakia	129,3 %
Northern Hungary (Észak-Magyarország)	42,5 %
Közép Magyarország capital region of Hungary	101,6 %

It is vital to help Europe's regions to gain a competitive advantage based on innovation, rather than cost. To do so, innovative actions have to encourage strong and close partnerships between the public sector, agencies dealing with RTD&I and innovation and the private sector. This partnership should improve the exchange of know-how and facilitate integration of innovation into the production practice, utilising the creation of regional innovative systems. Cross-border strategic innovation planning might be a supporting factor for low economic interconnection. There are several open questions in respect of the integration influence on cross-border regions. Optimistic economic opinion would expect integration benefits at a regional level, including regional integration. Nevertheless, there are a number of other factors and barriers respectively, hindering integration at regional level between two border states. There are number of studies suggesting that trade liberalisation might strongly affect the economy of border regions. But integration and liberalisation of the trade does not necessarily lead to economic prosperity of a border region – the situation of comparatively small Mexican economy that get used the potential U.S. market is sure different to Northern Hungary and Eastern Slovakia border regions. The recent studies based on the New Economic Geography models (KRUGMAN – HANSON, 1993; NIEBUHR - STILLER, 2004), show some general conclusions for the border regions connected with integration and liberalisation: reduction of international trade costs as well as liberalisation of cross-border labour movement affect the distribution of population, production factors and firms both among and within countries. How important is the phenomenon of country border in the Central European countries, or Slovakia respectively? There are several papers dealing specifically with the Northern Hungary and Eastern Slovakia border regions (FRUNZARU, 2005, HUDEC - KOĽVEKOVÁ, 2007) explaining some of the barriers for a closer cross-regional integration. A part of the recent studies is dealing with a positive experience of cross-border regional innovation systems building (BERGMAN 2006, PERKMANN 2005). But it does not describe the situation, if there is no intense knowledge flow between the border regions and economic relations are not developed enough because of low development of the knowledge sources at the both sides of the border, informal cultural or historic barriers for cooperation are strong, and the national phenomenon is strong and prevalent. In this respect, cross-border regional innovation strategy as a tool for development of cross-border economic relations has a good chance to utilise regional integration effects in conditions of non-cooperating border regions and in enhancement of the interregional and international cooperation and competitiveness. The bilateral RIS is expected to help to strengthen transnational and regional co-operation in the field of R&D and innovation in order to open new areas of transnational activities and to exploit the existing capacities on a more efficient, integrated way. The bilateral RIS was under the preparation in the frame of „North Hungary and Košice Bilateral Regional Innovation Strategy Project - NORRIS" funded

by EC within the 6th FP. An original survey methodology had to be prepared in order to get the cross-border innovation activities as close as possible. Selection of the economic branches for the questionnaire survey in Košice region has been made according to following rules:

1. The branch's share in total employment.
2. The branch's location quotient.
3. Regional priorities
4. Assumption of innovation potential
5. Location and size (geographical and size principle, different size and location following representativeness principle as much as possible.

Specialisation of the border regions has been derived from the location quotients:

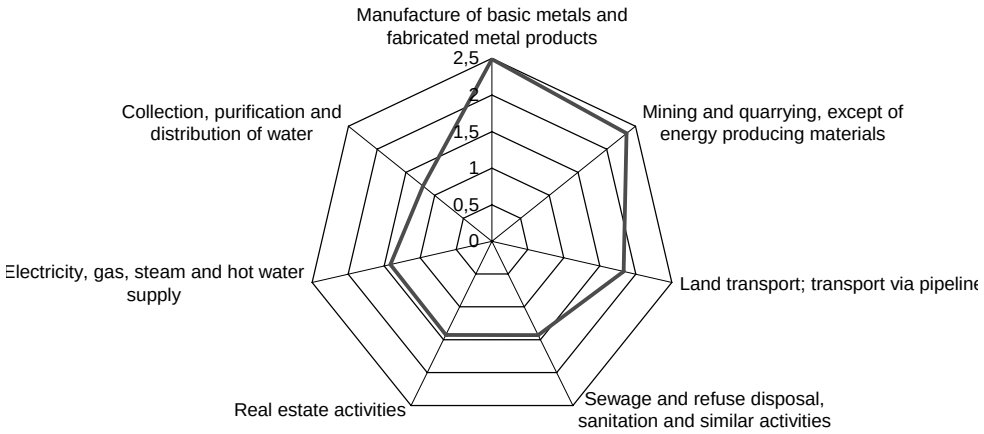

Figure 5: Branches in the Eastern Slovakia - Košice Region according to the location quotient

Based on the analysis, following economic branches have been proposed:

Eastern Slovakia -Košice region	**Northern Hungary region**
Machine industry	Food industry
Electrical and optical equipment	Chemical industry
Wood industry	Machine industry
Food industry	Electrical and optical equipment
Recycling	Metallurgy
Material production	Machine-, spare parts-, automotive industry based on mechatronics
Computer and related activities	Chemical industry and the associated plastic industry
Tourism services	Environment industry
Construction industry	Nanotechnology
Mining and quarrying	

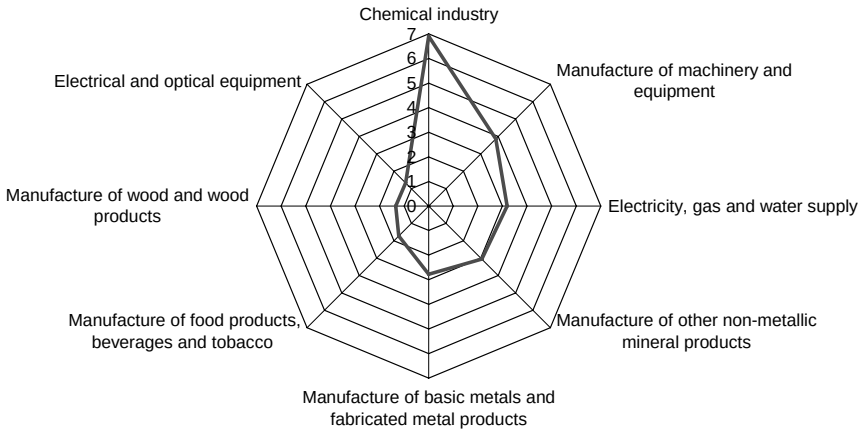

Figure 6: Branches in the Northern Hungary Region according to the location quotient

According to the survey methodology, the sample design resulted in 5 common branches of interest:

1. Machine industry
2. Electrical and optical equipment
3. Food industry
4. Material production
5. Environment Industry

After identification of the branches of common interest, a company survey has been realised leading to comparison of business environments, encouraging trans-regional learning and exploiting the existing capacities. Also, within the cross-regional innovation strategy, two join projects have been chosen for financing.

4. Conclusion

The cross-regional innovation strategy has been shown as an important tool for development of cross-border cooperation between two regions with no intense knowledge flow between the border regions and underdeveloped economic relations and strong national economic orientation. There is a good chance in the current regionalisation process of innovation system in both countries and to use an advantage of cross-border knowledge networking. Eastern Slovakia and Northern Hungary have much in common. They have a tradition of heavy industry, located on the peripheries of their countries, inflow of investments is lower than desired. The positive economic development of the western parts and metropolitan regions in Hungary and Slovakia has at the same time a negative side caused by continuing deflection of the centre of economic gravity to its geographic western part. The border can be considered as a strong barrier, multiplying the real geographical distance by a high coefficient. Political and financial support is on the side of cross-border intertwining – there exist programmes such as Hungary-Slovakia Territorial Co-operation Programme 2007- 2013 and there exist positive development reached by the creation and implementation of cross-border regional innovation strategy, that has started a number of vital movements and activities within both regions and cross them as well.

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