Analysis of the Innovation Potential in Pardubice Region

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Abstract

If we would like to be directed to knowledge economy and also apply the learning regions theory, we must focus on the making and business of innovations and knowledge. We can noticed from National Innovation Strategy of Czech Republic that lack of innovations and knowledge transfers is one of the biggest reason of our backwardness. Czech regions must solve one big problem – the research and development must be connected with practices (entrepreneurs, factories, universities and agencies). The functional connection between fundamental and applied research, obtain financial sources and cooperation in R&D area those are the key objectives of modern and developmental policies in innovation support area.

The regions without research fundamentals are signed by economic backwardness and minimal (or zero) innovation activity. But we can not think about research institutions development in region only like the main objective. The objective of innovative entrepreneurship is to pull the local firms in to innovative process. The development of research institutions must be pulled into global policy – for example strategy of innovations of each region.

Now we analyze the results from empiric research which was focused on innovations and clusters in Pardubice region. The goal of the paper is presentation some of results and recommendations for regional office of public administration.

Key words: innovation potential, innovations, investment, knowledge economy, R&D

1. Introduction

Research and development (R&D) is engine of the growth in contemporary economies. We can meet this phenomenon more and more in these days. The innovations and their support are the most important element of public policies in all developed regions (also in Czech Republic).

From presented information we recognize the innovations became the fundamental factor of regional, national and also international development and competitive increasing. The innovations are researched also by management like science. There the object of researches was defined in this area. The systematically management of research, development and

technics, principles, conditions and tool definition (the innovations are used in various economical structures – companies, clusters, industrial clusters, centers, networks) are described objectives. We can notice that three fundamental tools were defined in past – excellence centers and technological parks, research incubators [7].

This paper focuses on the innovation systems what make a space for innovation development – they create the innovation potential. The results of specialized survey focused on the innovations and innovation potential were presented in this paper too.

2. Innovations and their concepts

Manager and economist Josef Alois Schumpeter was the initiator of innovation researches and description. He has defined the economical dynamical theory and used grand new concept – innovations. Innovations perform the systematical occasions using for changes.

From this concept its stands to reason that innovation is the concept of novelty or renewal in human activity or thinking (mostly presented in production). The innovations present the process of continuous changes what bring some competitive advantages for producers and allow to improve their position in the market.

The key stone of innovation is existing sources using in firms and making the new possibilities for earnings obtaining (from entrepreneurships and businesses). We can say the essence of innovation is in value added what bring to consumer. But the innovation process is attended with contingency, the inventions should be planned. However we know the innovations must be supported with environment, human capital, other sources and pro-innovative firm policies (in short these elements can be called "systematical access" to innovations).

2.1 Motivation for innovations and innovation ability

Contemporary industrial economies become to knowledge and innovation economies. The education systems, research and development are the fundamental principles of this transformation process. According to presented the innovations urgently need the knowledge (product of education processes) and innovations (product of R&D, skills and experiences).

The biggest Czech companies has own strategy for maintenance of their competitiveness including innovation strategy (they usually have partnership of their holding partner in abroad and they influence present innovation strategies and policies). Small and medium sized entrepreneurs do their business only in regional markets because in general they are not able to complete abroad. They would like to occupy some new opened markets or the rest areas in contemporary local markets which are not interesting for big firms.

According to [4] the innovation management tries to define and use the motivation for innovation and innovation ability of individuals and firms. There are many innovation factors [7]. The factors for motivation to innovations are especially:

- high dynamic of market
- strong competitive
- market area and size
- economical occasions
- tax and fees systems
- environment for innovation

- support for inventions and inventors

The innovation ability factors are:
- sources (financial, human, know-how, technical,…) availability
- existence of suitable market
- entrepreneur model based on innovations
- level of branch development

It seems to be necessary for competitive entrepreneurship to have (or to be connected up to) generated innovation system.

2.2 Innovation systems

The holder of innovations is the cluster or group of companies and firms or research institution. It can be predicted the innovations will be explored more quickly in entrepreneur concentrations or groups. From Porter (1990) we know the clusters are the material fundament for economies based on innovations.

Fagerberg et al. (p. 181, 2005) consider to innovation also the process in which the companies create some new products and get them in market. We know that innovation systems (or processes) can be divided in three levels:
a) national
b) sector
c) regional

In every level there some strengths and weaknesses can be seen. To strengths of innovation system we can count especially:
- the location of the innovations and the innovation process to the centre of attention
- allows holistic and interdisciplinary conception
- allows to feedback and also the future sight
- focuses on the cross dependence among the elements, it does not work on only linearly
- groups the innovated product and process to the sub-category of these innovation kinds
- takes also the roles of institutions in innovation relations

The weaknesses are especially:
- the conception “innovation system” is not clear (many authors use it everywhere where it seems to be suitable)
- the system access can be us only in several innovation cases
- the system access has not (can not have) rigorous character which allow “non-authorized” using

In the pro-innovation behaviour especially of industrial companies and production especially of product and technology innovations there the system of innovations can be created in every noticed level.

3. Analysis of the Innovation Potential in Pardubice Region

The goal of this chapter is to present some survey results and analysis from research of innovation and cluster potential which was realized in Pardubice region.

3.1 Survey methodology

The target group was recruited form industrial companies which were registered in Pardubice region in Czech Statistical Office database in May 2006.

From all companies which do their business in Pardubice region we chose only group of the biggest exporters in year 2005. This criterion was used according to hypothesis – the biggest exporters must care about their competitiveness by own innovations and effective innovation system. This hypothesis was confirmed in results of whole research. But we covered up also small and medium sized entrepreneurs.

The secondary criterions for choosing were: number of employees and amount of year turnover. These criterions were chosen for re-present analysis of this survey. We had to suspend the wholesales, big companies focused only on purchase and sale – they don't produce big value added.

We chose 369 companies, the bigger employers in all industrial branches (except public sector). Only 143 entrepreneurs and managers from selected companies answered and filled the questionnaires.

3.2 R&D department like presumption of investment potential

We found out very positive information about investments to R&D and new technologies. More than 50% of represented firms would like to investment to enlargement of production, modernization and new technologies (in 2008 more than 26% of companies think about this theme). The sum of investments is more than 1.3 milliards CZK. But this is only 1.5% of turnover amount, circa 50 thousands per 1 employee. The companies wrote to questionnaires their investments would create more 1 600 labor positions (more than 40% of all created jobs will be realized in Pardubice region; especially in new industrial zone).

The analyses of R&D potential are positive too. More than 34% of all firms has own department which is specialized for R&D (departments are mostly in machinery, electronic and electro-technical industry). More than 10% of all would like to open this department in one year. About 16% of firms buy the results of R&D from research institutions and universities (for example: ATOK Praha, TU Liberec, INOTEX Dvůr Králové nad Labem, SPOLSIN Česká Třebová, MELTIT Brno, VÚB Ústí nad Orlicí, TZÚ Brno, POLYMER INSTITUTE Brno, STFI Chemnitz, ČVUT Praha, VUT Brno, TZU Brno).

The researched firms cooperate with many other institutions. Among the most important there we can count specialized agency CzechInvest, CzechTrade, associations of entrepreneurs, suppliers and customers. More than half of all these firms have own R&D department (especially in chemical and textile industry). More than 714 employees work in all R&D departments of all firms. It is only 2.73% of all employees in attended firms.

Only three firms said that have own big research. They employ in more than half of all R&D employees. The names are: Explosia a.s., Rieter CZ a.s., Výzkumný ústav organických syntéz

a.s. All these firms can aspire to world leader in their branch. Other firms focus on the innovation of their products or their adaptation for world market conditions.

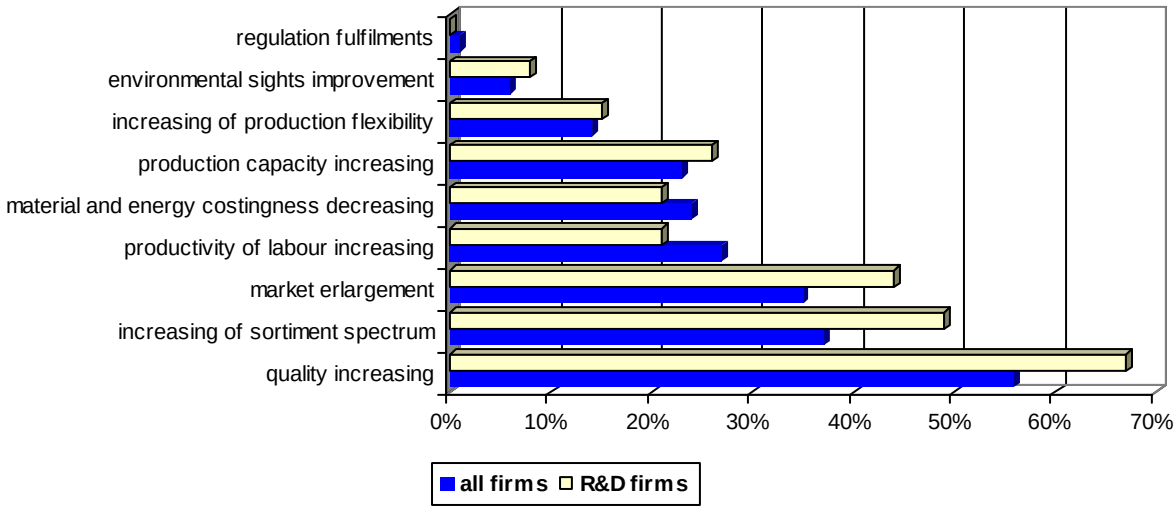
Just 39 firms with R&D departments are the leaders in employing the employees with university and high school education. These firms will create more than 1 200 jobs and after these investments the percentage of employees will rise about 10.5% higher.

The firms with R&D department participate also in grant processes. More than 82% of firms seek for European grant (Structural funds of EU) or regional and national authorities. But we must notice that this group of firms has lower turnover per employee (only 2 millions) and lower export amount (only 56% of production value is headed abroad) than others from target group.

3.3 The signification of innovation activities

The innovation activities are (according to respondents) very important, the most often (56%) because of production quality increasing, 37% on increasing of the market position and 35% on increasing of market portion.

Chart No 1: The signification of innovation activities in Pardubice region (May, 2006)



Source: own research

The firms with R&D development accented the first three statements from chart No 1. But lower importance was given in “production capacity increasing”. More than 53% of all firms localized in Pardubice city accent the market erlargement. We analyzed also other groups of firms. Interesting results are these: more than 34% of exporters and 31% of foreign firms accent and connect the innovations with material and energy costingness decreasing. The production capacity increasing is very important for group of firms which will invest in future. The second end of statements is connected with environmental sights – this is the innovation reason only for 8 (!) firms. The regulation fulfillment is reason only for one firm.

The barriers for innovation activities are also very important and interesting for many firms. We asked for limited barriers too. The target group can not be innovative because of high costs (49% of all firms; 2/3 of all firms which will invest in future and also firms with R&D

dept.). The lack of financial sources is barrier for 37% of all firms; more than 53% of firms with R&D dept. Only 28% of all foreign firms feel this barrier!

The lack of qualified employees who are able to innovate is problem for 25% firms (the most for firms which will invest – 41%). Big economical risk is the limited factor for 22% firms. Non-flexible regulations and bad laws are barrier only for circa 15% firms.

The barriers can be taken away by Structural funds of EU. About 36% of all firms prepare the projects now (the 55% firms which will invest and 44% firms with R&D dept.). The same proportion of firms thinks about this possibility. The projects are focused on R&D, new technology purchases and employees education.

4. Conclusions

I can claim that the realized survey helped to analyze and find out many important information about meaning of R&D departments of firms in Pardubice region. The hypothesis from beginning of research can be confirmed.

I can also claim that Pardubice region has big innovation potential which is determined by planned investments. The rest of analysis and results will be presented in other papers or you can contact author.

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