

RAISING COMPETITIVENESS OF CZECH SMES – ANALYSIS OF R&D SUPPORTING PROGRAMMES

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—Abstract —

The article presents findings of two surveys pursued among Czech small and medium-sized enterprises focused on various supporting programmes in the field of research and development (R&D). The programmes are aimed mainly at commercial application of R&D, and hence are expected to be one of the main tools helping raise competitiveness of Czech enterprises. Recently, many public policies rely heavily on their positive effect. However, few research concerning effectiveness of the programmes has been pursued.

The article intends to fill the research gap by surveying motivation of SMEs to participate, as well as benefits they obtain as a result of a funded activity. The article also discovers interesting insights regarding innovation activities of Czech enterprises.

Key Words: *R&D Programmes, Small and medium-sized enterprises, Innovation.*

JEL Classification: O38

1. INTRODUCTION

1.1. Innovation and R&D supporting programmes in the Czech Republic

Raising competitiveness of enterprises has recently been one of the key topics influencing macroeconomic policies worldwide. Likewise in Europe, the governments are looking for new sources of competitive advantage, since factors like high quality, production efficiency or brand recognition are not sufficient to ensure sustainable competitiveness in global marketplace anymore. Policy makers are recently trying to support innovations as there is a wide belief and evidence

that they could be the only source of competitive advantage for European companies.

Most of the policies have background in academic research as well as business best practices. In academic literature, the positive effects of innovations on competitiveness were first identified by Schumpeter (1934) and since then have been widely discussed by many scholars and incorporated into various economic theories. As a result, support of innovation activities has been embedded as the underlying principle of public policies on European (High Level Group, 2004), national (Jahn et al., 2005), or even regional level (JIC, 2005).

Positive effects of innovations have also been recognised at microeconomic level. In most economies, the innovative firms grow faster, are characterised by higher productivity and are more profitable than their less innovative counterparts (Geroski et al., 1993).

However, many enterprises still do not innovate at sufficient pace in Europe. Especially in countries with innovation performance below average, such as the Czech Republic (EIS, 2010), many enterprises are threatened by their weak innovation activity. It not only has a negative effect on their long-term competitiveness, but also on the whole economy. Especially SMEs are disadvantaged - as various statistics prove, the smaller the enterprise, the less likely it is to be innovative in the Czech Republic (CSU, 2008; CSU, 2010). Enterprises usually report lack of financial resources to be the main barrier to innovate. Therefore, policy makers have been looking for instruments facilitating access to financial support for innovative enterprises, especially those of small and medium size. As a solution, various funding programmes were introduced in the last decade. However, few research has been pursued in the field of fitness of the programmes to the needs enterprises (especially SMEs) really have.

The article aims to fill the research gap by providing results of two surveys focusing on motivation that Czech SMEs have, and benefits they look for, while applying for funding in one of the R&D supporting programmes. As R&D is supposed to be the main driver of innovation performance, the programmes are promising to remove or lower the main barriers small and medium-sized innovative enterprises haveface.

1.2 Characteristics of the surveyed programmes

The survey covers programmes supporting R&D activities only on national (Czech) level. There are two groups of programmes that differ from each other in the type of financial resources they redistribute. The first group of programmes (Potential, Innovation, Cooperation, and ICT and Business Support Services) is part of the Operational Programme Enterprise and Innovation (OPEI). It is a broad programme co-financed by Czech government and European Structural Funds. With its budget of 3,58 bn. EUR for the 2007-2013 period, it is the main source of financial support for Czech SMEs. The second group of programmes (Tandem, Impuls and TIP) is financed only from Czech national budget and therefore distributes much lower amount of money.

1.3 Detailed overview of surveyed funding programmes

Potential programme is focused on development and advancement of enterprise capacities in the field of research and development. It covers expenses on hardware, software, machinery, intellectual property rights (IPR) and other costs necessary to establish and operate an enterprise R&D center.

Innovation programme helps enterprises launch their innovative products or services into the market. The innovation has to be reached either by in-house R&D processes or by acquisition of know-how from external resources. Therefore, it covers investments into tangible as well as intangible assets.

Cooperation programme supports establishment or development of various networks of enterprises in the form of clusters or technological platforms. The eligible investments involve not only tangible and intangible assets but also operational costs of such network.

ICT and Business Support Services programme focuses on projects aimed at development of new products and services within the information and communication technology (ICT) sector. Expenses on long-term tangible or intangible assets are eligible for funding, as well as staff costs of various innovation projects.

Tandem and Impuls programmes focus on the whole life-cycle of commercialization of R&D results. Tandem focuses on the first phase of R&D projects – basic research while Impuls is aimed at the following phase – applied

research. Projects typically receive funding from both programmes in order to secure financing within the whole R&D process.

TIP is the successor of Tandem and Impuls programmes that were closed at the end of 2010. It has the same characteristics as its two predecessors.

2 METHODOLOGY

In order to obtain data from participants of the above mentioned programmes, two rounds of surveys were sent via e-mail in 1Q/2010 and 4Q/2010 to 437 companies involved in at least one of the programmes. The first survey was concluded in the frame of a project covering broad aspects of innovation activities of SMEs. The response rate in the first round was quite low – 5,7 % as 25 correctly filled questionnaires were received. One of the reasons of such low response rate might be the robustness of the questionnaire that required certain amount of time to be filled. In the second round, shorter version of the questionnaire covering only the main research objectives was sent to the same companies excluding those, who had already replied in the first round. Out of the 412 surveys, 22 correctly filled questionnaires were received. Therefore, the dataset consists of 47 questionnaires.

The questionnaire was focused on 20 factors connected with innovation activities of small and medium-sized enterprises. Respondents were to evaluate each of the factors and their importance in the sense of motivation to participate in a funding programme, as well as benefits the participation brought. The enterprises were offered a 1-5 scale where 1 = very low importance and 5 = high importance. The factors were chosen to reflect the typical goals of an R&D programme. They were namely: Enhanced in-house knowledge and competences, Enhanced ability to manage R&D resources, Establishment of in-house critical mass of R&D, Improved access to complementary expertise, Formation of new partnerships and networks, Improved R&D linkages with universities and research institutes, Improved R&D linkages with other business organisations, Improved commercial linkages with other organisations, Improved competitive position, Increased turnover and profitability, Enhanced productivity, Production or delivery of prototypes, Production or delivery of new products, processes and services, Improved market share, Access to new markets, Internationalisation of activities, Improved employment levels, Application/Granting of patents, Enhanced reputation and image and Facilitated participation in other national/international R&D programmes.

3 FINDINGS

All the twenty factors were surveyed focusing on measurement of motivation and benefits they have regarding to participation in an R&D funding programme. The mean values of motivation and benefits are presented in Table 1. In order to measure the relationship between motivation and benefits, a correlation index was also calculated in the groups of answers regarding each factor. Three strongest factors influencing motivation to participate in an R&D programme were identified, as well as three weakest factors.

Table 1: Factors connected with innovation activities and their influence on participation in R&D programmes

Factor	Average		Correlation index
	Motivation	Benefit	
Enhanced in-house knowledge and competences	3,97	3,53	0,85
Enhanced ability to manage R&D resources	2,43	2,28	0,63
Establishment of in-house critical mass of R&D	1,92	1,33	0,91
Improved access to complementary expertise	2,30	2,45	0,89
Formation of new partnerships and networks	2,22	2,00	0,69
Improved R&D linkages with universities and research institutes	2,97	2,89	0,72
Improved R&D linkages with other business organisations	2,60	2,55	0,68
Improved commercial linkages with other organisations	2,50	2,25	0,78
Improved competitive position	4,25	3,62	0,53
Increased turnover and profitability	3,52	3,12	0,60
Enhanced productivity	3,20	2,90	0,84
Production or delivery of proto-types	2,87	3,12	0,89
Production or delivery of new products, processes or services	4,14	3,92	0,77
Improved market share	3,18	2,78	0,72
Access to new markets	3,56	3,19	0,73
Internationalisation of activities	3,48	3,15	0,65
Improved employment levels	2,91	2,65	0,88
Application / granting of patents	1,85	1,73	0,86
Enhanced reputation and image	3,41	3,12	0,41
Facilitated participation in other national/intern. R&D programs	2,41	2,71	0,69

3.1 The strongest factors

Improved competitive position

Improved competitive position was one of the general factors that were included in the list of factors. The reason was to include a factor that would reflect activities that are connected to those helping to match a level of competitors or the business environment. As various studies show (Jones, 2003), small enterprises are more likely to adapt to the surrounding environment and competitors than their larger counterparts that are often capable of influencing the design of the marketplace and their competition. In other words, it did not focus on strategic goals such as access to new markets or partnership, but on more tactical activities connected to adjustment to the current situation on the market.

Improved competitive position turned out to be the strongest factor supporting willingness to apply for funding where the average value reached 4,25. In other words, this factor has very high importance in the decision-making process of application for funding. On average, this factor also scored high in the point of view of benefits of participation in a funding programme. However, the correlation of answers regarding motivation and benefits of this factor was quite low – 0,53.

Production or delivery of new products, processes and services

The process of production of final outputs follow the research and development part of an innovation process. As being the phase leading to launch a product or service into the market, it has a crucial importance on commercial success of an innovation. As the survey shows, it is the second factor in terms of importance while deciding about prospective funding. Respondents evaluated its importance to be 4,14. This factor was also the main benefit of participation in R&D programmes as it reached the highest value of 3,92 with the correlation of 0,77.

Enhanced in-house knowledge and competences

The third most important factor concerning motivation of SMEs to participate in various funding programmes was the Enhancement of in-house knowledge and competences. It means that improving an already existing know-how has also high importance for SMEs as it reached 3,97 on average. Companies benefit from the programmes by the average value 3,53 with a high correlation of 0,83. Such a strong importance of enhancement of in-house knowledge and competences

seems to support the argument of persisting closed innovation approaches that has been recently hinted by other research (Prochazka, 2010).

3.2 Three weakest factors

Application/granting of patents

Application for patents is another activity widely supported by funding authorities because, as many surveys show, Czech SMEs still do not pay enough attention to proper management of intellectual property rights (IPR) (CSU, 2008; CSU, 2010). For example, as one of the survey showed, in the 2006-2008 period there were only 1,2 % of small and 3,7 % of medium-sized innovative enterprises that applied for a patent or similar instruments. One of the arguments for such low performance is lack of financial resources for the IPR instruments. Although there are many programmes able to remove such barrier, IPR protection activities are not an important factor for enterprises applying for these programmes. Being the weakest factor in terms of motivation, it scored 1,85. The real benefit connected is even lower than what enterprises expected – 1,73 with a strong correlation of 0,86.

Establishment of in-house critical mass of R&D

Although Czech SMEs are sometimes considered to lack R&D capacity and resources, their establishment was the second weakest reason for application for funding. The importance of this factor in terms of motivation, reached only the value of 1,92. It was also the least important factor in terms of benefits with the highest correlation in the dataset - 0,91. Therefore, we can expect SMEs to have already gathered enough R&D infrastructure for the type of activities they are pursuing or not finding the R&D programmes fulfilling this need.

Formation of new partnerships and networks

Various research (MacPherson, 1997; Nieto and Santamaría, 2010) has shown a positive impact of leveraging innovation activities within a partnership of SMEs with external organisations. On the other hand, smaller companies may face higher transaction costs to be a barrier for establishment of such partnership. As the survey shows, enterprises do not seem to evaluate the option of financial support of external partnership to be a strong motivation for application for funding. The factor Formation of new partnerships and networks reached the third weakest value.

The rest of the factors resulted with values in between the three strongest/weakest groups. However, few observations are worth mentioning. Most of the programmes are designed to support projects that preferably involve an external partner into the innovation process. One of the underlying reasons is the popularity of open innovation approaches (Chesbrough, 2003; Chesbrough, 2006) that seem to have a positive effect on innovation performance (Nieto and Santamaría, 2010). Another reason is to allow players such as universities or research institutes to create partnership with commercial sector. However, the factors concerning the more open behaviour (Improve access to complementary expertise, Improve commercial linkages with other organisations etc.) did not seem to be important factor for enterprises while applying for funding. The most possible explanation is the persistence of closed approaches in innovation management. As various empirical studies (CSU, 2008; CSU, 2010) show, Czech SMEs still prefer innovating their products and services by themselves.

4 CONCLUSION

The survey focused on participation of SMEs in various R&D funding programmes. It identified the strength of factors influencing motivation of enterprises to obtain funding, as well as benefits SMEs gain from participation in funded R&D projects. The survey identified couple of general trends. Not surprisingly, SMEs are strongly motivated to obtain funding in order to improve their competitive position. As long as the market environment changes, they are looking for new financial resources in order remain competitive also in the long term. It was also discovered, that SMEs already have some critical mass of R&D competences and knowledge. Their establishment was not influencing the willingness to participate in a funding programme. However, they still need to be improved, as their enhancement resulted to be a very important factor influencing participation of SMEs in R&D programmes.

The survey also showed low importance of protection of intellectual property rights. Because such activity may require significant financial resources, SMEs are offered many options to receive financial support. However, IPR protection is not considered important in terms of motivation to receive funding. What is also interesting is the persisting focus on innovation activities pursued by the enterprises itself.

Although there many options to establish funding a partnership with another organisation in an R&D project, the factors connected to such open approaches also have little importance for innovative SMEs.

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