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## INNOVATION AND INTERNATIONALIZATION OF SMALL AND MEDIUM ENTERPRISES\*

**Summary:** Enterprises, that engage in international relations are competitively stronger and more powerful than enterprises operating only at the national level. Internationalization significantly affects the innovativeness of small and medium enterprises. Research shows, that there is a causality between innovation and the internationalization of business.

The aim of this paper is to assess the level of innovative conditions of SMEs as a precondition for the internationalization of their operations and verification of a methodological tool appropriate for improving their innovation performance.

**Keywords:** innovation, internalization, small and medium enterprises.

### Introduction

Small and medium enterprises (hereinafter SMEs) are considered the most progressive, most flexible and most efficient form of business in developed economies. They appropriately supplement the operation of large companies, help boost competitiveness and create new jobs. In Slovakia, they exceed 95% of enterprises from all business subjects in the long term. The share of employment amounts to 60%. The share of added value creation is close to the same level. It is therefore logical, that EU countries devote full attention to the activities of SMEs and constantly strive for their development.

Companies involved in international relations are competitively stronger and more powerful than companies operating at the national level. Internationa-

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lization significantly affects the innovativeness of small and medium enterprises. Experience has shown, that there is a causality between innovation and the internationalization of business.

The relatively low level of involvement of European and Slovak SMEs in internationalization, especially in its higher forms, appears to be a problem. The summary of the 2014 results on innovation in the Union states, that differences in innovation at the regional level are increasing, with innovation performance deteriorating in almost a fifth of EU regions. The order of the EU countries remained stable. The peak consists of Sweden, Denmark, Germany and Finland. Slovakia belongs to the third group – moderate innovators – with a performance lower than the average of the Union, along with the Czech Republic, Hungary, Poland, Italy, Spain and five other countries. In the context of wider Europe, Switzerland confirms its position as the overall innovation leader, still surpassing all EU member states. There is greater innovation performance in the EU on the global stage in South Korea, USA and Japan.

The level of innovation potential of enterprises depends on external conditions, determined by the business environment of the given country and the internal factors linked to specific businesses and represent their competitive advantage compared to other companies. The scientific research potential of the country is an important external condition for the level of innovative potential.

Slovakia, as a small country, is mainly oriented on the research and development centers of a regional or local character to promote the well-established manufacturing or assembly with a focus on applied research and development in the area of process improvement.

The main advantages of Slovakia as a possible destination for innovation activities include:

- established network of local research institutes, workplaces at universities, Slovak Academy of Sciences and a number of clusters,
- the presence of foreign scientific centers,
- investment destination for global suppliers in the automotive, electrical, engineering and ICT industries,
- part of the Eurozone and good geographical position,
- competitive cost of highly qualified human resources,
- increased cooperation between business entities, scientific research institutions and universities [Vančová, 2012].

In the current process of globalization, small and medium enterprises are increasingly faced with international competition. The globalization of economic dependence is the consequence and, on the other hand, also a prerequisite for internationalization. If a company only monitors all the impacts of globalization

and partly adapts its behavior to them, it is called a passive adaptation to globalization tendencies. The opposite is the second approach, which implies active participation in the globalization processes. There is a direct correlation between the rate of participation among small and medium enterprises in international relations and their performance. However, many small and medium enterprises are not yet prepared for such activities, due to a variety of reasons and do not get involved in them, despite their positives.

The causes of the internationalization of enterprises tend to be different and depend on the objectives of the company and the situation in which it is located. One reason for the integration of enterprises into international relations may be the acquisition of material and human resources abroad. These are the resources, that are either not available in the home country or the company obtains them abroad under more favorable terms, thus reducing costs and increasing profits. Another reason may be the limited extent of the domestic or saturated domestic market, when the company exports its products abroad in order to increase its turnover. By acting on several markets the company both acquires savings in the product range, which translates into lower costs and diversifies the sale of its products and thus reduces business risk. By doing business abroad, the company gets closer to its foreign customers, thus reducing transportation costs, but also being able to react more flexibly to their requirements. By operating abroad, especially in the case of advanced economies, the enterprise may also benefit from a more favorable business environment and favorable conditions for raising capital or investment. Co-operating with foreign partners, it often gains access to their know-how and advanced technologies. Enterprises involved in international relations are more competitive than those not involved in such relationships. Therefore, internationalization can be seen as one way of improving the competitiveness of enterprises.

An analysis of international economic relations of individual countries shows, that smaller economies get involved in these relationships to a greater degree with larger economies. This is due to their greater openness or scarcity of resources and national markets. Among the countries of the European Union, the following countries are most strongly involved in international relations: Greece, Malta, Estonia, Cyprus, Luxembourg and Bulgaria, and the least involved are: Germany, France, Italy, Austria and the United Kingdom. In the case of enterprises, it is the opposite. Large enterprises are involved in internationalization to a greater extent than small and medium enterprises. This is due to a number of barriers preventing small and medium enterprises from increasing involvement in international business activities related to their size, therefore micro and small enterprises feel them much more than medium enterprises. Barriers can be divi-

ded into internal, arising from the skills and capacities of the enterprise and external, related to the environment in foreign markets. Small and medium-sized enterprises consider the most significant internal barriers to internationalization to be, in particular, the price and quality of their products, with which they are not comfortable competing in foreign markets, high costs associated with entering new markets, but also a lack of qualified personnel, able to provide such activities. The external barriers impeding the internationalization of SMEs, include, in particular, the lack of capital and information about foreign markets, but also complex administration and lack of public support. Mentioned barriers are felt much more by companies, that have not yet begun with internationalization, even though they are considering it, than those that already have some experience with internationalization [Fabová, 2014].

The aim of this paper is to assess the level of innovative conditions of SMEs in the SR, based on an analysis of theoretical knowledge and practical research as a precondition for the internationalization of their operations, and to recommend a methodological tool to identify the weak points of SMEs in these processes and thus increase their innovation performance.

## **1. Processing methods and material**

In this paper we use the knowledge acquired from scientific and technical literature on the relations of innovation and internationalization of small and medium enterprises, from which the increased innovation performance of enterprises resulted.

Analysis of the enterprises in this area is based on the secondary data of some enterprise databases and published knowledge.

To identify the level of innovation performance of Slovak SMEs we used the database set up by the Department of Management, University of Economics in Bratislava as primary data in dealing with research projects and dissertations. The subject of our research is a randomly selected sample of 144 companies and organizations in Slovakia, which we sorted out by multiple attributes. The data were obtained through a questionnaire. Other findings were obtained through structured interviews with managers of enterprises. The MS Office software suite and its Excel program were used to process the data.

When processing we used standard methods of research work, such as analysis and synthesis, comparison, descriptive statistics and graphic representation.

In obtaining business data through a questionnaire we maintained the anonymity of the enterprises, so the names of companies and organizations are not

indicated. Altogether, we obtained 144 completed questionnaires, that were used in subsequent analyzes.

### **Conceptual framework**

There are many approaches to evaluating innovation. Some approaches focus solely on measuring inputs (innovation capacity), others prefer measurements of outcome (innovation performance) using performance metrics. In our view, the combination of both approaches is optimal. It is not enough when a quality innovative product or service, that will increase work productivity is achieved. It is equally important, that this innovation also reflects itself in business sales.

The basic innovation assessment methodologies, that form the foundation for the development of other methodologies are:

- BSC – Balanced Scorecard (system of balanced performance indicators),
- methodology according to OECD,
- map of assumptions towards innovative strategies,
- model of the Innovation Framework,
- metrics based on the principle “proper innovations at the right time”,
- metrics based on the creation of an innovation index model,
- and some others [Majtán et al., 2014].

From these methodologies we chose to use metrics based on the formation of innovation index model for our research needs.

Assessment of innovation performance according to Slovak Productivity Center is the self-assessment of achieved innovation performance based on comparing the current state to the ideal state in five priority areas: strategy, marketing, product, process and people.

The proposed innovation index model is a tool for the instant evaluation of the company's innovation performance, while its structure, as well as the proposed area assessment and their assigned specific criteria, are unique. The proposed model also includes a catalog of measures and a proposal for a strategic approach to estimate the innovation potentials of enterprises [Janovčík, Mičieta, 2010].

The Innovation Index Model (Tables 1-5) is philosophically similar to MSC methodology – Balanced Score Card, for the following reasons [Majtán et al., 2009]:

- it is based on the premise of “what cannot be measured, cannot be controlled”,
- it uses the analysis of hard and soft factors,
- it is designed for the analysis of five areas (BSC based on four areas) and 30 derived indicators (BSC – 20 to 25 indicators).

Due to the focus and the aim of this paper, we consider it necessary to identify the individual criteria of this methodology with the weighing of the different criteria.

**Table 1.** The Innovation Index Model: strategy – approach to innovation

Strategy – approach to innovation		Weight of criterion
1	Management has a clear understanding of the fact, that innovations are the essential success to achieve business successfulness	0,02
2	There is strong management support for the implementation of innovative projects	0,02
3	We have processed an innovative strategy, that clearly defines our objectives and instruments to achieve the intended objectives	0,03
4	The innovation strategy is reassessed in the light of the changing market, intra-organizational and social conditions	0,01
5	Innovation strategy was presented to all company employees who also expressed their opinion on it	0,01
6	The company runs a formal process of learning from implemented innovative projects for the future (in the form of workshops, records, audits...)	0,02
The total weight of the strategy area on the innovation index value is: N $\sum_{j=1}^N \omega_{1j} = 0,11$		

**Table 2.** The Innovation Index Model: market – interaction with the market

Market – interaction with the market		Weight of criterion
1	We regularly conduct market research in order to determine, whether there is market potential for our products	0,04
2	We identify and evaluate the needs of the users in our market segments	0,05
3	We identify customer requirements on the product at every stage of the innovation process (planning, development, marketing)	0,03
4	We evaluate customer satisfaction with products stated by us (feedback with a view to learning from new projects)	0,05
5	We actively cooperate with external innovative entities, e.g. suppliers and research and education institutions	0,02
6	We continuously seek new market opportunities for our products	0,04
The total weight of the market area on the innovation index value is: N $\sum_{j=1}^N \omega_{2j} = 0,23$		

**Table 3.** The Innovation Index Model: product – product development

Product – product development		Weight of criterion
1	We are regularly (although only moderately, it may just be related to a small improvement) improving our products	0,09
2	We regularly compare our products and their performance attributes for the customer with the competition	0,05
3	We have established internal research and development of our products	0,05
4	We regularly evaluate the success of various innovative projects	0,04
5	We are managing to keep our development costs under the proposed calculations	0,04
6	There is an active exchange of information between the department of development and production	0,02
The total weight of the product area on the index innovation is: N $\sum_{j=1}^N \omega_{3j} = 0,29$		

**Table 4.** The Innovation Index Model: processes – management of innovation processes

<b>Processes – management of innovation processes</b>		<b>Weight of criterion</b>
1	We have established processes, that allow us to effectively manage new product development	0,05
2	Our innovative projects are being finalized and are being introduced to the market in time	0,03
3	We have an established mechanism to involve all relevant personnel in the development and introduction of innovations	0,02
4	We have established mechanisms for the selection of good business opportunities and innovative ideas	0,04
5	Innovation processes are flexible enough to enable the rapid implementation of innovative projects	0,02
6	We record the knowledge and experience gained in the development of our products and their introduction to the market	0,02
The total weight of the area of processes on the innovation index value is: $\sum_{j=1}^N \omega_{4j} = 0.18$		

**Table 5.** The Innovation Index Model: people – human element in the management of innovation

<b>People – human element in the management of innovation</b>		<b>Weight of criterion</b>
1	Our organizational structure creates suitable conditions for innovative development	0,03
2	In the organization we have established teamwork and people cooperate well between the various functional segments	0,04
3	We have an established reward system, that supports the innovative ideas of our employees	0,04
4	We regularly provide training courses and support the personal development of our employees	0,04
5	Our organizational structure gives sufficient decision-making powers on the implementation of innovative projects at all levels of governance	0,02
6	Employees are aware, that innovation is a key element in the future of the company	0,02
The total weight of the area of people on the innovation index value is: $\sum_{j=1}^N \omega_{5j} = 0.19$		

Responses from the scale are assigned the evaluation criteria (1 = not true at all, 7 = this is accurate). The self-assessment of innovation performance of companies is done by the evaluation team. The total innovation index in the range of 0 – 1 represents the following achieved innovation performance of the company (table 6):

**Table 6.** The scale to assess innovation performance based on total innovation index

<b>Total innovation index</b>	<b>Reached innovation performance</b>
0,89 – 1,00	excellent
0,76 – 0,88	admirable
0,61 – 0,75	very good
0,46 – 0,60	average
under 0,45	poor



The enterprises are most represented in the sectors of manufacturing, information communication, finance and insurance, wholesale and retail trade, transportation, storage and more.

Regarding the legal form, limited liability companies prevail, constituting 76% of all enterprises. Joint stock companies are involved in 23%, and other legal standards form 1%.

In terms of ownership structure, 50% of enterprises have a purely Slovak owner, 16% of companies are exclusively foreign-owned and 23% mostly have a foreign owner. There is a majority Slovak owner in 11% of companies. The ownership structure of the surveyed group is therefore quite varied as well.

Of the total number of SMEs, up to 90 businesses, i.e. 62,5% report an activity in foreign markets. This concern, however, mostly lower forms, such as direct export, i.e. export of products abroad or the purchase of entries from abroad (especially small businesses). The remaining 54 SMEs, i.e. 37,5%, operate only in local markets.

**Table 7.** Evaluating the innovation performance of surveyed SMEs

Criteria	Assessment of the innovation performance of surveyed SMEs					
	Evaluation criteria					
	Strategy – 1	Markets – 2	Product – 3	Processes – 4	People – 5	Overall average
Maximum	0,11	0,23	0,29	0,18	0,19	1,0
Results $\bar{x}$	0,0787	0,176	0,214	0,1246	0,1307	0,724
Results in %	71,5	76,5	71,4	69,2	68,8	72,4

Table 7 provides a summary outcome of the innovation performance of 144 SMEs conducted in 2015 in Slovakia. The achieved result 0,724 is in the 0,61-0,75 interval category, i.e. very good. However, the result is only average and points to several reserves in the individual evaluation criteria.

The best partial result was achieved in the second criterion – interaction with the market, and under the first criterion it was an approach to innovation. This is confirmed by customer-oriented company management on the one hand, and by the awareness of the need for a positive approach to innovation both in terms of management, as well as from the perspective of employees on the other.

A relatively negligible difference was observed in relation to the three other criteria – product development, the management of innovation processes and the human element in the management of innovation. Their outcome only confirmed the average level of innovation performance of the surveyed SMEs, and the relatively low level of internationalization of their business.

A somewhat different perspective was provided by the results of overall innovation performance, especially for small and medium enterprises (Table 8).

**Table 8.** The incremental innovation performance of surveyed enterprises

The innovation performance of surveyed enterprises (partial)

Medium enterprises	78,74 %
Small enterprises	64,25 %

The assessment shows the logical reality that medium enterprises have a relatively greater potential for innovation, which favors them also for international cooperation. The 78,74% result places them in the second highest overall innovation index zone marked “admirable”. Small businesses with the achieved result of 64,25% range on the lower level in the third zone marked “very good” innovation performance.

There are several reasons for the backwardness of SMEs in Slovakia in this area, which is mainly due to a combination of these effects:

- lack of connection of SME with the wider innovation environment, also due to bad infrastructure settings,
- lack of public infrastructure to support innovation, specifically innovation in SMEs,
- lack of funding instruments for the growth of innovative enterprises in the critical early and growth stages.

The survey also shows, that there are considerable differences in the innovation performance of SMEs by sector. The highest overall innovation index was reached by SMEs in the manufacturing sectors, especially the automotive and electrical sector, as well as the ICT sector. But gaps are also found in these sectors. For example, in the automotive industry, which is the flagship of our industry. The general multiplier is 3,8 (other jobs created), in Slovakia it is 1,5. There is clearly visible space for its further development.

It must not be forgotten, that the innovation performance and the associated internationalization of SMEs are also affected by the level of business environment, which generally absorbs the quality of economic conditions and prerequisites for the economic operation of the businesses. Slovakia still has not reached the level of developed European countries. When evaluating the level of business conditions in 2012, according to the results of the “Doing Business” project, Slovakia ranked 48th in the world rankings. The latest data showed, that Slovakia progressed in the ranking in 2014 to 29th place and sustained it in 2015. From the V4 countries, Poland ranked 25th, the Czech Republic – 36th and Hungary – 42nd. In the ranking,

compiled by the World Bank, the absolute leader is Singapore, ahead of New Zealand and Denmark [Doing Business Project, 2016].

One of the possible factors to increase innovativeness is the internationalization process. In the case of innovative SMEs, succeeding in international markets is often a condition for high growth ability. Especially in the case of small national economies, such as the Slovak one, customers and business partners are often located abroad. Public policy should therefore provide tools enhancing the internationalization of SMEs.

In line with the objectives of this paper, we evaluated the methodology devised by the Slovak Productivity Center as the most appropriate for the examination of the issue, based on an analysis of a number of existing methodologies for company innovation performance evaluation. We implemented it through a survey of 144 Slovak SMEs.

The survey confirmed the applicability of the methodology for company innovation performance assessment in the economic sphere, especially in terms of increased response ability in a certain period of time. Through feedback it plays an important inspection, evaluation and planning function in the development of innovative processes of enterprises.

A number of inspected enterprises already expressed themselves in its first use as an appropriate tool for intracorporate motivation and communication for both management and employees. This is one of the important factors in the internationalization of SMEs, whose main aims are access to know-how, new technologies, greater market for goods and services and specialized human resources.

In the light of the outlined above conclusions, we presume the following continued research:

- identify changes in the innovation policy of SMEs by repeating the survey in 2017,
- compare our research with overseas results from the area in question and make recommendations for practice, theory and further research.

We are aware, that general comparisons are not always accurate. The SME category contains companies with virtually zero innovation activities, but also technology leaders bringing radical innovations. SMEs are involved in technological innovation in a wide range of sectors and are a significant source of employment and productivity growth.

## Conclusion

Small and medium enterprises are an integral part of every economy, and in the globalization process they are increasingly more often faced with international competition. Enterprises involved in international relations are more competitive and productive than those, that do not develop international activities. Internationalization significantly affects the innovativeness of SMEs. International cooperation helps enterprises overcome some of the barriers to innovation and increase innovation performance.

The aim of this paper was to assess the level of innovative conditions for SMEs in Slovakia as a precondition for the internationalization of their operations based on an analysis, and to recommend a methodological tool to identify the weak points of SMEs in these processes and thus increase their innovation performance. In this paper we verified the methodology assessment process regarding the innovation performance of SMEs in the sample of 144 enterprises. The positive response from experience allows us to conclude, that such methodology can serve as a useful tool for increasing the rate of innovation and internationalization of small and medium enterprises.

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### **INNOWACYJNOŚĆ I INTERNACJONALIZACJA MAŁYCH I ŚREDNICH PRZEDSIĘBIORSTW**

**Streszczenie:** Przedsiębiorstwa które angażują się w międzynarodowe relacje są silniej-  
sze konkurencyjnie niż przedsiębiorstwa, działające jedynie na arenie krajowej. Internacjona-  
lizacja istotnie wpływa na innowacyjność małych i średnich przedsiębiorstw. Wyniki badań  
wskazują, iż istnieje zależność przyczynowo-skutkowa pomiędzy innowacyjnością oraz  
internacjonalizacją przedsiębiorstwa.

Celem artykułu jest ocena poziomu innowacyjnych uwarunkowań małych i średnich przed-  
siębiorstw jako czynników stymulujących internacjonalizację ich działania, a także weryfika-  
cja metodycznego narzędzia, odpowiadającego potrzebom poprawy innowacyjności.

**Słowa kluczowe:** innowacyjność, internacjonalizacja, małe i średnie przedsiębiorstwa