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**GLOBAL ENVIRONMENT AND ASPECT OF INNOVATION
ACTIVITY IN SMEs IN SLOVENIA**

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***Abstract:** Regardless of the size of an individual region or country, innovativeness in enterprises is of great importance to the development and success of the economy. The purpose of this paper is to highlight the importance of the development of innovations in an enterprise in a rapidly changing global environment. Innovation ability, which is connected with an enterprise gaining new knowledge, with the innovation strategies of an enterprise, with innovation-prone company management and environment, is a key factor of economic development, national competitiveness and the development of national economy. A review of the theoretical and methodological framework stresses that in order for enterprises to have a successful innovation activity they must strategically and deliberately introduce innovations and changes in the form of improvements. These are founded on new knowledge and experiences. It was researched which factors influence the innovation performance of small and medium-sized enterprises and how the indicators of the European Innovation Scoreboard are treated. Results of the research on the innovation activity of Slovene small and medium-sized enterprises (SMEs) are presented.*

***Keywords:** innovation, innovation performance, innovation activity in SME*

1. Introduction

In today's global environment processes are occurring that are connected with an increase in global competitiveness, a shorter life cycle of products, greater technological abilities, and increasingly more complex and rapidly changing desires of consumers. Under such rapidly changing conditions enterprises are strengthening their innovation ability in various ways and introducing changes with various innovation approaches. They are introducing more important (radical) or gradual (incremental) innovations. Based on the needs of an enterprise's operation, these constant changes are connected with different types of

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innovating. Despite the general awareness of enterprises of the necessity of using innovation approaches to achieve competitiveness and "short-term or long-term survival", their strategies and approaches contain various, strategically-oriented views on innovating, depending on the broader environment, and they attribute greater or smaller importance to it in their activities, based on the numerous factors connected with the operation of the enterprise.

Regardless of the size of an individual region or country, innovativeness in enterprises is of great importance to the development and success of the economy. On a global, European and national scale, small and medium-sized enterprises (SMEs) represent a growing share of the economy (98.5% in Slovenia). The results of various research studies (Likar et al., 2011, UMAR, 2012) and research projects show that Slovene enterprises, regardless of size, are not innovative enough and that there is less innovativeness than shown by the most commonly used statistical indicators. SMEs in particular have a great opportunity in the field of innovation, since they are capable of quickly adapting to new conditions on the market. Since the aim of innovations is to improve the business operations of enterprises, it is very important that factors of various innovation activities are researched; simultaneously, changes which could make enterprises more innovative in the future must also be foreseen. The effects of innovation activities influence innovation results and economic results, which is why we wish to research factors that influence the implementation of innovation activity in enterprises. For this purpose the article in Chapter 4 presents the results of the research study on the innovation activity of Slovene small and medium-sized enterprises (SMEs). The theoretical basis of the paper explains the following: concepts connected with innovations, the national innovation system, the methodology for researching innovation performance, innovation activity in the EU and Slovenia, and the innovation activity of small and medium-sized enterprises. This is followed by an analysis of the state of innovation activity of small and medium-sized enterprises in Slovenia and conclusions.

2. SMEs and the Importance of Innovation Activity

Even though, according to the European Commission, Slovenia follows the priorities of the European Research Area, it has not yet fully developed its innovation potential. The SPS document states that a big problem of SMEs in Slovenia is "the problem of a development and management leap from a "family" or "local" company to a medium-sized or even global company with greater potential and growth ambitions" (SPS, 2015, p. 35). As regards innovation potential, the commercialisation of knowledge, internationalisation and research quality must be improved in the future, with a special emphasis on SMEs. This is also foreseen by the new EU Framework Programme for Research and Innovation (Horizon 2020), which has been active since early 2014 and shall remain so until end of 2020. The financial resources of the programme shall be allocated to research and innovation, with the objective of creating economic growth and ensuring new jobs in Europe. The total value of financial resources allocated to said activities for all companies is €2 billion. International collaboration is one of the most important priority tasks of the Horizon 2020 programme. A key innovation of the new Horizon 2020 programme is the focus of research and innovations on promoting growth and solving Europe's societal challenges, which shall be reflected in: the coupling of research and innovation by ensuring integral and harmonised funding from the idea to the market; greater support to close-to-market innovations and activities, which provides direct economic incentives; strong focus on creating business opportunities based on our reactions to important issues, which are common to all people in Europe, i.e. to the

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"societal challenges"; greater opportunities for newcomers and young, promising developers to present their ideas and obtain funding. An advantage of the Horizon 2020 programme is its many simplifications in comparison with the previous programmes. The purpose of this programme is to ensure suitable levels of funding and provide help to innovative small and medium-sized enterprises (SMEs) to grow into leading global companies. It will hence provide broad support to innovations in SMEs, since the programme recognises their great innovation potential and their adaptability, which enables them to transfer revolutionary technological breakthroughs and innovations in services to the market. In addition to international collaboration Horizon 2020 also establishes special, focused activities with key partner countries and regions. Horizontal connectedness in the form of clusters, centres of excellence, technological networks etc. is an approach that is of special interest to SMEs. SMEs can effectively make up for their smallness with greater flexibility and by connecting with others. In the case of such connections it is important that the enterprise is aware of its key competencies and protects them accordingly. Considering the fact that small and medium-sized enterprises (SMEs) in Slovenia stand for 98.5% of the economy, their innovativeness is of great importance to Slovene economy and is also the key to their success.

The EU classifies enterprises into the SME category by the following criteria: number of employees, annual turnover and total assets (ZGD, 2009). In the field of innovation Slovenia will have to introduce many changes, especially to the innovation activity of SMEs. The research sphere in Slovenia will have to start focusing on the potential consumer, since research activity in Slovenia is not connected enough with economic exploitation (Likar et al. 2006, p. 35). In order for one of the most important elements of breakthrough innovations to develop, i.e. research activity, Likar et al. believe that the criteria for obtaining and evaluating funds must be altered. They propose that a concept of "research with an idea" is introduced for obtaining funds and evaluating research results. A research study has a distinct research or economic potential (research studies are focused on interesting, innovative objectives, which have at least the potential and possibility to generate high added value – either in the research sense or in the economic one); research results must be focused on the potential user – either towards the research sphere, the economy or other users (applied projects); a research study should present an innovation on an international scale, as only such results are important at a time of globalisation.

The purpose of the article is to determine how Slovene small and medium-sized enterprises evaluate the impact of various factors on the development of innovation activity. The research study mainly discusses the realised collaboration between SMEs and the environmental influences, which is why the presented theoretical premise is of limited usefulness here. It is believed that the perceived innovation environment of enterprises influences their innovation activity – i.e. the environment as it is viewed by SMEs – and is most definitely an important factor, which is why the research study examined the factors that influence the implementation of the innovation activity of SMEs, which are important sources of information for SMEs (internal, market sources, institutional and other sources), influences or learning from governmental or public research institutions and research partners, factors of the implementation of innovation activity and innovation costs, and other factors. Some of the key results of the research are presented below. We were also interested in which factors were perceived as key to the implementation of innovation activity, and the importance ascribed to internal, market, institutional and other sources of information for the innovation activity of the enterprise.

3. Regional Development and Results of the Research on Innovation Activity of SMEs in Slovenia

3.1 Purpose, Research Objectives and Research Method

The purpose of the research was to examine which activities and which factors are key to the implementation of innovation activity in SMEs in Slovenia. The research objectives were:

- to research which activities enterprises were implementing with the purpose of innovating,
- to research the factors that affect the innovation activity of an enterprise as an incentive or obstacle,
- to research the correlation between various sources of information and the implementation of innovation activity.

The research study used a descriptive, non-experimental method of empirical research.

3.2 Sample and Course of Collecting Data

The basic population that was examined is represented by small and medium-sized enterprises in Slovenia. The research included 295 companies (10.2% of 2,897 companies participating in the research), of which 195 properly filled in the questionnaire. With regard to the Companies Act (ZGD, OGRS, No. 65/09), we divided companies on the basis of the fulfilment of three criteria: the average number of employees in the business year, their net sales revenues and the value of assets. Given the primary activity, and according to the Standard Classification of Activities, 33.8% of the surveyed companies were from the manufacturing sector, 9.8% from the information and communication activities, 8.3% from the retail, maintenance and the repair of motor vehicles, 6.8% from professional, scientific and technical activities, 4.5% from various other commercial activities and financial and insurance activities, and 6.1% from building industry. There were 3.8% of companies from catering, transport and warehousing, education.

3.3 Description of Instruments

Based on the survey questionnaire, we gathered the following data: the general information about companies, information about the importance of innovation and the reasons for innovation, information about the percentage of revenue for R&D per year, views on the importance of sources of information for innovation activity and views on whether a particular factor influenced the implementation of the companies' innovation activity in the 2010-2012 period as an obstacle or incentive.

Questions were formulated according to the scale model of the Likert type views. The scale levels for questions were from 1 to 5, in a logical continuum from the minimum to the maximum acceptance of views. In the case of two questions, the scale was divided into two opposite statements, where the positive answer was ranked from 1 to 5.

3.4 Results and Interpretation

For the purpose of becoming more familiar with the innovation activity of SMEs in Slovenia in the 2010-2012 period respondents were given claims about the implementation of activities for innovation purposes. Based on their answers it was established that for innovation purposes 71% of the companies had obtained or perfected their machinery, equipment and software in order to produce new or significantly improved products and processes, improve marketing and organisation. Fewer, yet still more than two-thirds of companies (68%) carried out internal research and development with the intention of increasing the value of knowledge and applying it to development. 66% of the companies awarded innovative employees (commendations, other non-financial and financial bonuses). The smallest share was taken up by the implemented innovation activities for obtaining other external knowledge, and by other preparations for introducing innovations. 38% of the companies have obtained other external knowledge by purchasing or obtaining licences for patents and non-patented inventions, expert knowledge and experience, and other types of knowledge from other enterprises or organisations.

The research study wished to determine the decisive factors that affect the innovation activity of an enterprise as an incentive or obstacle. For this purpose companies were offered 34 claims, which were measured by a five-point scale, namely: 1- small obstacle, 2 – important obstacle, 3 – neutral, 4 – small incentive, 5 – important incentive.

Among *the most important factors that affect the implementation of innovation activity*, the interviewed enterprises ranked the following the highest:

- Actual support from the management (through resources and activities): $\bar{x} = 4.2$; std. dev. 1.01;
- "Being aware of the importance of innovations": $\bar{x} = 3.9$; std. dev. 1.04;
- Information about markets: $\bar{x} = 3.7$; std. dev. 1.06;
- Demand for innovative products or services: $\bar{x} = 3.7$; std. dev. 1.03;
- Independent innovation strategy of the enterprise: $\bar{x} = 3.7$; std. dev. 1.01;
- Strategic orientation and defined strategy of the enterprise: $\bar{x} = 3.7$; std. dev. 1.07;
- Qualified staff: $\bar{x} = 3.6$; std. dev. 1.28;
- Information about technology: $\bar{x} = 3.6$; std. dev. 1.03;
- Education and training system: $\bar{x} = 3.6$; std. dev. 1.06.

When separately viewing *internal factors*, which are more important to an enterprise, the following incentives (promoters) stand out:

- Actual support from the management (through resources and activities): $\bar{x} = 4.2$; std. dev. 1.01;
- Independent innovation strategy of the enterprise: $\bar{x} = 3.7$; std. dev. 1.01;
- Strategic orientation and defined strategy of the enterprise: $\bar{x} = 3.7$; std. dev. 1.07;
- Education and training system: $\bar{x} = 3.6$; std. dev. 1.06;

- System of motivating employees: $\bar{x} = 3.5$; std. dev. 1.18;
- Connection between marketing and research and development: $\bar{x} = 3.5$; std. dev. 1.10.

The research study has established that there *is a correlation between numerous sources of information* (internal, market sources, institutional and other sources), which affect the implementation of innovation activity in an enterprise, and the influences or learning from governmental or public research institutions and research partners.

Positive correlation is the highest among the following variables:

- research-based learning, development within your company or group of companies ($r=0.274$, $p<0.002$),
- learning from acquiring new experts ($r=0.313$, $p<0.000$),
- learning from other projects which are already underway in the company ($r=0.275$, $p<0.002$),
- competitors or other companies in your area ($r=0.316$, $p<0.000$),
- advisers, commercial laboratories, implementors of market research or other private institutions for research and development ($r=0.532$, $p<0.000$),
- universities or other higher education institutions ($r=0.749$, $p<0.000$),
- scientific journals and commercial/technical publications ($r=0.400$, $p<0.000$),
- professional associations and industrial associations ($r=0.535$, $p<0.000$),
- databases with patent applications ($r=0.559$, $p<0.000$).

There is a strong positive correlation in the case of universities or other higher education institutions, which means that universities or other higher education institutions as a source of information have a significant impact on the innovation activity in a company by connecting with various research institutions and research partners.

4. Conclusion

When analysing the conditions for the innovation activity of SMEs in Slovenia, we researched which factors were recognised by enterprises as key to the implementation of innovation activity, and the importance they ascribed to internal, market, institutional and other sources of information for the innovation activity of the enterprise.

Research results show that SMEs in Slovenia are market-oriented and that they focus on the needs and desires of buyers, since half of the companies listed customers or buyers as the key associates/partners with whom they collaborate in the implementation of innovation activity. An important finding of the research study is that the SMEs in Slovenia incorporate the desires of buyers into their innovation activity, with the intention of "selling an innovation on the market". At the same time, the smallest share of companies (i.e. rarely) listed universities or other higher education institutions as the key stakeholders/partners with which they collaborate in the implementation of innovation activity. Despite the encouraging result that over two-thirds of the interviewed companies have carried out internal research and development with the intention of increasing the value of knowledge and applying it to development, the question arises as to the opportunities of developing innovation activities in collaboration with external stakeholders/partners and of the open innovating of SMEs. Based

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on the obtained results of the conducted research study and other documents it is believed that the issue of encouraging companies to collaborate with other agents of the innovation system remains one of the important issues of Slovene innovation policy. Just as the SMEs in developed EU innovator countries Slovene SMEs should likewise spread the awareness of the fact that in order to promote international competitiveness based on technological development it is not enough to invest money into research and development, but that they must also collaborate with institutions. Thus in the framework of the innovation policy we propose a solution to the problem of "a development and management leap from a "family" or "local" company to a medium-sized or perhaps global company", since companies with greater potential and growth ambitions must tackle different innovation approaches. Opportunities are also offered by the activities foreseen by the new EU Framework Programme for Research and Innovation Horizon 2020. As regards the innovation potential of SMEs, the commercialisation of knowledge, internationalisation and research quality must be improved in the future. Under the Horizon 2020 programme innovation incentive shall be provided by the financial resources of the programme, which shall be allocated to research and innovation, with the objective of creating economic growth and ensuring new jobs in Europe.

Results show that there is a positive mean correlation between the sources of information that representatives of companies believe are important for the implementation of innovation activity and research-based learning in a company for the following sources of information: learning from findings during testing and/or production, learning from acquiring new experts, learning from other projects which are underway in the company, and learning from failure. In the case of the remaining sources of information, such as e.g. advisers, commercial laboratories, implementors of market research or other private institutions for research and development, the correlation was weaker. SMEs in Slovenia will have to adopt or alter their innovation strategies. They will have to plan their collaboration with external stakeholders and external institutions. In doing so they will have to incorporate this not only into their strategy but also carry it out in actual projects with actual innovations that take into account the needs, desires and demands of buyers and are hence recognised by the global market as interesting. All "innovation efforts" must be supported by company management and must at the same time become a part of the entire company. Likar et al. (2006, p. 35) stress that the users of services often wrongly believe that innovation management is easy because of the large number of innovation support centres. We agree with the claim that, regardless of the help available, a company must still invest a great deal of its own energy, time and money in order to realise an idea and overcome all the obstacles to market success. Numerous centres and research institutions cannot substitute the innovation work within a company.

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GLOBALNO OKRUŽENJE I INOVACIONA AKTIVNOST U MSP U SLOVENIJI

Rezime: Bez obzira na veličinu pojedinačnih regiona ili zemlje, inovativnost u preduzećima je od velikog značaja za razvoj i uspeh privrede. Cilj rada je da se ukaže na značaj razvoja inovacija u preduzeću u uslovima brzih promena u okruženju. Inovaciona sposobnost, koja je povezana sa uvođenjem novih znanja u preduzeća, sa inovativnim strategijama preduzeća, sa menadžmentom preduzeća sklonom inovacijama i zaštiti životne sredine, ključni je faktor privrednog razvoja, nacionalne konkurentnosti i razvoja nacionalne ekonomije. Pregled teorijskih i metodoloških okvira pokazuje da bi preduzeća, da bi imala uspešnu inovacionu aktivnost, morala strateški i ciljano da uvode inovacije i promene u vidu poboljšanja, što se zasniva na novim znanjima i iskustvima. Istraživano je i koji faktori utiču na inovacione performanse MSP i kako se tretiraju indikatori Evropskog inovacionog pregleda. Predstavljeni su rezultati istraživanja inovacione delatnosti slovenačkih MSP.

Ključne reči: inovacija, inovacione performanse, inovaciona aktivnost u MSP