CASE STUDY IN THE FIELD OF INNOVATION IN SELECTED COMPANIES IN SLOVAK REPUBLIC

Zuzana HAJDUOVÁ[*], **Roman LACKO**[**]
Stanislava MILDEOVÁ[***], **Michal STRIČÍK**[§]

Abstract

Innovations are the source of competitive advantage and direction of the strategic choices are the most important factor determining the success of a business in the 21st century. In this context, the objective is to examine the contribution of the innovation process in small and medium-sized enterprises in the Slovak Republic, with the help of analysis we evaluate the benefits of the introduction of innovations, and search for the structure of the system and behaviour of systems archetypes. There is some evidence that might be used as advice to help with effectivity of innovation process in wider international spectrum.

1. INTRODUCTION

Innovation activities are the driving force of the economy, they develop possibilities, future competitiveness in the form of new knowledge, improvement in efficiency and economy, and its response capability. The need to deploy innovation in some sectors is essential for survival on the market.

In the countries of the European Union, the innovation policy and innovation in the recent period have become very frequent terms and often are declared as a priority. Innovative policy is implemented primarily at the level of individual Member States, which most of them at the national level have developed a fairly comprehensive support programs for innovation.

[*] Faculty of Business Economics with seat in Košice, University of Economics, Slovak Republic;
e-mail: *zuzana.hajduova@euke.sk.*

[**] Faculty of Business Economics with seat in Košice, University of Economics, Slovak Republic;
e-mail: *roman.lacko@euke.sk.*

[***] Faculty of Informatics and Statistics, University of Economics, Czech Republic; e-mail: *mildeova@vse.cz.*

[§] Faculty of Business Economics with seat in Košice, University of Economics, Slovak Republic;
e-mail: *michal.stricik@euke.sk.*

Innovation has become a priority even by prolonged Slovak government. Here it plays an important role in the innovation strategy for the SR for the years 2007 – 2013 (MH SR, 2007). Its task is to ensure that the innovations have become one of the main instruments of development of the knowledge economy and securing high economic growth of SR in order to reach the level of most advanced economies in the European Community. Priority of innovation strategy is established to respond to the main deficiencies resulting from the lack of support for innovative activities, particularly for SMEs (Stricik, 2009). SMEs have very important role in EU, since they provide jobs for approximately 66% employees (Ciriaci *et al.*, 2012). There is influence of firm size and R&D intensity enhances product and process innovation and have positive influence on productivity of firm and among SMEs especially for larger and older companies, they are less productive. (Hall *et al.*, 2009) In UK, there is evidence that SMEs receiving state support were more likely to innovate. It was shown that even in if there were spending cuts in country, persisting with SMEs innovation policy would be prudent (Foreman-Peck, 2013). Another research showed that there is no influence of state support on R&D for all firm sizes (Griffith *et al.*, 2006). Systems approach, developed in accordance with the principles of general systems theory as a concept for thinking, can be applied in various fields, from economics to science (Potuzakova and Mildeova, 2011). Some demonstrate that systems approach and its modern methods can help strengthen innovation and holistic thinking capacity much more than traditional ones (Cancer and Mulej, 2006).

The aim of our paper is to examine the contribution of the innovation process in small and medium-sized enterprises in the Slovak Republic, with the help of analysis we evaluate benefits of the introduction of innovations, and search for the structure of the system and behaviour of systems archetypes.

2. MATERIALS AND METHODS

The basic method of our research is an analytical evaluation of the innovation process and systems approach to the search of broader regularities of innovation in small and medium-sized enterprises in the Slovak Republic, which have been mapped by questionnaire survey. The purpose of the questionnaire survey was to find out what's the amount of innovation activities within the small and medium sized enterprises, what sources of financing do they use, and if they are satisfied with support of innovation activities from the state, self-government and EU and what should they focus on in order to help this particular area.

The actual questionnaire survey was evaluated by traditional statistics methods with closed answer questionnaire, and statistical methods that used analytical method for searching the key words in open answered questionnaires.

We have formulated hypothesis:

H_a: *Is there correlation between business field and innovation activity?*

H_b: *Is there correlation between past and future innovations?*

H_c: *Is there correlation between size of firm and financial requirements?*

H_d: *Is there correlation between size of firm and funding from state and EU funds?*

2.1. Research

The survey, that was aimed to examine the level of deployment of innovation by small and medium-sized enterprises and finding their satisfaction with supporting programs, was attended by 127 small and medium enterprises.

For the comparison of the relationship between small and medium and huge enterprises, huge enterprises entered the survey as well. 5 huge enterprises were present with more than 250 employees at each enterprise.

The questionnaire consisted of 15 questions, of which the first 5 were identifiers and others have been aimed at examining the issues. The questions had mostly enclosed character. The questions were mainly multiple choice. In the case when the respondent did not find a suitable answer from the offered options, our respondents could pick the last one and there give an open answer to the question.

One question was open. Upon answering respondents could express their views and observations in the examination of problems in connection with the introduction of innovation.

Potential respondents were surveyed using a short request for participating in the questionnaire survey. Potential respondents were chosen according to their area of business, the aim was to cover each area of business equally. Contact details were drawn from the catalogue of web page http://www.zoznam.sk/, section of industry, services, agriculture, restaurant, catering, and so on. We placed the questionnaire on a website.

Respondent structure

Structure of the respondents is assessed in terms of its legal form, industry, number of employees, length of business activity and the action of businesses that are involved in the questionnaire survey.

In terms of the legal form of the enterprise especially commercial enterprises, with a total of 95 participated in the questionnaire survey, which represents 74.80 % of all respondents, while liability companies dominate with a share of 65.35 % of all respondents participating in the questionnaires survey. Respondents with the legal form of a sole proprietorship have been involved at 25.2 % of all respondents. The option "other" was marked only by one respondent, who stated that he is a state enterprise. In the questionnaires survey the companies with legal form of a partnership and limited liability company were not involved (see Figure 1).
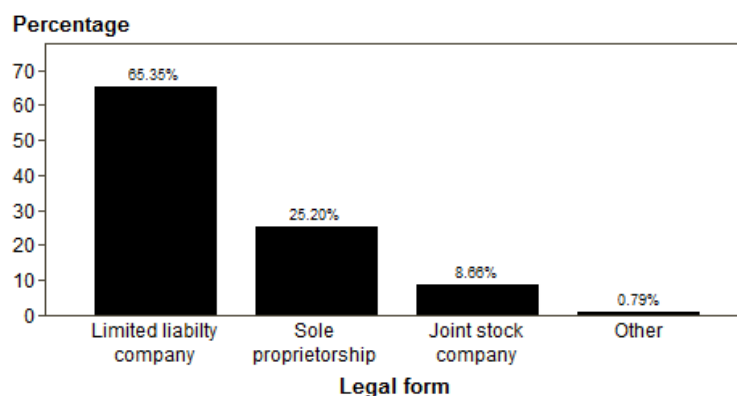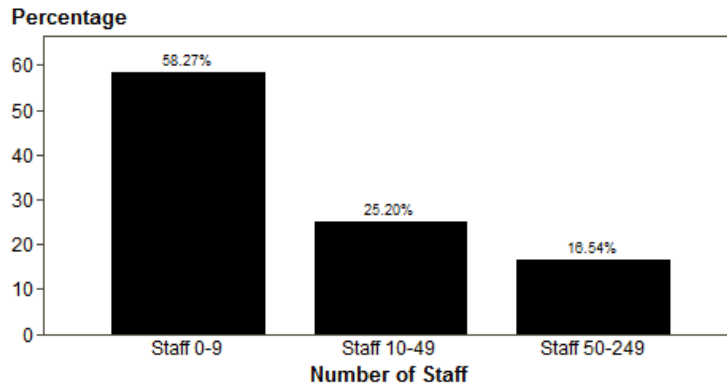

Source: own processing
Figure no. 1 – Legal form of the enterprise

According to the business of the questionnaires survey, most of the enterprises were involved in focusing on manufacturing and trade. For other fields, the respondents were recruited from areas: ecology, Energy, IT, management of company, programming, advertising and health care.

Number of employees in the company determined the size of the business. In terms of number of employees in the company that were involved in the questionnaire survey, especially micro-enterprises (with a staff of 0-9), with a total of 74 respondents. The second largest group was small businesses (with a staff of 10 to 49), with the number of respondents 32 medium-sized enterprises (with a staff of 50 to 249) 21 respondents (see Figure 2).
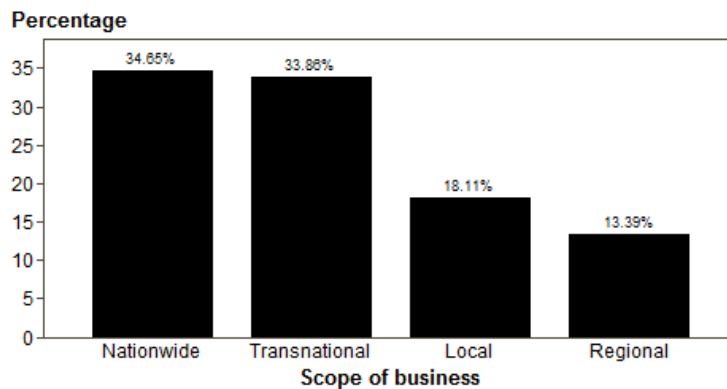

Source: own processing
Figure no. 2 – Number of staff

In terms of the duration of the enterprise most respondents participated in the survey to the length of the scope of business in 10 years.

In pursuit of the **respondents in terms of the scope of their business**, it was found that in the survey most businesses nationwide participated (44 companies) and transnational competence (43 companies), where there was only a slight difference between them. At the local level we had 23 enterprises involved. The least amount of respondents to the questionnaire survey were involved with regional scope, total of 17 (see Figure 3).


Source: own processing
Figure no. 3 – Scope of business

2.2. System approach

Due to the various aspects of the systems approach it is possible to carry out own author's configuration (Houskova Berankova and Houska, 2011). That means that we could use those aspects that are relevant to the examination in the paper. In this way the paper with the system approach selects/uses systems archetypes (Senge, 1990) for next survey evaluation. With such types of systems archetypes we can show the positive/negative impact of selected factors on innovation activity and benefits of innovation. Then we can identify the areas which need to be improved. An example (Senge, 1990) is shown on the next figure (Figure 4).
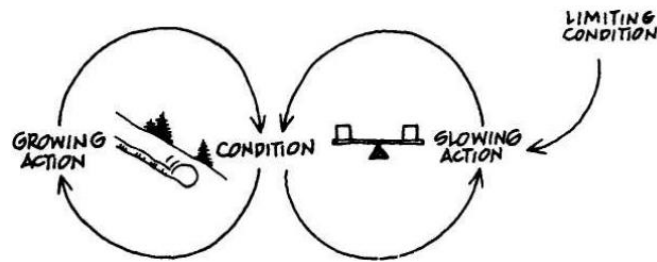
Source: Senge (1990, p. 84)
Figure no. 4 – Structure of an archetype

2.3. Statistical methods

First we use graphical methods to analyse the answers from the survey. The most common used method, that we used were column graphs. Then we use Pearson correlation coefficient to examine the dependence between selected variables. According to Tkac (2001) Pearson coefficient of correlation can be expressed as

$$r_{xy} = \frac{s_{xy}}{s_x s_y} = \frac{\overline{xy} - \bar{x}.\bar{y}}{\sqrt{(\overline{x^2} - \bar{x}^2).(\overline{y^2} - \bar{y}^2)}} \tag{1}$$

If $|r_{xy}| > 0.5$, we can say there can be strong dependence between selected variables. If coefficient of correlation is positive there is positive dependence, otherwise there is negative dependence. Then we used Pearson contingency coefficient which is expressed according to Tkac (2001) as:

$$C_p = \sqrt{\frac{G}{G + n}} \tag{2}$$

where:

$$G = \sum_{i=1}^{r} \sum_{j=1}^{s} \frac{(n_{ij} - \Psi_{ij})^2}{\Psi_{ij}} \tag{3}$$

and Ψ_{ij} is pooled relative boundary frequency.

Pearson coefficient of contingency cannot by negative, if its value is higher, then 0.5 there can be strong dependence, otherwise there is moderate or trivial (none) dependence.

3. RESULTS

3.1. Analysis of innovation process in SMEs

In this section we will try to find out to what extent we are introducing small and medium enterprises innovations, what represents the financial benefit for them as their innovation in where they see flaws within the promotion of innovation by institutions at a national and European level, and whether they plan to innovate in the future.

First, we investigated whether respondents made product innovation in their company within the last 5 years. The answers of 50.39% of respondents indicated that in terms of product innovation / merchandise introduced. 30.71% of respondents indicated that they did not make any innovation in product/merchandise. 18.90% of respondents said that the product innovation led to its restoration (see Figure 5).
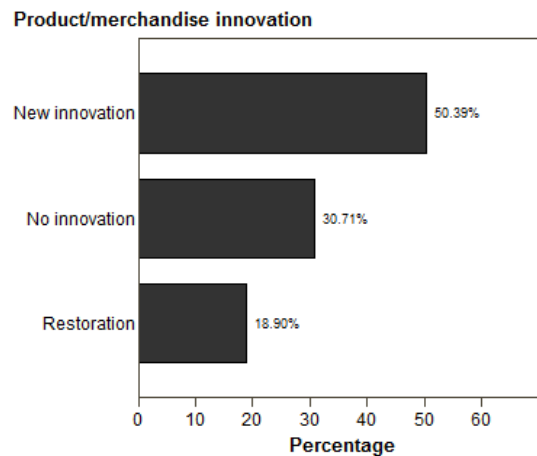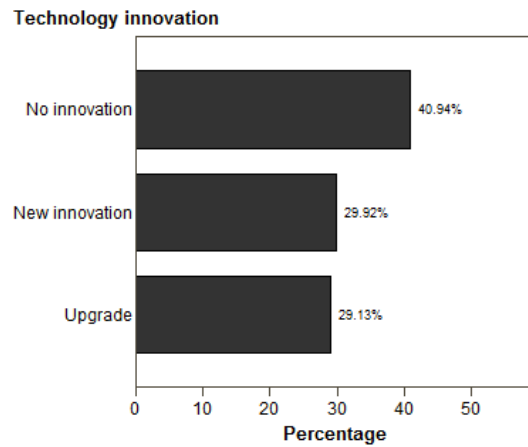

Source: own processing
Figure no. 5 – Product / merchandise innovation

In determining whether respondents made in their company for the last 5 years of technology innovation, we found the final answers were fairly balanced. In this question 40.94% of respondents indicated that no change has taken place in the field of technology. 29.92% of respondents said they have introduced new technology, and 29.13% of respondents reported an upgrade in already existing technology in the enterprise (see Figure 6).

In the next question we have investigated the financial needs imposed on business innovation. In this question, respondents most often marked the answer with the lowest possible amount. Overall, this option was marked by 44% respondents as is shown in Figure 7. This is understandable, since the survey involved small and medium-sized businesses that have limited resources, difficulties to credit access, and it does not allow them to invest in financially challenging innovation activities.

Technology innovation

Source: own processing
**Figure no. 6 – Technology innovation**

Within the analysis of the sources for financing innovative activities, we found that the 67.72% of respondents stated that for financing their innovation they tend to use their own funds. 14.17% of respondents said that innovation activities in the company funded through a loan and 8.66% of respondents through leasing. These financial resources therefore are considered more affordable.
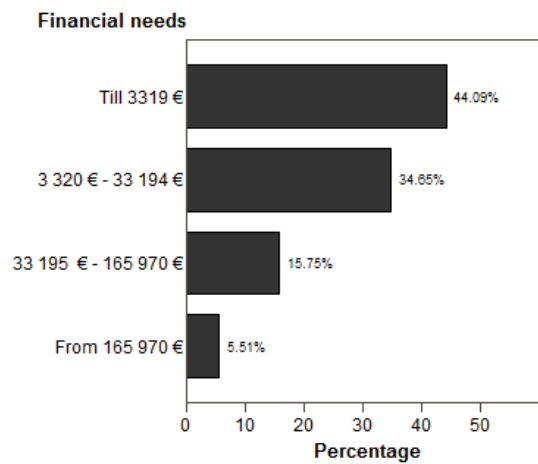
Financial needs

Source: own processing
Figure no. 7 – Financial needs

Financial resources from the state budget are reasonable only for 1.57% of respondents. Venture capital as a source of funding was not mentioned even once. Only 5.51% of respondents indicated as a source of innovation financing EU structural funds. 2.36% of respondents marked the other option where they indicated the financial source of innovation financing-loan from a friend, loan from the customer. Situation is illustrated in Figure 8.

Financial resources
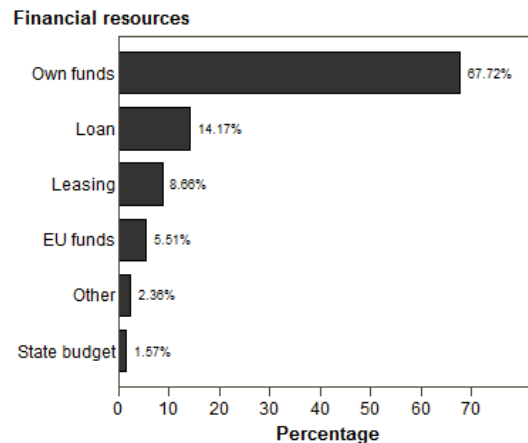
Source: own processing
Figure no. 8 – Financial resources

When asked whether respondents planned in 5 years to carry out innovations 73% of respondents answered this question positively. Almost 27% of respondents said they do not intend to innovate. Another question was aimed at finding areas in which respondents plan to carry out their innovation activities. 31.5% of respondents said they plan technology innovation and only 29.92% of respondents indicated only to upgrade product / merchandise. Both options, thus innovation in product / merchandise and technology, were marked by 11.81% of respondents.
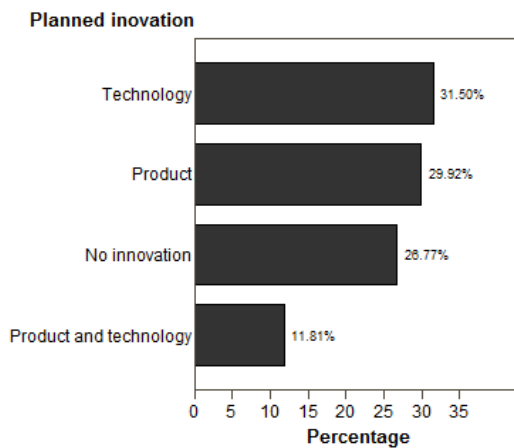
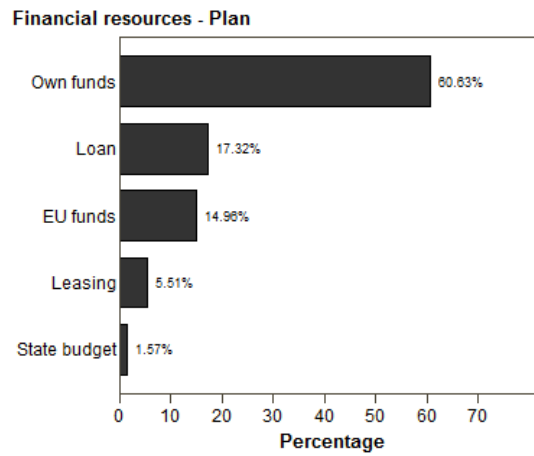**Planned inovation**

Source: own processing
Figure no. 9 – Planned innovation

In determining what financial sources for innovations will respondents plan to use, we found that the most common source was own resources, which was marked by 60.63% of respondents. 14.96% respondents are interested in the funding from EU structural funds and 17.32% of respondents consider a loan (see Figure 9).

Financial resources - Plan

|	
Own funds	60.63%
Loan	17.32%
EU funds	14.96%
Leasing	5.51%
State budget	1.57%

Source: own processing
Figure no. 10 – Planned financial resources

Results comparison from acquired innovation compared to the planned innovation show:
• more planned innovation activity compared to acquired (see Figure 4, Figure 5 and Figure 8)
• diversion from own funds to EU funds and loans to finance innovation (see Figure 7 and Figure 9).

In next part of the questionnaire survey we have focused on customer satisfaction with the support from self-government, the state and EU. Based on collected results we can state, that most of the respondents think that innovation support from the state and self-government is insufficient (110 respondents stated insufficient innovation support from the state, and with self-government it was even more 115 respondents). Innovation support from the EU consider most of the respondents sufficient, it was answered by 79 respondents. Remaining 48 respondents don't consider the innovation support from EU sufficient (see Figure 10).

Frequency
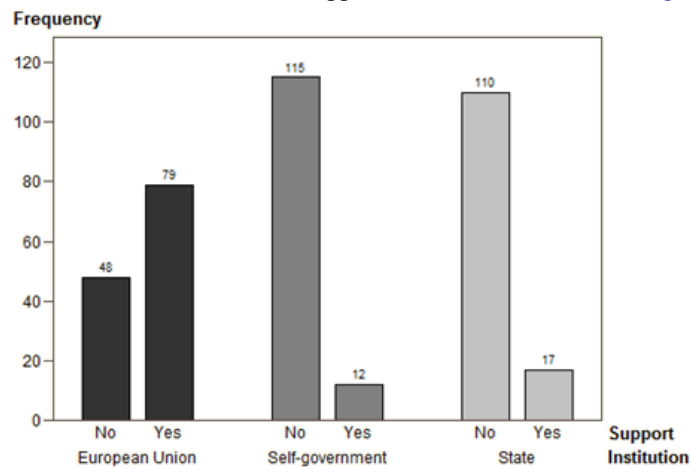
Source: own processing
Figure no. 11 – Satisfaction with the support

Further we looked at what should these institutions focus on when it comes to supporting innovations. Figure 11 represents respondent opinion, what should the support of innovation activities from the state, self-government and EU consist of. Most of the respondents (22.8%) expressed, that the government and other institutions should create conditions for development and application of research, development and innovations in business sphere with legislative creation and support. 18.3% of respondents stated, that it is necessary to create effective connection between business and research subjects. Others recommend to support:

- educational activities and to provide information,
- creating of regional sources to financing innovation,
- to help with projects after overdrafting structural funds.

Other options that are mentioned in graph are only slightly different. 2% of questioned, mentioned these proposals: support when earning credit from the banks, elimination of corruption in approval of projects and funds from EU, focus on support of mostly young native starting businessmen, lower the tax and tax levy, increase awareness and access to new technologies.
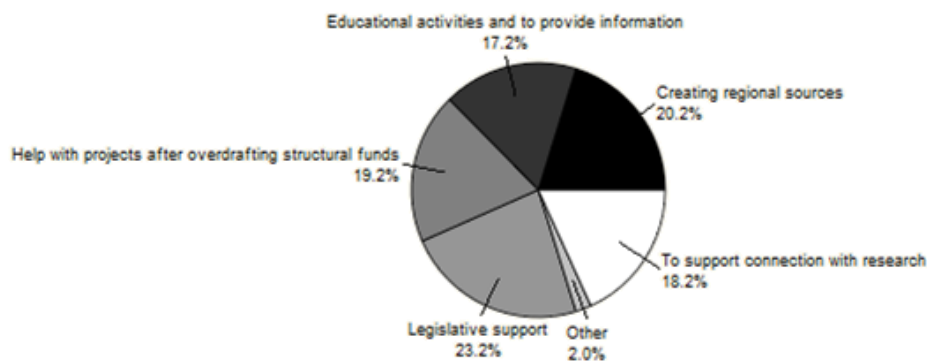
Source: own processing
**Figure no. 12 – Respondent opinion about the support**

3.2. Results and categorization of answers to the open question

As was mentioned in 3.1, only one question in the questionnaire was an open one. Upon answering this open question respondents could provide feedback and review impacts (benefits / cons) of recent innovations. These answers were evaluated by the analytical method with the use of keywords, we tried to find the most significant and most important words and word collocations, expressing content from the open question. On this basis, the following categorization of key words occurs, which featured various benefits / cons:

- Benefit categorization
- Brand mark increased credit for customers
- Competition maintain competitiveness, increase of competitiveness, getting a head start against competitors
- Customers retain customers, increase customers, increase range of customers, clients, increase customer satisfaction, acquisition of new and old customers, boosting the currency in the market

- Efficiency improvement in production efficiency, more efficient work, effective work - more work in less time, reducing the necessary maintenance and support, increasing labour productivity
- Employees increase employee satisfaction through facilitating work
- Environment the impact on the ecological environment, usage of ecological energy resources
- Error rate reduction in the risk of errors, reducing the number of rejects
- Expenses business costs cost reduction, saving financial costs, saving material and labour (saving jobs), reducing energy costs
- ICT awareness of customers online connection to economic units, more effective work and communication through innovation of computer technology, new computer systems and OS (windows 7), saves time processing confession by electronic signature, the opportunity to develop an inventory of goods during full operation of branches and shorten the inventory stocks by computing innovation
- Market extension of the market, better market position, new markets, new contract
- Price reduction in product prices
- Product portfolio expansion of the product portfolio, introducing new products, the possibility of processing new types of products
- Production process change the production system, simplification of production, work simplification, testing new materials with improved properties, the transition from manual to mechanical work, the transition from manual to laser measurement
- Quality improve product quality, increase product quality, improve service, increase standards
- Safety improvements in enterprise security, theft reduction
- Subscribers fulfilment of subscriber's conditions
- Supplier fulfilment of supplier's conditions
- Sustainability of survival in times of crisis, the existence and prosperity of the company, making profits, increased sales of own products and services Technologies technological change process, shift technically higher, increasing the technical and technological level
- Time saving time, time reduction, assembly time reduction of operating cycles
- Turnover increase in sales turnover, increase production
- Cons categorization
- Company culture no effect of technology innovation is associated with the old way of thinking, it means that nothing happens breath-taking.
- ICT benefits of the new software (a program for drawing and cad-very small, cost-benefit disproportionately high)
- Frequency

This graph was based on the frequency of the keywords in respondent answers that present the most common spheres and changes within the spheres after the recent innovations (Figure 12).
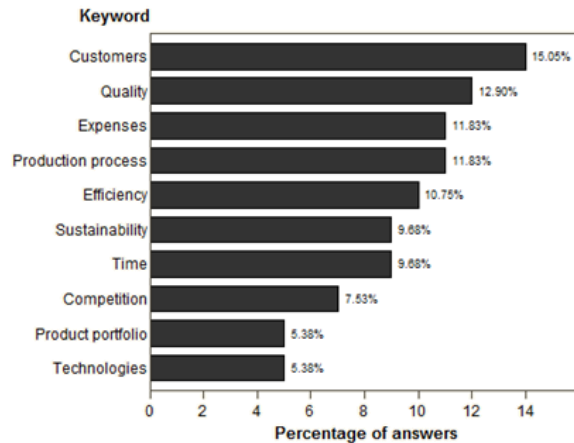
Source: own processing

Figure no. 13 – Frequency of the keywords

3.3. Correlation measurement results

Testing the dependence between responses to individual questions focused only on the facts relevant to our investigation. Using the Pearson correlation coefficient we examined the relationships between fields of respondent activity and its innovation activities, and the relationships between past innovation activities and planned innovation activities.

Table no. 1 – Results of correlation measurement

Variables		Pearson coeff. of correlation	Pearson coeff. of contingency	Result
Business field	Innovation activity	0.24	-	Weak
Past innovation activity	Willingness to innovate	0.37	-	Moderate
Size of company	Financial needs	-	0.36	Moderate
Size of company	Satisfaction with EU and Gov. funding	-	0.60	Strong

Source: own processing

When testing the relationship between the respondent and his innovation activity our research has focused on dependency between the business field and innovation activity. The calculated correlation coefficients did not show any significant values. With aggregation of fields into the cluster "industry and agriculture" and "services" (services, restaurant, catering, and so on) it shows weak correlation (correlation coefficient 0.24) in sense of bigger tendency to innovate within the "industry and agriculture" cluster compared to the "service" cluster, at the same time we can see the tendency in more financially demanding innovations within the "industry and agriculture" cluster compared to the "service" cluster.

Determining the dependence between past innovation activity and planned innovation activity was identified as moderate dependence with correlation coefficient 0.37.

Subsequently, we examined and compared the relationship between small and medium-sized enterprises and large enterprises. This relationship is once again measured by the contingency coefficients, Pearson's contingency coefficient.

Based on the results we can state that regarding the introduction and innovation, both in product and in terms of technology between small and medium-sized enterprises and large enterprises is not dependent.

Relationship between large enterprises and SMEs through Contingency coefficients was measured also in terms of financial requirements and introduced innovations. Despite the fact that large enterprises have more financial resources and better access to them, Pearson contingency coefficient of 0.36 shows only partial dependence between them.

When examining the dependence between large enterprises and SMEs through Contingency coefficients in terms of satisfaction of respondents with the support of innovation activities from the State self-government and the EU, we found strong dependence, as it is shown in the result of correlation 0.60.

3.4. Systems structure and archetypes

As it is shown on Figure 14, displaying development during the years 2001-2010, innovation activity of SMES has strong rising tendency. Our research verified – interest of companies about future innovation is higher than innovation activities in the past.
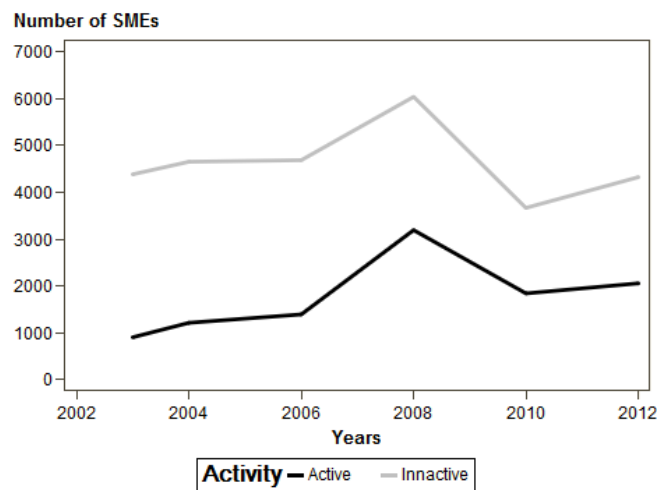

Source: processed from the data http://portal.statistics.sk/showdoc.do?docid=5686
Figure no. 14 – Trend of innovation activities of SMES

Note: fluctuation recorded in 2008 was influenced by the fact, that, from the year 2008 there were enterprises with non-technological innovations included into active innovating enterprises category.

At the same time the above categorization shows that in most cases innovations worked well. Relationship between innovation activity and acquisition from innovation can present through the systems archetype Reinforcing feedback. This archetype shows how the reinforcing (positive) feedback will accelerate the innovation activities.
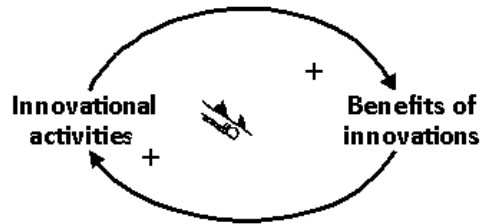
Source: own processing
**Figure no. 15 – Reinforcing feedback**

As growth limits of Reinforcing feedback z, Figure 15 can present from answers of respondents: rigid company culture, lack of information, finance, problem with project elaboration after overdrafting structural funds, unavailability of new technology and insufficient legislation. As shows Figure 18, the archetype Reinforcing feedback is changing on the systems archetype Limits of growth. It shows how the limits cause that growth cannot continue.
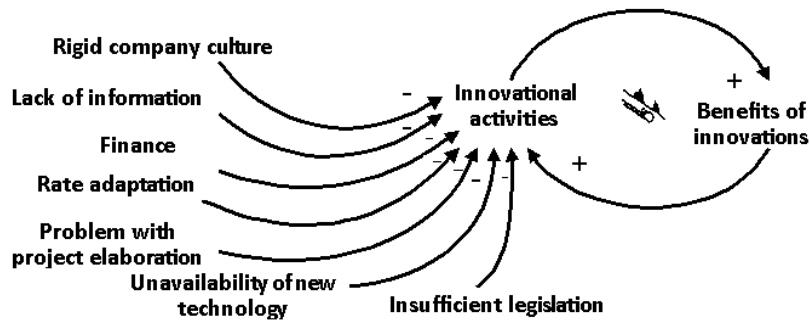
Source: own processing
Figure no. 16 – Limits of growth

Although the trend of innovation is increasing, as shown Figure13, not every enterprise is innovating. The current trend of economic development is innovation in the broadest sense and its implications are the core of dynamics of economic system and the company soon stops or is at least crippled in matters of quality improvement and innovation, which has negative consequences for the future development, even though it can be only in growth phase, as is shown by the systems archetype Growth and underinvestment (see Figure16).
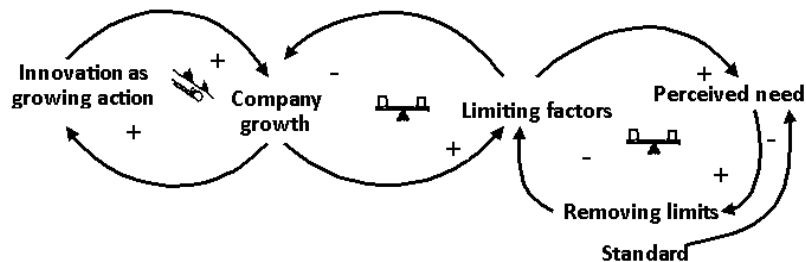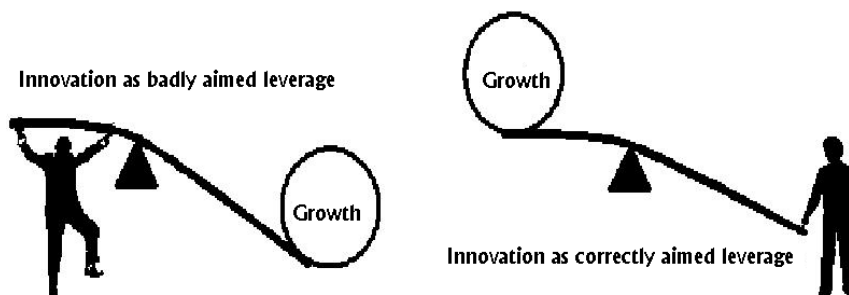

Source: own processing
Figure no. 17 – Growth and under investment

This archetype shows that company growth is inhibited by limiting factors that interact with a defined standard, this develops a perceived need for action to develop. The support from state, autonomy and EU, which companies evaluate as poor, plays a significant role in removing these limits (see Figure 15 and Figure 16).

We show that in most cases innovations worked well. But innovation is not panacea in itself. As it is shown in Figure 17 from the system point of view, it is necessary to assess whether the innovation had the nature of correctly aimed leverage and starts positive effects on growth feedback.

Source: own processing
Figure no. 18 – Leverage

The case where the contribution of the new software (a program for drawing-cad) was evaluated as very small, and the cost-benefit disproportionately high, corresponds to the problems of innovation through ICT, as reported (Mildeova and Brixi, 2011). Of course this does not mean that the companies should not carry out innovation through ICT. These innovations are the engine of growth of not only SMEs, but the entire economy and society (Doucek, 2004). The necessity of this type of innovation was specifically highlighted by the current discussion of the government, corporate and academic sector about support of innovative areas of business in Slovakia, conceptual solutions and integrated strategy in innovation (American Chamber of Commerce in the Slovak Republic, 2013).

On another issue, namely the need for system solutions pointed response that technology innovation is associated with the old way of thinking and innovation therefore does not have the desired effect. Leverage therefore should be (together with innovations) aimed at changing the way of thinking, culture of the organization. In this context systems archetype Shifting the burden can be mentioned. Using innovation, the company apparently tried to solve their problems without attempting a fundamental systemic change. This approach draws on the resources inefficiently.

Dependence on EU sources and its dividing is typically based on tragedy of mutual sources with its negative aspects, this is another problem which we can mention.

The stand of companies towards finished innovation is related to the necessity of system solutions. Companies evaluate partial benefits and in our opinion, there was not adequately considered desirable sustainability of holistic approach towards equilibrium of the organization. Also the impact on the environment should be taken into account which is ignored by many companies (Sauer *et al.*, 2012).

4. CONCLUSION

The success of a business is not dependent only on optimization of existing processes, but also in innovation. The importance of innovation is also proven by interest in the introduction of innovative activities in businesses. This was confirmed by ¾ of respondents among SMEs. Nevertheless, it is necessary to mention and is alarming that interest in innovation in technology compared to the product is balanced. However the most of businesses are interested to innovate, they realize the deployment necessity of innovation, if they want to not only maintain market position, survive in today's tough conditions of strong competition, but also to increase its value. Regarding the focus of future innovation in the next five years ¼ of respondents did not answer at all.

In financing their innovation activities, firms rely mainly on their own sources of funding and funds from the Structural Funds, which have a growth of almost 15%. Opportunity to fund innovative activities by risk capital was not entered by any respondent, which may mean that businesses are not sufficiently aware of this form of financing innovation.

Majority of respondents don't consider the innovation support activities from the state and self-government as sufficient. Respondents claimed that the only sufficient innovation support within the enterprises is from the side of EU. Most of the respondents claimed, that government and other institutions should support introduction of innovation activities in enterprises through creation and legislative support for regional development, research and scientific development, support when earning credit from the banks, elimination of corruption in approval process of projects and funds from EU, focus on support of mostly young native starting businessmen, lower the tax and tax levy, increase awareness and access to new technologies.

When testing the relationship between the respondent type and his innovation activity the calculated correlation coefficients showed no important values. Moderately strong dependence was observed in determining the relationship between past innovation activities and planned innovation activity. From this we can state that the companies which implemented innovations in the last 5 years tend to innovate again compared to the companies that did not innovate in the past 5 years. The motivation for future innovations corresponds to positive benefits, which were categorized by search keywords.

The categorization summarizes the benefits / cons of finished innovation. Here is shown the basic areas in which they had a positive effect - innovation impacts had overwhelmingly positive effect on companies benefit.

When examining the correlation between SMEs and large enterprises, we found that between innovation introduction and in terms of financial resources of innovation activities there is no dependency. In terms of financial demands of carried out modifications, we found slight dependence. Strong dependence was found when respondents expressed satisfaction with the support of innovation activities from the State, Self-government and EU.

As was shown by our survey, in its above mentioned analysis, not every enterprise is innovating and not every innovation goes without a problem and brings substantial benefits. Mention applications of the systems archetypes that reveal patterns of innovation behaviour tried to point out the threats that could be specified in this context. At the same time systems approach showed that innovation can become only symptomatic solution if it is not addressed systematically and that issues with innovation efficiency and overall corporate culture must be considered.

References

American Chamber of Commerce in the Slovak Republic, 2013. Innovation Imperative: Slovakia's Future. Retrieved 10 October 2014, from http://www.amcham.sk/events/1853_innovation-imperative-slovakias-future

Cancer, V., and Mulej, M., 2006. Systemic decision analysis approaches: Requisite tools for developing creative ideas into innovations. *Kybernetes, 35*(7/8), 1059-1070.

Ciriaci, D., Moncada-Paterno-Castello, P., and Voigt, P., 2012. Does the size or age of innovative firms affect their growth persistence? Evidence for a panel of innovative Spanish firms *JRC-IPTS Working Papers on Corporate R&D and Innovation*. Luxembourg.

Doucek, P., 2004. *E-Society – Perspectives and Risks for European Integration*, Budweis, Czech Republic.

Foreman-Peck, J., 2013. Effectiveness and efficiency of SME innovation policy. *Small Business Economics, 41*(1), 55-70.

Griffith, R., Huergo, E., Mairesse, J., and Peters, B., 2006. Innovation and productivity across four European countries. *Oxford Review of Economic Policy, 22*(4), 483–498.

Hall, B. H., Lotti, F., and Mairesse, J., 2009. Innovation and productivity in SMEs: empirical evidence for Italy. *Small Business Economics, 33*(1), 13-33.

Houskova Berankova, M., and Houska, M., 2011. Data, information and knowledge in agricultural decision-making. *Agris On-line Papers in Economics and Informatics, 3*(2), 74-82.

MH SR, 2007. Inovačná stratégia SR na roky 2007 – 2013. Retrieved 13 October, 2014, from http://www.rokovania.sk/Rokovanie.aspx/BodRokovaniaDetail?idMaterial=5904

Mildeova, S., and Brixi, R., 2011. *The Limits of ICT for Innovations and Economic Growth.* Paper presented at the The 19th Interdisciplinary Information Management Talks, Jindrichuv Hradec, Czech Republic.

Potuzakova, Z., and Mildeova, S., 2011. Systems Approach to Concept of Flexicurity. *Politicka ekonomie, 59*(2), 224-241.

Sauer, P., Kreuz, J., Hadrabova, A., and Dvorak, A., 2012. Assessment of Environmental Policy Implementation: Two Case Studies from the Czech Republic. *Polish Journal of Environmental Studies, 21*(5), 1383-1391.

Senge, P., 1990. *The Fifth Discipline* (1st ed.). New York: Currency Doubleday.

Stricik, M., 2009. *Analýza záujmu o využívanie inovácií malými a strednými podnikmi.* Paper presented at the Podpora inovačného rozvoja v Slovenskej republike : zborník príspevkov z medzinárodnej vedeckej konferencie, Košice, Slovak Republic.

Tkac, M., 2001. *Štatistické riadenie kvality*. Bratislava: Ekonóm.