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QUALIFYING CONNECTIONS BETWEEN INNOVATIONS AND EXISTENCE OF GAZELLES IN THE SERVICE SECTOR OF THE SLOVAK REPUBLIC¹

Nowadays, Slovakia ' economy records high growth rate, while its main qualifying factor is the recovery of domestic consumption. It is only the high unemployment rate that remains as a negative feature, while employment of young people can be described as critical. The existing structural unemployment is a challenge to mobilisation of new entrepreneurial opportunities and dynamisation of already existing enterprising via innovations. The subject of investigation in this scientific paper is high-growth service enterprises and their subgroup of gazelles. The paper evaluates the innovation background of gazelles' existence in the SR. The starting-point is the functionality of innovation background in the economy and the scope of application of the transformative power of service innovation. Slovakia is lagging behind the EU27 average in innovation activity, and the service innovation asserts itself in its economy to a limited extent. However, despite the fact that according to the parameter monitored "the share of turnover from the launching "new-to-the-market innovation", innovations are applied on an above-the-average level. The aim of the paper is to evaluate the innovation background of the Slovak economy as a key factor of dynamisation of small and medium-sized enterprises and the rise of gazelles in the service sector of the SR.

Keywords: gazelles, services, innovation, dynamisation

Problem definition

The application of dynamisation instruments of small and medium-sized enterprises (SMEs) is a means of fight against structural unemployment. In this process, it is important to initiate the rise of new enterprises that are going to found their business plan on innovations and production satisfying new demand requirements. Consequently, their operation is determined also by the character of the market, which generates new requirements. An interaction between these elements is an assumption of the rise of gazelles as well as of the economic growth of enterprises. These enterprises are the source of creating new jobs and innovative networking in a region; this way they support the rise and development of supplier and partner entities. Qualifying factors of gazelles' existence are as follows: innovation background in the national economy, the scope of applying the transformative power of service innovation in the economy and innovation activities of enterprises themselves. The aim of the paper is to assess the innovation background in the Slovak economy as a key factor of dynamisation of small and medium-sized enterprises and the rise of gazelles in services in the SR.

Analysis of recent researches and publications

A typical gazelle is a small or medium-sized enterprise that in some period achieved an above-the-average economic growth. The term of gazelle, referring to young high-growth companies, was used for the first time by the economist and scientist David Birch, who denoted these firms as significant job producers (Birch, 1979). Later, he identified gazelles in his works by means of the growth of their sales (Birch, Medoff, 1994).

Gazelles have been considered significant producers of new jobs for a long time. American economists Stangler and Marion (2010) state, that although this specific group of entrepreneurial entities makes up less than 1% of all companies, they are able to generate the increment as much as 10% of new jobs. In this context, gazelles participate in a significant way in the overall employment, and so fulfil an important role in the creation of potential jobs. They directly contribute to decreasing unemployment and also to increasing the competitiveness of each economy. This fact has been supported also by the findings of all-European studies "Gazelles High-Growth Companies" (Mitusch, Schimke, 2011), in which gazelles are described as being important for economic competitiveness and development and as entities that are increasingly recognised by the policy maker.

Authors Henrekson, M., Johansson, D (2008, 2010) state that young high-growth firms are overrepresented in services. According to the Portuguese Instituto Nacional de Estatística (2014), gazelles are over-represented in the service sector but also in the construction industry.

According to OECD, gazelles are enterprises that were employers for four years, and during that period they achieved an average annual growth of employment (or turnover) over 20% at least for three years. At the same time, they have to meet the condition that since the beginning of monitoring they employed ten and more employees (OECD, 2013).

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¹ Grant project of the Ministry of Education, Science, Research and Sports of the Slovak Republic, VEGA 1/0205/14 "Perspective of the dynamic BS existence in the SR within the context of the principles enforcement' of Innovation within the EU". Project period: 2014-2016

The critical size of a gazelle firm is ensured by their turnover, which accounts for several million euros (Autio et al., 2000). These are mainly firms that are pioneers of structural changes in their fields. Next, their developed corporate culture is based in particular on innovations and searching for new opportunities on the market, or for a new growth within the market share. This implies that firms orient themselves mainly to knowledge, science and research, and together create only a five percent share of all the firms (OECD, 2013).

In a global economy, services fulfil an integral function (Skolka, 1988). We refer here to the fact that service activities are present in the production of all products. This general framework is described as the «convergence» of production of products and services. In this context, there is a potential for the rise of new service enterprises, which in connection with innovativeness have prospects for economic growth.

Innovation of services is a driving force of growth and structural change in the entire economy. It even has a potential of creating new growth centres and leading markets with macroeconomic influence (European Commission, 2013). Via implementation of innovations of services in the economy, there arises a platform for shaping industries with new production characteristics.

Transformative power of innovation of service is understood as a process when services disturb traditional marketing channels, entrepreneurial processes and models, strengthening consumer experience in the way that influences the entire value-formative chain. This way, service innovations shape entire sectors, fields and markets and result in structural changes and modernisation of industries of the economy (EPSI, 2011).

Emerging industries can be understood as either new industrial sectors or existing industrial sectors that are evolving or merging into new industries. Most often, they are driven by key enabling technologies, new business models, e.g. innovative service concepts, and by societal challenges, e.g. sustainability demands that industry must address. Many emerging industries like creative industries, mobile and mobility industries or eco-innovative industries have in common that they grow out of already existing industries and hence cut across different traditionally defined sectors in building new industrial landscapes and value chains that integrate cross-sectoral competences and linkages (European Commission, 2013).

Formulation of article's purposes

Based on analysis into the state-of-the-art of innovation background in SR economy, the paper intends to evaluate the conditions and development of high-growth gazelle firms in services. Its aim is to answer the research question: Does the current character of innovation background in the SR provide an

adequate platform for the dynamisation of young enterprises of services?

In the paper, we use research results by the European Innovation Scoreboards, the European Service Innovation Scoreboard, and the Innovation activity of enterprises in the Slovak Republic during 2010–2012. Further, there are synthesised theories of various authors and OECD and European Commission data. To evaluate the existing innovation system in the SR, we refer to SWOT analysis of the innovation system in the SR.

For the purposes of conducting the correlation analysis of innovativeness of enterprises and the productivity of labour achieved, we carried out the Spearman Test for correlation (nonparametric correlation co-efficient – co-efficient of order correlation) (Markechova et al., 2011).

Qualifying connections between innovations and existence of gazelles in the service sector in the Slovak Republic

The rise of gazelles in the context of applying innovations may be understood in the following relations:

- Existence of innovation background in the economy influences value formative chains;
- Scope of transformative power of innovations of services affects economic specialisation;
- Innovation activity is a source of economic growth of enterprises.

Innovation potential of the SR

The innovation background is a potential which is at the economy's disposal for the rise of innovation performances. A quality innovation potential is represented by financial and nonfinancial attributes, which create inputs in the innovation system. It is in particular a system of funding and innovation support, labour capital qualification, research system and involvement of enterprises in innovation activities. Innovation performances are represented by the structure and number of innovative enterprises and economic effects ensuing from the innovations.

Slovakia belongs to the group of moderate innovators. In the year 2013, the SR was the eighth least innovative economy in the European Union. The country's innovative performance rose in the year 2012; however, in the year 2013 it was followed by a steep decline (European Commission, 2015). In the Slovak economy prevails a low funding of research and development from public and private sources. Another problem in the development of innovation activities appears to be an inadequate co-operation in innovation and R&D activities between enterprises and academic institutions. Below-the-average results have also been recorded in the number of small and medium-sized enterprises that introduced either technological or non-technological innovation. Even despite that, the rep-

resentation of high-growth innovative enterprises in the structure of SR economy is comparable with the average value of this indicator in EU28. Above-the-average value (134%) was recorded in the indicator of sales of new-to-market and new-to-firm innovations as % of turnover”. Economic effects of innova-

tions are, in fact, logically below the EU28. These effects are most manifested in the low employment in knowledge intensive activities, in exports of knowledge intensive services and in the sales volume from the sale of patents and licences abroad.

Table 1 SWOT analysis of innovation system in the Slovak Republic

Strengths	Weaknesses
<ul style="list-style-type: none"> - Existence of national innovation strategy - Existence of organisations, agencies, and institutions for the support of innovations - Qualified labour force in research and development 	<ul style="list-style-type: none"> - Underutilisation of structural funds - Poor support of innovation activities on regional level. - Poor cooperation of enterprises with research institutions - Low private and public expenditures for the research and development - Inadequate support to clustering - Complicated collection of statistical data in innovating the performance of the service sector.
Opportunities	Threats
<ul style="list-style-type: none"> - Acquiring several sources for the support of innovation activities - Improving innovation infrastructure - Decreasing regional differences in comparison with EU regions - More intensive international cooperation. - Stimuli and tax reliefs supporting innovations 	<ul style="list-style-type: none"> - Limited support from public sources - High tax burden - Poor system of innovation management - Decreasing R&D expenditures of enterprises - Departure of qualified labour force abroad - Disinterest in the study of science and technology fields. - Inadequately low social status of research work

Source: own processing

Transformative Power of Service Innovation in the Slovak Republic

Service innovation represents a new or significantly improved service concept and is asserted in the environment of service enterprises, as well as in manufacturing enterprises, as service performances are an important part also in manufacturing enterprises. As far as the scope of activities is concerned, service innovation may be identified in all the stages of value-formative chain. It occurs in research, development, projecting, production, logistics, as well as in trade and consumption. At the same time, it removes erases the gap between the innovation design by research and market requirements. Within production the service innovation is the service innovation understood as a nontechnological innovation, which is rising in importance in the contemporary economy and it is attributed the so-called transformative power.

Application of service innovations in a broad economic space is a condition of the origin of new products – services on the one hand and changes in the so-called traditional industries to industries with new qualitative characteristics. A rising need for service innovation stimulates the demand for services for a new purpose, which satisfy new needs. This way, the space arises for the rise of service en-

terprises. Their production satisfies the new demand with innovative products. New enterprises this way operate on the unsaturated market, which supports the acceleration of their economic growth. Application of service innovations in a broad economic space enables specialisation, which is the basis of conditions for dynamisation of economic growth in the service sector and also outside it. The intersection of service innovations in the form of nontechnological innovations in industry accounted for the value of 12.8% (share of nontechnological innovation enterprises on the total number of enterprises). In the construction industry, the indicator was set at the value of 11.2% (ŠÚSR, 2014). Consequently, transformative power of service innovation may be described as inadequately utilised under conditions of the Slovak economy.

Transformation processes of service innovations are monitored by the European Service Innovation Scoreboard via the innovation performance of EU28 economies in three identified most innovative service sectors. The service innovation intensive industries are characterised by high shares of firms with service innovations within each of these industries. However, service innovations also have an impact outside the industry in which they are generated. The Expert Panel, in particular, identified three

types of service sectors that have this transformative power of service innovation:

- Networking, connecting and brokerage services
- Utilities and infrastructure services
- Knowledge intensive business services

Table 2 contains the comparison of selected parameters of assessment of innovation performance of service innovation intensive industries in the SR with the average achieved in the EU28 in the year 2014. The given parameters characterise the innovativeness of key industries and at the same time show that they are ready for the transfer of service innovations across the entire economy.

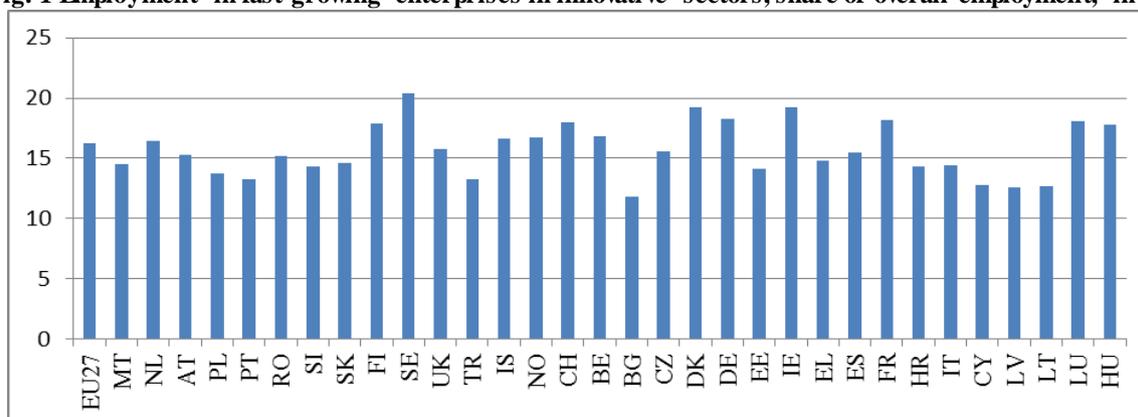
This comparison shows that the Slovak Republic achieves a comparable level of employment in innovation intensive industries and innovated products of service innovation active industries are applied with great success on the SR market. Employment in high-growth enterprises of innovative industries is mildly below the average EU28 value. That creates good prospects for the growth of enterprises. However, the sustainability of this growth will be dependent on the improvement of level in other parameters, in particular in support financing, in cooperation between enterprises, in enterprise innovative approach, and in the utilisation of research and development activities in the business sector.

Table 2 Selected indicators ESIS 2014 for the Slovak Republic and the European Union, in %

Indicator	SR	EU
Companies that introduced a service innovation	5.48	10.42
Innovating companies who received public financial support	3.16	8.77
Innovating companies collaborating with others	7.54	11.29
Employment in service innovation intensive industries (% of overall unemployment)	4.12	4.92
Researchers (% of active population) – business sector	0.10	0.39
All R&D workers (% of active population) – business sector	0.17	0.73
Turnover of newly introduced new to the market innovations	14.7	4.64
Turnover of newly introduced new to the firm innovations	4.91	7.55

Source: own processing after EUROPEAN COMMISSION (2015)

Fig. 1 Employment in fast-growing enterprises in innovative sectors, share of overall employment, in %



Source: own processing after EUROPEAN COMMISSION (2014)

Innovation intensity and productivity of labour in services in the SR

Innovation intensity, expressed as a ratio between total spending on innovation over total turnover, represented 1.76% in 2012 in the Slovak Republic, that is 0.55 percentage points more than in 2010. Medium-sized enterprises had the highest innovation intensity (1.89%), followed by large enterprises (1.75%), while the lowest innovation intensity was in small enterprises (1.58%). In industry, the highest innovation intensity was in small enterprises (4.30%) and in services; the highest innovation in-

tensity (1.63%) was in large enterprises (ŠÚSR, 2014).

The innovation intensity value (in enterprises with technological innovations) was in manufacturing compared to services almost twice higher. In industry, in low-tech sectors was the value of the indicator by 1.8 percentage points higher than in high-tech sectors. Conversely, innovation intensity in the service sector in knowledge-intensive services was by 1.6 points higher than in less-knowledge intensive services. The highest innovation intensity was in the medium-high-tech sector of industry

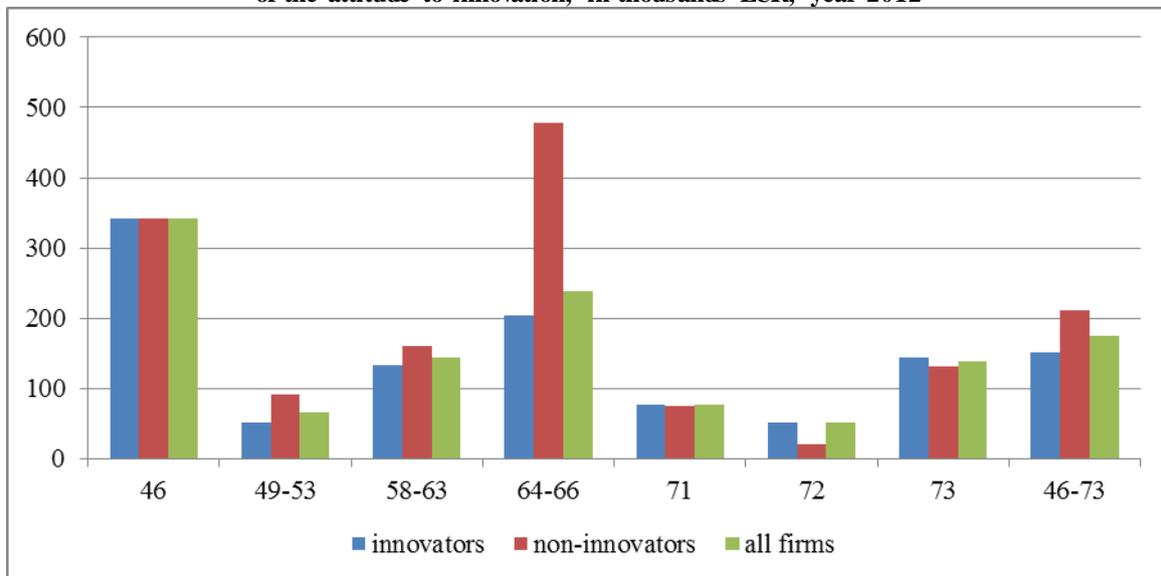
(3.3%). On average, 45% of the total number of enterprises with technological innovation carried out in-house research and development in industry and services. In industry, 47.4% of enterprises with technological innovation have conducted In-house R&D and the highest proportion 61.5% was in the medium-high technology sector. In services, there were 42.4% of enterprises with technological innovation, and the highest proportion 62.8% of enterprises reported the performance of In-house R&D in the knowledge intensive services (ŠÚSR, 2014).

Graph 2 depicts the comparison of the productivity of labour in service enterprises measured by the rate of an employee's sales achieved. At the same time, this comparison enables to express the relation between innovations and productivity of labour. We can state that the innovation activity is a possible determinant of the productivity of labour

in knowledge-intensive services (71-73 divisions). Results show the dependence of innovation intensity and productivity of labour only in a limited scope. Other monitored activities within monitored parameters do not demonstrate a positive influence of innovation activity and the productivity of labour in services.

To corroborate these facts, we conducted the Spearman correlation test. The result of the test – negative value (-0.78) also indicates that there exists a negative correlation between determined variables. Consequently, the positive relation between expenditures for innovations and the productivity of labour in monitored service industries within explored service divisions cannot be corroborated. Consequently, the application of innovations as a determinant of economic growth cannot be evaluated as a unanimously existing premise in the service sector.

Fig. 2 Productivity of labour in service enterprises in the SR in terms of the attitude to innovation, in thousands EUR, year 2012



Key: 46 – Wholesale trade, 49-53 – Transport and storage, 58-63 – Information and communication, 64-66 – Financial and insurance activities, 71 – Architectural and engineering activities, technical testing and analysis, 72 – Scientific research and development, 73 – Advertisement and market research

Source: own processing after the Statistical Office of the Slovak Republic (2014)

Conclusion

Theoretical starting-points related to the influence of innovations on the economic growth need to be understood in general. A concrete study in the service production environment in the SR has not corroborated their validity in full scope. The innovation background in the SR is not adequately developed in parameters that guarantee a more extensive dynamisation of small and medium-sized service enterprises. Transformative power of service innovations is not fully applied under conditions of existing value chains. The influence of innovations on the productivity of labour in services is corroborated with limitation to in knowledge-intensive services. Despite these facts, the presence of some dynamisation elements is obvious (representation of high-growth innovative

enterprises in the structure of SR economy; success of commercialisation of innovated products on the market; employment rate in innovation active industries; employment in high-growth enterprises of innovative industries; performance of In-house R&D in the knowledge-intensive services; a favourable influence of innovations on the productivity of labour in knowledge-intensive business services). In the interaction with other measures, they can indicate the increase in the intensity of growth processes. We consider these statements to be replies to the research question posed earlier in the paper.

Undoubtedly, these results are an inspiration for further exploration of gazelles in services. Future exploration is going to focus on the specification of findings by means of primary research. Its intent will

be to elaborate a study into characteristic features of gazelles in the environment of service production in

the SR with focus on identifying the determinants of their rise and survival.

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