

BIRKNER, Zoltán – MÁHR, Tivadar

INTERPRETING INNOVATION – IN ANOTHER WAY

Innovation helps to uncover the future social and economic possibilities. Subsequently familiarising with innovation processes, mapping those involved in innovation and researching the relations and influencing factors is becoming more and more valuable. The authors carried out innovation research in three middle-sized and small towns in Hungary on the basis of a request by a municipality among enterprises involved in the intelligent specialisation strategic program. In the course of the research the role of regional universities, the relationship between organisations involved in social innovation and the researched enterprises, as well as traditional innovation areas were dealt with. The innovation performance of enterprises in all three regions are – despite smaller differences – around the Hungarian average. The presence of a university in the region can be felt, however, it does not remarkably influence the innovation potential of enterprises. It seemed that outside the traditional links to chambers of commerce and industry there were no other civic protagonists in the processes of creating knowledge, and even the relations are rather loose, or mediocre. In the wake of these results, the authors formulated specific suggestions for improving the economic and social possibilities of the involved regions by establishing innovative environments.

Keywords: S3, regional innovation, large enterprises, social innovation, successful regions

Are economic players of small- and medium-size towns able to undertake innovative activities in case the settlement does not boast a high-quality research institution, major university, or development centre of a large company? The authors believe that the answer to this question is “yes” as the ability to renew is omnipresent, irrespective of the size of enterprises and settlements and the social environment.

The authors received a request in the summer of 2015 to conclude a piece of research on innovation among enterprises in the town of Nagykanizsa (a medium-sized town of average level of development in Hungary) in order to help formulate development in the coming planning period. Following the meaning of the proverb “appetite comes with eating” it was decided to use the experience gained from this research to conduct research into two sub-regions of the same level of development (Keszthely and Kőszeg). Motivations were mixed as the researchers were on the one hand curious whether enterprises active in a small-town milieu would demonstrate different innovation performance than those in a medium-sized town. On the other hand, the researchers wanted to investigate whether the innovation influence of a major university (Pannon University) can be seen in the aforementioned three regions (is there a traceable

difference among them?), irrespective of the fact that the large development centre of the university cannot be found in the researched settlements. However, there is some sort of interest in all the investigated settlements (in Keszthely there is a university department, and in Kőszeg and Nagykanizsa there are recently established training centres and young campuses). In the course of the research the aim was to focus on social and economic levels, apart from the Research and Development (R+D) and renewal activities of enterprises which might support the innovation possibilities of companies. Therefore, the social innovation conditions were indirectly researched in the aforementioned towns.

Two new approaches appeared in the field of innovation research which the authors incorporated into their research, one of them being the perspective of the Hungarian S3 strategy, which supports both on the SME and sub-regional levels, to appear as dimensions to be analysed and developed from the point of view of innovation (in the branches and service areas influencing the future of the given areas). The other new direction is the measurement and interpretation of social innovation, which accepts the existence of the fourth and even the fifth helix, apart from the traditional triple helix, as elements influencing innovation processes.

These new approaches were considered when the questions were compiled and subsequently, the following research objectives were formulated:

1. The presentation of highlighted enterprises of the Nagykanizsa, Keszthely, Kőszeg, regions (in accordance with S3).
2. The comparison of the innovation performance of the investigated companies on the basis of the size of the towns.
3. Exploring the areas and relations which influence innovation (special attention was paid to the presence of the Pannon University).

Theoretical background

Innovation became one of the most important sources of the national and regional economy in the past decades. Subsequently, the unveiling of innovation processes, the recognition of entities involved in renovation, as well as the research of relations and influencing factors is becoming more and more important.

Innovation is, according to literature, the ability to do things in another way (Schumpeter, 1939), a change which unveils new dimensions of performance (Drucker, 2003), or an implemented creative idea (Karlsson – Johansson, 2004). Vecsényi (2003) conceives innovation as recognised and utilised business possibility. Davila et al. (2006) are the opinion that enterprises cannot only grow by means of re-regulating processes in the enterprise and cost-reduction, but innovation is the most important tool of a higher growth. Porter (1985) considers innovation to be a series of small development steps which provide the opportunity of a continuous competitive advantage. On the basis of the notions above, it is clear that innovation can be an economic tool to increase profits and company value.

The term innovation has become ever more widespread in disciplines other than economics, therefore it is often used in the interpretation of social, educational, environmental and social changes. Thus it became necessary to define the areas of renewal (Oslo Manual). The major novelty of the 2005 edition is that the activities of organisation development and marketing are enlisted among the innovation areas. This is the most accepted and used definition in Europe and its strength is that it can be interpreted for organisations other than economic ones.

“Innovation is the introduction of new or largely improved products (goods or services), new marketing methods, or new organisational-structural models into business practice, workplace organisations, or external relations” (Oslo Manual, 2005, p. 30.).

In order to measure innovation the OECD and EUROSTAT issued a joint sample questionnaire (Community Innovation Survey – CIS), which is considered elementary among other non-EU countries. The terms used in the survey are based upon the notions of the Oslo Manual (third edition), thus their interpretation is unique. The CIS is the only harmonised data-source of measuring innovation (Szunyogh, 2010), which several foreign authors use (Leeuwen et al., 2009; Markov – Dobrinsky, 2009). The measurement of the enterprises and diffuse organisations investigated by the authors were compiled on the basis of the research conducted in Hungary according to the CIS questionnaire (CIS10; Innovation in West-Transdanubia, 2008; Birkner, 2010), and the conclusions of previous enterprise research were used (Inzelt – Szerb, 2003; Kocziszky, 2004).

In a knowledge-based society knowledge plays a more important role than ever (Simai, 2015). The terms of knowledge and innovation intertwine, as innovation is the process of applying knowledge. Knowledge and creativity are important notions of innovation. This can be acquired and developed via learning (Szunyogh, 2010). Learning is an interactive process and has three subtypes. Learning through searching helps economic organisations to expand their knowledge in order to solve problems related to production and successful innovation. This is not always successful, therefore the involvement of academic institutions, universities, or other organisations specialised on research, might be necessary and this process is called learning through research. The third type of learning is learning through production, which is learning implemented through use, experience and cooperation (Lundvall, 1992; Smahó, 2008; Péter, 2015).

The innovation system is nothing other, than a framing of factors influencing the existence and spreading of innovation. (Vas – Bajmóczy, 2012). The innovation system is built upon interactions (Cszimadia, 2009). According to this perception it can already be felt, that the complex relations established among the protagonists participating in the innovation processes are of key importance. Several actors dealing with the topic mention, that the success is influenced by their role and behaviour as a part of a system, as well as the structure and function of the entire system (Edquist, 1997; Fischer – Fröhlich, 2001).

The national innovation system (NIR, NIS, Lundvall, 1995; Nelson, 1993) and the regional innovation systems (RIR, RIS-regional innovation system Cooke, 1998) vary on a territorial basis. This approach focuses on a clearly defined territorial entity, a state, or a region (a county/sub-region) rather than a field of technology, or branch, as a complex economic-regional unit. The entire institutional system of these well definable or-

organisational layers can be important from the point of view of innovation processes.

The territoriality is a key constituent of innovation processes (Gál, 2013), as there are huge differences based on the spatial imbalances of access to the knowledge (Vas – Bajmócy, 2012). Therefore the regional research of innovation systems is an important approach (Dóry – Rechnitzer, 2000, 2005; Cooke, 2001).

The regional innovation system is capable of using the locally available, created knowledge elements typical for a given region. The basic condition hereof is the territorial proximity and the existence and utilisation of interpersonal connection systems (Andersson – Karlsson, 2004; Hau-Horváth – Horváth, 2014). The regional/territorial innovation system includes the universities, as elements of technological offer, the research institutes and innovative enterprises, their activities and the connections established among them. Another key element is the environment, which frames the creation of innovations. The living environment, the degree of education and work culture (Dóry, 2007) as “soft” – less measurable – factors also contributed to the success of innovative enterprises over the past few years. The authors fully agree with the territorial approach, therefore three sub-regions were put in the centre of the research, where the knowledge-creating abilities of local actors were investigated.

There is an ever increasing pressure on the universities bestowed upon them by local interested parties for the sake of coordinating their basic needs with the demands of the region. (Chatterton – Goddard, 2000). Bramwell et al. (2012) claim that the universities are the motors of regional economic development. The local devotion of universities can bolster the well-being in many ways, like research, infrastructure development, education, innovation, efficient university-business relations and community development. Therefore, universities undertake the third mission, i.e. the role of development, apart from research and education (Gál, 2010). When the universities integrate into their own region, then they have an obvious impact on the intensity and character of potential relations and thus on the process of spreading knowledge (Gál – Zsibók, 2013). Researchers (Gál – Ptacek, 2011) investigated the role of small- and medium sized universities in the Central-East-European region and concluded that the role of universities away from cities is crucial in the regional system of innovation, however, the economic impact of these universities is still less, than the one in more developed countries. The theoretical approach made it clear for the authors that special attention must be given to the role of the Pannon University in all three sub-regions.

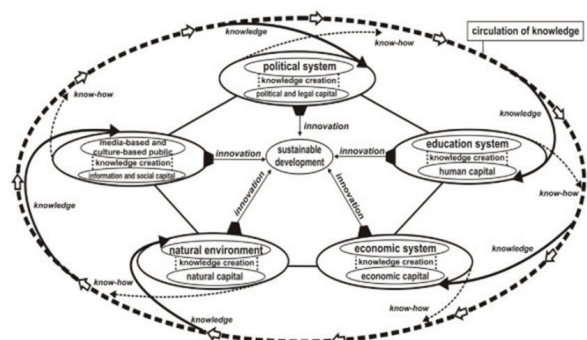
The so-called triple helix model of Etzkowitz and Leyersdorf (2000) describes a common, development-based interactive relation among the three institution types (state-enterprise-university), which can be interpreted well in rural regions. The proximity and intensity of the cooperation of participants defines the dynamics of the regional innovation system. The correlations in the system can be best compared to blood running through our veins. The correlations between the constituents of the model bolster the various levels of the circulatory system. The key of development is hidden in the reduction of factors hindering development, by means of which there is an increased movement in the system and thus the way is open to sustainable development. The supporting role of the state must be given a special attention.

There were initiatives to further expand and develop the triple helix model. The existence of a fourth helix appeared (Etzkowitz – Zhou, 2006). In connection with that suggestions were made to such factors influencing innovations, as labour, risk capital, informal sectors and civic society. Carayannis and Campbell (2012) created the model by thinking the triple-helix model further, where the media and culture-based community space appear as the fourth helix. Through this it is becoming evident that the members of the society and the communities are linked to business, technical, service and scientific areas, thus the NGO sphere has a link to the university-industry-government correlation. The authors considered this stipulation to be of key importance, when the second group of questions were formulated.

Further consideration of the quadruple helix provided the birth of the fifth helix (quintuple helix – Figure 1) (Carayannis et al., 2012). From this moment onwards the literature differentiates between the society and economic environment: the ecological aspect suggesting the unified approach with regard to the natural en-

Figure 1

A quintuple helix model



Source: Carayannis et al. (2012)

environment, social environment and economic development in a way that innovation must be used to achieve sustainable social and economic change also in case of different regional levels)

In summary of the helix-related literature, the authors believe that universities, as the engines of society-based development, are in the centre of the triple helix innovation model, the fourth helix assumes the importance of society. The authors believe that the appearance and scientific acceptance of the third and fourth models has led to the birth of the term social innovation and research concerning it. The fifth helix, the economic aspect, further strengthens the interpretation possibilities of social innovation (this is not yet a genuinely accepted point of view) as the dimensions of knowledge-based development; social, political and civil; are made more complete by adding the question of sustainability. One more remark has to be made in accordance with the helix models, these are modes of interpretation, which means that they can be regionally applied everywhere.

One of the tasks of social innovation is to solve the new social and environmental problems created by social-economic changes by means of social tools. (Szörényiné, 2015). Mulgan et al. (2017) regard social innovation as a series of innovative activities and services, which are meant to fulfil certain social needs and which are developed and spread by organisations,

local community).

The smart specialisation strategy

A novelty of the present research lies in the application of the smart specialisation strategic (S3) aspect. In the following the authors wish to summarise the main characteristics and local practices of the S3.

The EU pays special attention to research development, innovation and the motivation of the social-economic use of its results in the planning period 2014-2020. Thus key objectives over those seven years are to make Europe a scientific player on the global level, remove obstacles to innovation and bolster the relations between the public and private sectors. It is important that all nations and regional units coordinate their own research and innovation strategies with each other.

These documents are the smart specialisation strategies (NISZS/S3, 2014).

Intelligent specialisation has become one of the topics of EU debates, however, it still has a logic (McCann – Ortega-Argilés, 2016). In order for the EU to be successful, the policy – just like the regional policy – meant the involvement of more partners operating on the various levels of government. Complementary, mutually assisting impacts can be reached the best way, if they occur on local and regional levels.

Foray (2015) clearly explains that the term of intelligent specialisation puts the decentralised knowledge acquired in the wake of changes into the centre of all policies. At the same time the term of intelligent specialisation preserves the privilege of policy-makers to define the points of interference by themselves. The most important merit is that there should be a balance between the industrial policy (with the aim of supporting the development of regional economies) and the bottom-up informational processes, which in the end brings the discoveries of enterprises into the policy/strategy.

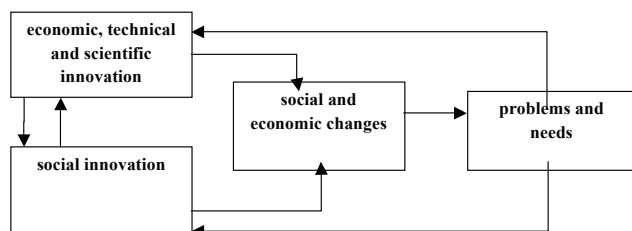
The intelligent specialisation and the regional development can increase the non-localised and localised processes for the sake of economic growth and higher quality of life. (Thissen et al., 2013)

The new S3 strategies differ from their predecessors (NISZS/S3, 2014):

- a wide range of local target communities and resources are involved in strategy-making,
- the focus is shifted from technological research development to supporting the entire range of innovation,
- not only are the best practices copied but economic competition advances and future potentials are key based on the individual strengths and values of the regions.

Figure 2

Close ties between economic and social innovation



Source: Benedek et al. (2015)

whose primary goal is the well-being of the society.

The research conducted by Benedek et al. shows that the major differences between social and economic innovation can be found in the objectives and capital demand of innovation. (Figure 2) The authors accept this notion and complement it by saying that enterprises are key elements in this field and have a striking role in creating traditional (economic, technical, and scientific) innovation. Their performance, however, is identified with considering the following factors (human resources, money and R+D development) and by the key factors of social innovation and related areas (civil society and

Foray and Goenaga (2013) defined the goals of intelligent specialisation as follows:

- appearance and growth of new activities capable of further development and which are rich in innovation,
- diversification of regional systems by means of generating new possibilities/options,
- creating critical masses, networks and clusters in diverse systems.

McCann and Ortega-Argilés (2016) stipulate that the SMEs are key protagonists of the intelligent specialisation policy. The focus in a few European regions is on launching new enterprises, while in other regions the priority is set on the growth of enterprises, or the development of the supply chain. Wherever priorities lay, it must be clear, that the participation, mobility and dynamics of enterprises must have a special role among the indexes of these new policies.

Intelligent specialisation is actually finding the way to be special in a highly competitive world. In order to grant this specialisation, Foray (2015) suggests regional economies to understand this intelligent process as a kind of evolution, building on the economic strengths of a given region, or economy, while completing all this with new, knowledge-based processes.

In the spring of 2014 there were two rounds of S3 workshops held in all 19 counties of Hungary involving the entire range of decision-makers and entrepreneurs. One of the authors of the present article participated in this work as a facilitator in Zala county.

The main task of the county events was to formulate region-specific industry/branch-related priorities on the basis of relevant county-related R+D+I statistics and documents, and introduce specialisation directions. The sectoral division of amounts spent on research development shows that Hungary is diverse. The performance of the entrepreneurial sector is dominant in all but Csongrád and Baranya counties. Here the tertiary educational institutions spend more money on R+D than the business sector. In the cases of Csongrád and Fejér counties there is a significant public performance.

The performances of the tertiary institutions and public sector were not striking in the counties investigated (Zala and Vas). Therefore, the approach was made from the point of view of the business sector in both regions. These towns are similar in the sense that Pannon University can influence innovation possibilities.

The methodology applied during the workshops prevented the possibility of local development policies being based on samples taken from other regions. However, it was expected to take these samples into

consideration when establishing the county specialisations. Imitation can easily lead to the continuity of fixed schemes, however, the S3 wishes to become a tool for establishing bottom-up economic-developmental aims based on local characteristics involving local decision-makers by identifying relevant priorities and RDI needs (NISZ/S3, 2014, p. 7-36.).

The main conclusions of the theoretical background

The first conclusion is the notion to be concluded from the theoretical bases, i.e. the enterprises must understand the necessity of changes and not be afraid of innovation as it can be interpreted as doing previous processes in a slightly different way. The second one is that measuring the R+D background and four types of innovation (product, process, organisation and marketing) are excellent means to define innovation activities of companies. It is an important finding that the knowledge potential of a region is made up of the knowledge of its companies and the human and social capitals of its population. Consequently, both the internal and external environments must be investigated to obtain information about creating knowledge. The fourth conclusion is that the elements of the innovation system of a region (sub-region) or branch; that is the corporate sector, the state (local government), universities and the civil sector and their set of relations; were all created to maintain sustainable development. The EU member states recognised that the Lisbon Model was not successful from the point of view of innovation and the new approach is the smart specialisation strategy, which is a bottom-up process addressing everybody and aims not only to find a new or novel solution to economics, but also to social programmes and needs (social innovation).

Research questions, material and methodology

Whilst formulating the opening questions, experience from previous innovation research in Zala county (Birkner, 2010) was used and some basic questions were included in the following category:

- General questions related to business organisations, size, number of employees, traditional innovation activities (product, process, organisation, marketing), and R+D+I expenses (compared to the national average).

The questions related to the new approach were compiled with the use of the questionnaire applied during the making of the S3 strategy and also the network relations supporting social innovation were investigated:

- Questions related to previously executed or ongoing developments,
- Questions related to the increase of added values (innovation capacity),
- Questions related to factors hindering innovation,
- Questions related to networking,
- Questions related to R+D+I, research infrastructure, and HR management,
- Questions related to university ties,
- Questions related to the future use of knowledge-management tools.

Material and method

Enterprises and diffuse organisations were investigated in the areas stipulated in S3 in Vas/Zala counties (e.g.: mechanic/mechatronic competences, intelligent systems, vehicle electronics, environmental technologies, logistics, wood industry, foodstuff industry, tourism). A total of 51 organisations were addressed, with 31 companies in Nagykanizsa and 10-10 enterprises in Kőszeg and Keszthely. The various companies were included by means of a layered sampling and random selection and the measurement was done primarily by means of structured interviews (35 interviews and 16 company questionnaires), the sample is not representative. The sampling was done in the summer and early autumn of 2015.

Empirical findings of territorial differences of innovation

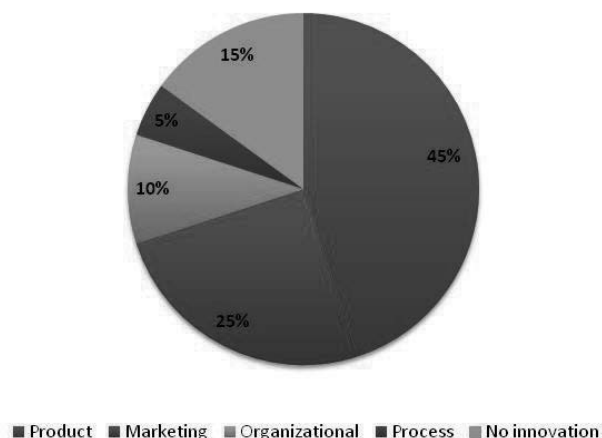
Only the most interesting results of the conducted research were highlighted and only those questions formulated at the beginning of the research, i.e. is there a difference in innovation characteristics because of the medium-sized and small town structures and can the presence of Pannon University be shown in the innovation performances and needs of enterprises, were dealt with in detail. The author's hypothesis in connection with this notion is, that there is no striking difference in the innovation activities of the investigated enterprises according to the size of towns and the quality of the presence of a university. Crosstab research was conducted in relation to the persistence, object of cooperation and innovation performance in order to present the influence of external relations on innovations at enterprises in general. The regions were not differentiated from this point of view. It can be assumed that the universities play a major role in processes of creating knowledge, the tightness of relations is strong (research of Gál – Ptacek, 2011), and the other players do not have a key influence on the performance of companies.

According to research conducted with regard to the four areas of innovation, enterprises in small towns

(Keszthely, Kőszeg) carried out more innovation activities than ones in Nagykanizsa. Product and marketing innovation were the most important in Keszthely and Kőszeg (Figure 3), while process and organisation

Figure 3

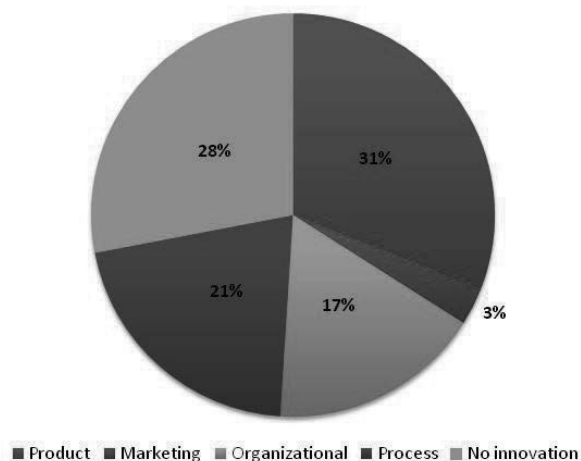
Innovation areas (Keszthely-Kőszeg)



Source: own research

Figure 4

Innovation areas (Nagykanizsa)



Source: own research

innovations instead of marketing were important in Nagykanizsa (Figure 4).

The explanation hereof is that the larger number of medium-sized/large enterprises in Nagykanizsa have more needs for process and organisational innovations. The greater willingness of companies in small towns to innovate can be interpreted as induced by need, medium-sized and large enterprises (especially if they belong to an international company) can afford not to search for innovative solutions at all costs as it is enough to

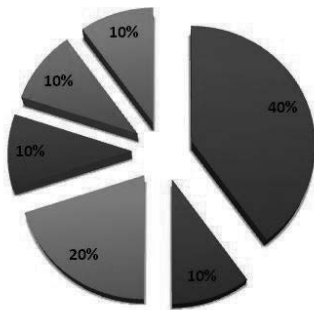
apply them in the supplier chain or via the system of the mother company. Hungarian-owned SMEs enterprises are – because of competition and their size – more open to radical innovations and innovation in general. Research previously conducted in Zala county (Birkner, 2010) showed a similar result with the complement that cooperation with a multinational does not often require novelties from Hungarian affiliates but a cheap and reliable workforce. Marketing innovation was the highest in Kőszeg. The authors do not believe that this is because of a specific reason but is rather characteristic for these companies to give a “forced” explanation that the closeness of the Austrian border makes companies with a more sophisticated business culture more open to

ing or input-providing R+D activities connected to innovation. In the case of R+D, tertiary education institutions may have a major role. Therefore, it was assumed that this is striking in the “home” of the Georgikon Faculty in Keszthely looking back on a long tradition that has been in operation for 219 years (Figure 5-6).

The analysis of the graphs does not show differences between the two small towns. In both cases there are four enterprises that do not invest any money in R+D, and enterprises in the Kőszeg sub-region gave more sophisticated answers. There were three companies investing more than 5% in this area, these were typically knowledge-enterprises (engineering, consultation and IT-development companies). Research centres could primarily be found in Keszthely, mainly in the field of agriculture. These are, however, integral parts of the state-run Pannon University, thus their performance is not present among the larger companies. Enterprises in Kőszeg undertake research-development activities on their own, in Keszthely there were two cases of involving a diffuse organisation in the process (this could be a sign of the presence of the university faculty). When asked about the amount of R+D investments with regard to income, 19 enterprises in Nagykanizsa stated

Figure 5

R&D spend (% of total turnover) – Kőszeg

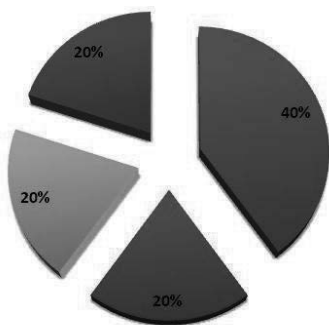


■ None ■ below 1% ■ 1-4.9% ■ 5-9.9% ■ 10-24.9% ■ above 25%

Source: own research

Figure 6

R&D spend (% of total turnover) – Keszthely



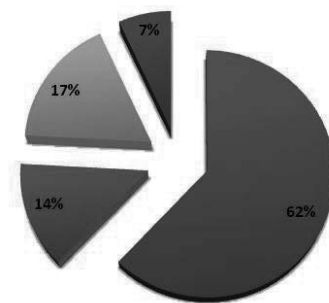
■ None ■ below 1% ■ 1-4.9% ■ above 5%

Source: own research

marketing innovation, but this cannot be verified based on the present amount of samples.

All three regions were asked about assisting, prepar-

Figure 7
R&D spend (% of total turnover) – Nagykanizsa



■ None ■ below 1% ■ 1-4.9% ■ 5-9.9%

Source: own research

that there were no such investments, which is more significant than in the small towns (Figure 7). The result in the medium-sized towns is typical because of the size of companies. There are only a few larger companies in Hungary that spend money on research development, and this activity is rather typical for SMEs (just think of IT and consulting companies). Hungarian-owned companies (irrespective of their size) usually do not spend enough on R+D, innovation, however, this would be beneficial for the increase of their competitiveness, their presence on international markets and their ac-

cession to supplier chains. This fact is undermined in the 2012 report of the Global Entrepreneurship Monitor and this is a partial explanation for the fact that Hungarian enterprises are less viable than their international counterparts.

In the case of implemented and planned developments, enterprises in Keszthely were more active than the others. The reason for this difference can be found in the economic structure of the town, it has a strong service sector (mainly in the field of tourism) and enterprises active in the field of tourism were and are more favoured in rural development programmes. Therefore, they had access to more tenders, inspiring them to develop even if they had to implement developments using their own resources. When asked about the future, companies from Kőszeg were more open, this is understandable as they were less active during previous investments and this temporal displacement correlates to enterprises in Kőszeg having been more careful in past years because of the crisis, or simply as a result of the development-rhythm of their branch/service area. Companies in the medium-sized town won more money via tenders than their counterparts in the smaller towns, an explanation for this can be that tender consultants and systems assisting enterprises have longer-lasting traditions and more sophisticated forms.

The next questions dealt with increasing added value and were aimed at identifying areas inside companies suitable for assisting in the creation of higher values and also with regard to obstacles. In answer to part of the question a Likert scale from 1 to 5 was used in order to better highlight differences.

In Nagykanizsa, human resource management, production, IT and sales were identified as areas where it is viable to increase values in the future. Exact ideas and answers were formulated, e.g.:

- continuous product- and quality-development as a result of introducing the Lean system,
- analysis activities need to be bolstered in order to be more accepted and sought-after by clients. Colleagues need to be trained and new tools and applications are necessary.

The importance of specific areas, when asked as control questions, could be rated according to their importance on a scale of 1-5. It became evident that the companies consider IT and technological development as the key elements for the future (the “very typical” rate was around 80%). Human resources and company infrastructure development received favourable scores, other areas are not exciting according to the interviewees.

In the case of small towns, the enterprises in Keszthely see the potentials of increasing innovation abil-

ities, unlike the ones in Kőszeg. Companies in Keszthely consider their situation to be more than one value lower/worse than in Kőszeg, which is a big difference. Innovation possibilities are created by introducing Lean management, innovative financial and accounting areas, and developing infrastructure in Keszthely. Enterprises in Kőszeg mentioned other areas, mainly the launch of new departments, introduction of new marketing methods, and development of company infrastructures in addition to new possibilities of applying patent-related processes.

The investigation of increasing innovation capacities yielded a similar result in Nagykanizsa and Keszthely with companies in Kőszeg rating their possibilities at the Hungarian border as more than one level higher. Possible explanations could be well-established cross-border connections or the internal need for sampled companies. The authors aimed at highlighting the correlation between the positive innovation possibilities formulated by enterprises in Kőszeg and their existing relations with regard to civil, economic and social organisations, but to no avail.

The similarities between companies in Nagykanizsa and Kőszeg in connection with obstacles is interesting since enterprises in Keszthely are of a different opinion (Figure 8-10). Companies in Nagykanizsa and Kőszeg gave the lack of experts the most points as they believed this to be the reason for a higher degree of industrialisation, while the question of replenishing human resourc-

Figure 8
Obstacles of developing innovation abilities – Keszthely



Source: own research

es in a service-oriented environment in Keszthely was not considered to be a major problem.

The next questions were related to connections linked to supporting and knowledge-institutions. Most of the companies have ties to the Chambers of Commerce and Industry, business incubators in the medium-sized towns, of varying degrees yet the majority of respondents opted for mediocre or weak when describing their nature. Economic-technical services are the

Figure 9

Obstacles of developing innovation abilities – Kőszeg



Source: own research

Figure 10

Obstacles of developing innovation abilities – Nagykanizsa



Source: own research

most characteristic fields of cooperation. Some mentioned R+D, this correlates with university cooperation.

The Keszthely and Kőszeg regions are similar in the sense that in both towns the relations to the Chambers were emphasised, the difference was in the intensity of these ties with the Kőszeg region describing them as mediocre or even strong, joint R+D programmes were even launched with the Chamber. The links in Keszthely were characteristically weak and it was surprising not to have heard any mention of relations to the university faculty (this can probably be explained by the fact that the interviewees were not active in the field of agriculture, which is the profile of the faculty). Clusters were not considered important in any of the towns as tools for developing the economy or innovation were applicable to only one enterprise.

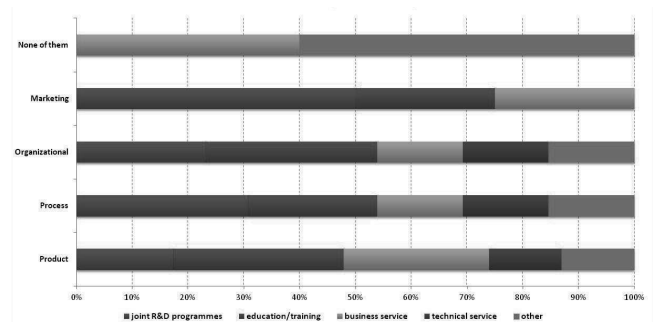
All three regions are similar with regard to social and economic relations, and knowledge-creation as well as not being very multifaceted. The Chambers were emphasised with regards to establishing contact in all three towns and campus links were only mentioned in one case (Nagykanizsa) where civil organisations are irrelevant. Clusters were considered of no importance in all three regions. Training courses, R+D and tech-

nical-economical services were identified as fields of cooperation.

The crosstab of the non-regional measurement related to connections focusing on the correlation between innovation areas and cooperation. There were 58 cases where there was some sort of cooperation for the sake of a certain objective. There were relations even in areas where there were no innovations. All in all there is no striking difference between the areas of innovation and the objectives of cooperation (Figure 11). It is surprising that the need for a joint R+D was voiced with regard to marketing innovation as this is significantly more characteristic concerning product-innovation. This would of course require more university coopera-

Figure 11

Innovation areas and possible cooperations



Source: own research

tion as the Chambers are unable to provide proper support in this field.

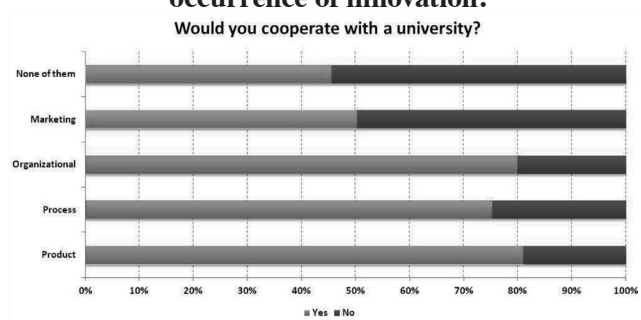
Companies in Keszthely and Nagykanizsa were keen to formulate development areas with regard to the innovation abilities of the towns and the development of relations (there were general formulations and the relations between civil organisations, public administrators, medical and educational institutions, and enterprises were not mentioned in detail). The tender-related responsibilities of the towns and possibilities in the university were highlighted. Those in Keszthely were critical concerning the present situation, companies in Kőszeg made few suggestions and there were even praises towards the innovation supporting activities of the town.

Enterprises in all three towns see possibilities in cooperating with university campuses. Two thirds of them are willing to establish university relations in medium-sized and small settlements.

General questions were raised in this field, it is positive that many consider this question to be important. The crosstabs research indicates that those organisations showing product-, process- and organisational-structure innovation are more likely to cooperate with universities (Figure 12).

Figure 12

To what extent is there a cooperation between companies and the university on the basis of the occurrence of innovation?



Source: own research

Research conducted shows no major differences in innovation performance, needs and preventative factors in the three regions. There is no striking difference between the locations of the towns or the time horizons of the presence of universities in the case of the municipalities. Subsequently the first hypothesis proved to be right. The second hypothesis was only partly right, as the presence of the Pannon University can be felt, however, it does not affect the innovation capacities of enterprises. There were no other players apart from the traditional links to Chambers. In the processes of gaining knowledge, the intensity of ties is rather weak, or mediocre. (Dóry and Gajzágó – 2015 – found a similar result during their research conducted in the Central-Transdanubian region.) Thus it can be said that on the basis of the innovation research conducted by the enterprises in these three small or medium-sized rural towns, the question of social renewal is not of major importance.

Conclusions, suggestions

The innovation performance of all three regions is – despite minor differences – approximately equal to the Hungarian average. Compared to earlier regional/county-wide research, this is a marginally better result. However, according to the authors this change is not because of the companies but rather the methodology of interviewing as it provided means for explanatory sentences, thus for a more exact explanation and measurement of the term *innovation* (according to the Oslo Manual). As in the past, enterprises in the region have not enhanced in the field of innovation, targeted development is necessary.

The S3 approach positioned the sub-regions. The aspect and the social expansion of innovation helped to facilitate the need for new, local research and a new

interpretation of innovation areas.

It is worth continuing the search for and familiarisation with enterprises that are willing to think in a different way. How could the expansion of innovation be increased in companies? The authors believe that there are two possible solutions. On the one hand, establishing a network of new, strong innovative enterprises within the branches of industry and services that either strive for internationally acclaimed quality by themselves or can achieve quality levels accepted by suppliers, i.e. a quality level defined by innovative large companies. On the other hand, further development of research and the tertiary educational portfolio is necessary as the previous measures have not achieved significant results in the case of the sampled companies. The authors believe that an increase in or development of educational and research capacities is required in the case of strong branches because the merger of existing willingness of corporate innovation and relevant university knowledge can bring immediate results.

The towns must strive to establish more complex relation-systems than recent ones because non-governmental organisations, the administrative system, and educational and cultural organisations can significantly bolster the innovation possibilities of enterprises. If the attractiveness of a municipality from the point of view of a young innovative person/group is considered, then it is easy to see that an impulsive, free and creative environment is very important, thus it is a mutual task to create one. Therefore the authors suggest, that the self-governments of the involved towns establish regular meetings between employers, civic organisations, educational and cultural institutions, where the participants have the opportunity to formulate the social and economic aspects of creativity and liveability together with the self-government (the KRAFT project in Kőszeg is a similar, outstanding initiative).

The lack of experts in the region (in the country and even Europe) is a problem that is mentioned more and more frequently. The question of the lack of experts on various levels (ranging from skilled workers to graduates) has been raised among the first notions when entrepreneurs were encountered (it is surprising that not only the omnipresent engineering and IT areas but also the financial-economic sectors were mentioned). One of the possible regional solutions to this problem is the launch of dual-training courses in secondary and tertiary education. The other possibility is a major increase in general wages, this is a countrywide matter and the authors believe that by not creating the necessary resources to tackle this issue, Hungary will face a major political and economic crisis in coming years as the young sector of its workforce will move abroad. Without young people open to new technologies and

processes it is hard to achieve economic growth.

Universities also have major responsibilities in these three regions, e.g. continuing inquiries, sharing knowledge, developing levels of trust, organising vocational meetings, and providing opportunities for innovation. The first step of this work could be a coordination of the offers of tertiary education institutions on Vas and Zala counties, especially on the field of engineering and informatics requiring a lot of tools. Therefore it is suggested that the Pannon University suggest a meeting for other tertiary educational institutions working in the same field, the towns with county rights and the municipalities of Keszthely and Kőszeg and the institutions of special interest groups of the employers for the sake of a vocational distribution among the various trainings once the market needs are discovered. This would bring along two direct benefits. One would be that small campuses would not compete with each other, therefore a focussing on necessary tools and experts would be possible, which could result in raising the level. On the other hand, the presence of current trainings would support the long-term staying of young and creative experts in the region.

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