The Late Turn-Out of the Slovak Startup Factories: Locational and Institutional Factors.

Marek Lavčák, Oto Hudec

Technical University of Košice, Faculty of Economics

Keywords: Startup ecosystems, location determinants, Boulder thesis, Silicon Valley, competitiveness versus cooperation.

Abstract:

In the recent years, startups and creative industries have recorded an extraordinary expansion. The geography of startup and creative industries is often coincident with the factors of agglomeration economies and networking assets together with talent inherence and managerial culture, which are supposed to be similar for both appearances. In Slovakia, the government has recognized its interest in the agenda of startups and creative industries only recently (2013), but the private and non-profit sector had predicted this trend three years earlier, when in Bratislava, the capital of Slovakia, the first major co-working spaces with an integrated approach to education and support of innovative business emerged. A support in the second largest town – Košice – started only in 2014, in the premises of the Technical University. The startup ecosystems in both cities have different focus, size, evolutionary qualities and culture, as their formation and fast growth were influenced by different regional innovation system and attracted rather different groups of young people. The comparison of both startup and art scenes in its early phase, only marginally touched by the public incentives, gives a possibility to study the startup ecosystems in their uncontaminated form, based mostly on the interviews of startup owners, gurus, venture capitalists, enthusiasts and observers**.**

1. Determinants of startup location

The location determinants attracting startup communities and the factors predicting success and performance of startup companies have been studied only for the last 15 years. Some places, cities and/or countries have predispositions to develop sooner and much faster than the others having comparative advantages such as innovativeness, the capital, specific knowledge, access to international markets, entrepreneurial culture, etc. A significant role in determination of the environment for startup businesses is played also by the territorial and intellectual capital, infrastructure and other factors of a particular place where startup companies are founded and operating.

The essential question is why a particular place has become appropriate for the establishment of business entities or rather specific forms of business such as startup projects.Positive influences such as economies of scale, localization and urbanization factors are confirmed to be the basic factors for establishment and movement of companies within regions (Gries, Naudé, 2008). They reflect the inherent features of the environment that stimulate the economic growth of new as well as existing companies through decrease of production and distribution costs, presence of high-quality work force. Furthermore, they influence the level and effects of the social capital present in relations between parties, which creates significant conditions for specific types of businesses (Birley, 1986) such as startups. In the case there is an infrastructure in a form of networks, relationships, knowledge base (technological

universities, skilled labour), companies of similar specialization or industry, suitable conditions from the beginning of their existence, the potential of success for startup companies is higher (Beise, Stahl,1998). The business environment as well as e capital in a form of specific financial sources suitable for financing startup projects of different areas that are predisposed to be successful in the region (hardware projects require different approach and their financial demands are different than for example projects) represent a very significant factor, too (Wach, 2008).
Another factor is represented by the nature of the place as such – creative ideas are not born anywhere and they require specific conditions. Moreover, innovators and creative people are attracted by conditions they cannot find anywhere else (Florida, 2002), especially in creative industries; this applies to creative startups as well. Generosity of the place and a tendency to accept new creative ideas are also very important. Specific factors of the place comprise the inherent level of social capital on the given territory, density of existing relations and tendency to make new relationships and enter into new cooperation. (Davidsson, Honig, 2003)

Here we have to mention Silicon Valley as the symbol of startup communities. This topic was studied and explained by AnnaLee Saxenian (Saxenian, 1994). Up to this date, Silicon Valley serves as a benchmark for other cities as well as for startups that come here in order to learn, discuss their ideas and raise funds. Silicon Valley is a great example of a functioning ecosystem where all aspects needed in order for new innovative ideas to be born and creative ideas of the graduates to be supported are employed. This synergy subsequently stimulates the investment activities in an extraordinary extent. Saxenian mentions porousness of the environment and companies' openness to innovations as two of the main reasons for the dynamic growth of Silicon Valley regardless of what they come from. Demand for innovations from the companies is met by the offer of professionally oriented universities and their graduates (Saxenian, 1985). Other regional ecosystems try to find inspiration in Silicon Valley. Whether the new Silicon Valley may be imitated o even purposefully constructed is questionable. It is also hard to justify whether the local factors are transferable to different places in the world. There have been a lot of attempts to use the main ideas of Silicon Valley as a model for new activities all over the world with rather different outcomes.

With regard to previous reasonings, many interesting questions may be raised. Are new startup communities established in the capitals (with the present impact of urbanization, higher availability of public resources, universities and wide range of companies looking for innovations) or, similarly to the creative industries, in post-industrial urban landscapess? Are they founded in technologically pure, rich environment or in the basements? Is there an ideal size of a city for effective exchange of knowledge and effectiveness of networks, social capital in the networks or can startup communities be successful even in fragmented environment of several poorly interconnected communities? Size of the city has been highlighted for example in Pittsburgh, city that served as the deriving the main determinants of startup project success:

- Strong universities, with a notable emphasis on working together—and on finding commercial applications for their research
- A significant local financing base - Local venture funds started to sprout up in the mid-1990s when the universities for the first time started to form tech-transfer offices and when other components of the city's tech-support infrastructure got put into place.

- Government involvement, in the right places and to the right extent – in Pittsburgh, one of the nation's longest-running technology-based economic development programs were founded.
- Being the right size - the city's small size, which makes it manageable, friendly, and appealing. (Tierney, 2014)

Probably the most famous specific source of determining the factors of success of startup ecosystem is The Boulder thesis (Feld, 2012) consisting of four key components:

1. **Entrepreneurs must lead the startup community** – Universities, investors, government, companies and media are important when forming an ecosystem, however, they play only the supporting role. Only the visionary entrepreneurs have the predispositions to lead the ecosystem and engage themselves in it actively.
2. **The leaders must have a long-term commitment**. – they have to think far ahead into the future and set the pace and direction for the rest of the community.
3. **The startup community must be inclusive of anyone who wants to participate in it. -** People and ideas must be allowed to move freely within the community. Creation of the right kind of porous, hyper-connected and unstructured community, and over time, it will become larger, stronger and more sustainable than any community that is based on exclusivity.
4. **The startup community must have continual activities that engage the entire entrepreneurial stack -** To engage the entrepreneurs, stimulate connections among community members and maintain vibrancy of the ecosystem, value-creating activities that draw people together, all the time are needed. All entrepreneur-focused events and activities, either formal or informal energize the whole community (Yining Wu, 2013).

2. Startup ecosystem in Slovakia

Innovative ideas are spread around and there are still newly discovered islands of startup movements inspired by the models from the USA (e.g. Tel Aviv since 1993, Berlin since 1997, Spain since 2005, Czech Republic since 2008) every year. Slovakia with the cities of Bratislava (2010) and Košice (2011) has entered the list of startup countries relatively later.

According to the recent surveys which compared startup ecosystems across the world (KPMG Technology Innovation Survey 2014 and Word Economic Forum's Networked Readiness Index 2014), despite of its young ecosystem compared to the international competition, the ranking of Slovakia in comparison to other countries is not high:

The KPMG Technology Innovation Survey 2014 comprises the Confidence Index, gauging each country's prospects for tech innovation. The index was based on tech leaders in each market rating their country on 10 success factors, including talent, infrastructure, incentives and capital. Slovakia scored 33 (out of 100) in this index. India scored the highest at 72. The USA scored 65. The average was 60. (KPMG Slovakia, 2015)

The World Economic Forum's Networked Readiness Index (NRI) measures the propensity for countries to exploit the opportunities offered by ICT and whilst it is focused on this particular sector, it is a useful guideline. The NRI seeks to better understand the impact of ICT on the competitiveness of nations. The NRI is a composite of three components:

- the environment for ICT offered by a given country or community (market, political, regulatory, and infrastructure environment),
- the readiness of the country's key stakeholders (individuals, businesses, and governments) to use ICT,
- the usage of ICT among country's key stakeholders.

In 2014, out of 148 countries, Slovakia was ranked 59th (up two places since 2013). Slovakia scored highest in terms of ICT usage (ranked 49th), but lowest in terms of its environment (political, regulatory, business and innovation – ranked 74th). For the comparison, Poland was ranked 54th, Czech Republic 42nd, Belgium 26th, Austria 22nd and Estonia 21st. (World Economic Forum, 2015)

It is worth to mention that the term *startup* cannot be used for any new project of innovative nature. According to Paul Graham (investor and co-founder of Y-combinator), despite the element of innovations, it is also important that the startup project responds to a real problem in an innovative way while observing the conditions of extreme growth, scalability and global ambitions (Graham, 2006). The definition of startup in this article is consistent with the approach of KPMG considering straup an Innovation Driven Entity (IDE), a company that uses innovative technology, disrupts existing business models and has a global outlook ((KPMG Slovakia, 2015).

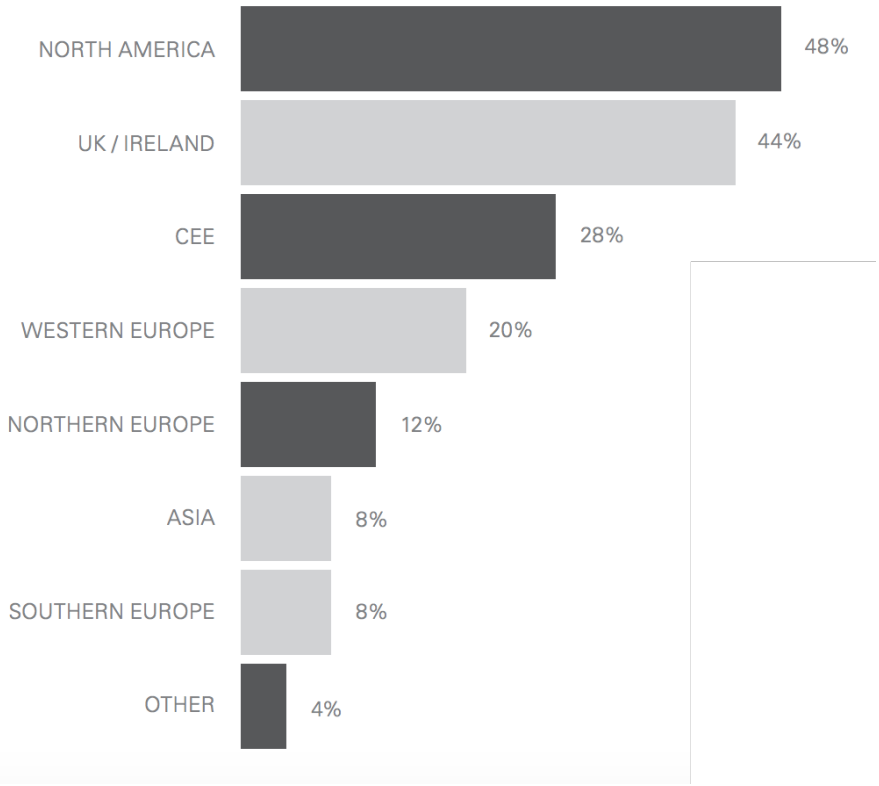
Although there have been projects that met the IDE evaluation criteria, only in 2010 a comprehensive programme of support has been set. Meetings of the civic association StartupCamp, the concept of which came to Slovakia thanks to the enthusiasts who had worked, studied or done business abroad, represented the first impulse for that. Since 2010 was the year of the beginnings of activities to support innovative entrepreneurship and startup projects in Bratislava. Rather careful beginnings were recorded in Košice in 2011. These activities resulted in the startup boom in the media in 2013 when startups were incorporated even in the government agenda.

According to the last year's survey 2014 carried out by the company KPMG Slovakia, the environment of startups in Slovakia is very active, which is proven not only by the activity and engagement of the commercial sector, self-administrations, organizations and supporting activities for startups, but also by the activity of investors and dynamics of new projects. With the exception of the corporates all parties reported strong activity, which had increased in the past 12 months. Of particular the fact that 71% of investors have increased activity levels according to KPMG survey. Still too early to judge performance (Active ecosystem and live communities were born only in 2011). There have been notable successes in the past from Slovak innovative companies ESET and Sygic which were built without existing system of support or even learning systems. But last year, Slovak startups 4 tis4c Datamolino, Divano, Synopsi.tv, Nicereply.com, Galileo, OrderLord, CropTech and Sli.do or the new Infinario were developed with strong support of existing activities and ecosystems. The range of services being provided, the hundreds of events being organised and also the fact that all this is not just taking place in Bratislava.
But still 85% of startups surveyed were at the early revenue or an earlier stage of development. However, corporates and investors both show a willingness to support such early stage companies (68%) mostly at two regions of Slovak republic.

What is interesting and specific about Slovakia is the higher education of the founders of startup companies. According to the survey carried out by KPMG, 79% of startup company

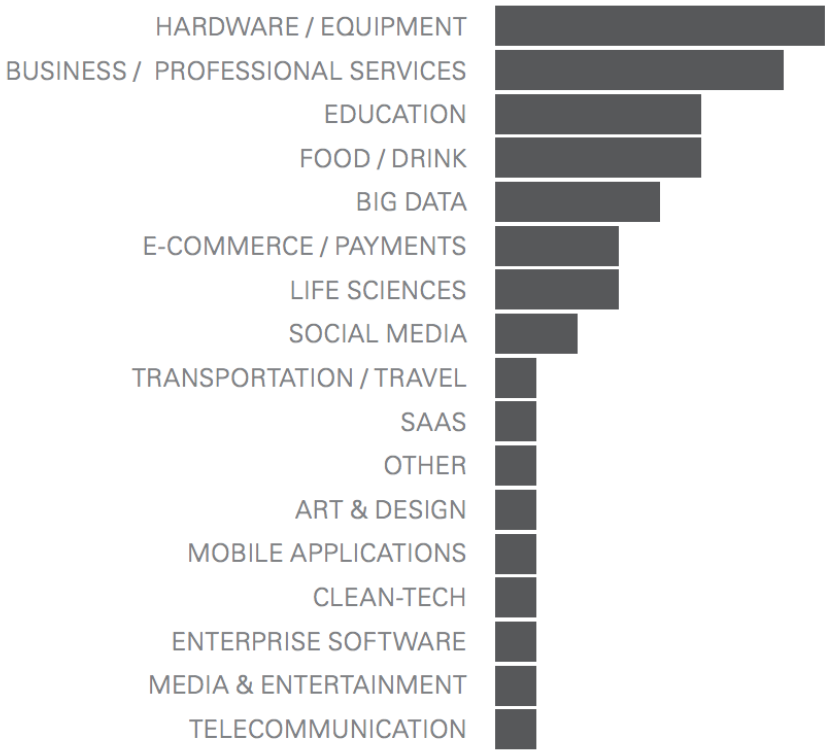
founders reached the university education (mainly in the following study programmes: computer science and business/management), while in the USA this figure represents 43% (KPMG Slovakia, 2015). Level of education and the study programmes explain the focus of new startup projects.

Slovak startup companies have global ambitions. As much as 57% of respondents consider moving to another country and 80% of these are doing so to access new markets. North America (48%) and UK/Ireland (44%) are the most popular markets being considered.



Scheme 1 Countries attracting the attention of the Slovak startups (according to KPMG Startup Survey 2014)

The most popular business sectores in Slovakia in 2014 included hardware devices and B2B services, followed by education, food & drink and big data analyses. The level of education, professional nature and technological requirements of the focus of innovative ideas within Slovakia are interconnected with the presence and engagement of universities as the adequate members of the ecosystem. This has also been a reason for two groups to be formed in the largest cities of Slovakia where the two most significant universities in the country are seated. Each ecosystem (one on the opposite site of the country to the other) has different historical, cultural, investment and technological predispositions. However, regarding the issue of startups, both cities are interconnected personally, by their origins and current support measures of the government aiming at the stimulation of business environment with direct orientation to support technologies and innovation.



Scheme 2 These are the companies the Slovak startups are the most interested in (according to KPMG Startup Survey 2014)

Bratislava as the capital of a small post-communist country may have been similar to Prague or Vienna, Ljubljana or Baltimore. Košice may be compared more to Pittsburgh, Katowice, Bilbao or Glasgow owing to its strong industrial background, the attempts of U. S. Steel to implement innovations and similar number of population.

In both cities can be found a live environment and support activities for young entrepreneurs and startups, such as co-working spaces, educational programmes, university activities, focusing on supporting startups. For the purpose of this paper, the startup company is defined as an organization formed to search for repeatable and scalable business model which provides extreme growth potential (Blank, 2012). From this point of view, we can observe several factors that could be important during the process of building a startup company.

The main aim of this research is to point out to the importance of specific types and strengths of networks, size of the local startup ecosystem and level of involvement of the potential partners for startup support activities according to the natural level of social capital in different cities. The term *ecosystem* is most commonly used in the context of ecology as a system of organisms that interact with each other and their environment. This can also be applied in the economic context considering consider businesses, organisations and other members of the system interacting each other and their economic environment, especially in connection with a bounded area (city or state). What does this ecosystem need and how to create successful startup even if we are not in Silicon Valley?

This is the rationale for qualitative studies of both key cities based on case studies grounded in the interview with specific groups of people who are close to startup companies – founders, supporters, entrepreneurs, investors or university and local self-administration representatives. Determinants of startup ecosystem formation observed up to this date will serve to discuss the two existing examples in Slovakia.

Research issue based on the previous studies:

What local factors are the most important for successful formation and development of startup companies?

Does aa nature of metropolis, and other factors such as population, economies of scale, size of the ecosystem, social capital, technological level of development, presence of universities, their nature and level of engagement in the local ecosystem and amenities have influence on the local community and its success (Florida, 2005). To what extent are the ideal features of ecosystems in Pittsburgh or Boulder correct?

Are the factors perhaps different for technological, creative and internet projects? Can the media supporting the topic, consultant companies, activists, evangelists constitute a significant aspect to the issue? How do incubators and accelerators support the community and new projects? Results are presented in form of two case studies based on the empirical research.

3. Methodology

The main research method used for the purpose of this paper comprises interviews and questionnaires to prepare two cases. The study sample consists of 28 startup supporters, incubator team members, accelerator team members, startup entrepreneurs and freelancers, institutional investors and venture capitalists from Slovakia (Bratislava and Košice) and Czech Republic (Prague). The empirical research was carried out during the event – Startup Weekend Košice 2015, which took a place in Košice in April 2015. All respondents are community leading personalities in their local ecosystems in order to ensure the relevance of their answers for the purposes of this paper. By asking simple questions, we wanted to create imaginary map of support activities in two largest Slovak cities with different approaches towards startup support, history, entrepreneurial structure and – also very important – different size of living startup ecosystem. The question given to the respondents was: *How does the quality and strength of social capital influence character of the projects, their international intentions and their quality in general?* Interviews were realized personally by the author of the paper during three days.

4 .CASE STUDY 1 – Bratislava

Overview

Bratislava as the capital of the Slovak Republic, is naturally the seat of local headquarters of the most significant international companies. However, in the recent years it has been shown that the startup ecosystem of the capital is more viable than ever and considering the professional aspect, it offers various forms of support for small and startup companies not only at the level of innovative business. Following only few years of its beginnings, there are several success stories in the startup ecosystem of Bratislava, which currently represent the

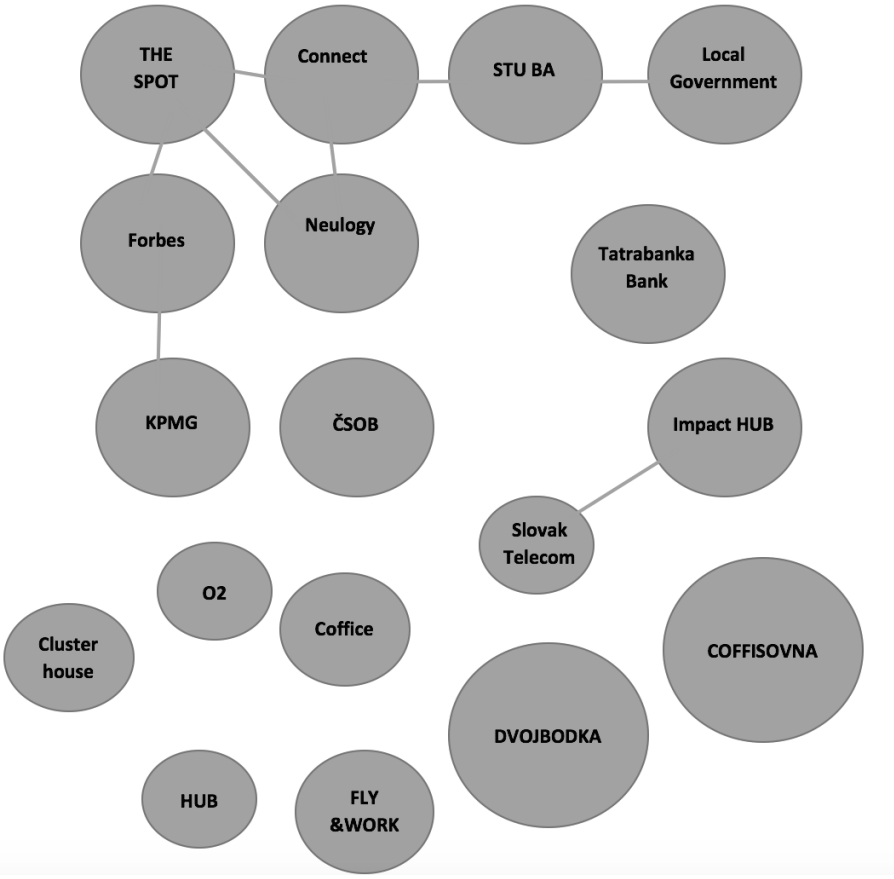
main factor of motivation in establishing startup companies not only in Bratislava, but also in the other parts of Slovakia.

Location
Bratislava is the capital and the largest town in Slovakia. It represents the seat of the Bratislava Self-Governing Region. With its 367 000 m^2, the town is spread on both shores of the Danube, 79 kilometres off Vienna.

History and key activities
For the last five years, Bratislava has been experiencing a rapid increase in the number of newly established organisations, creative spaces, support, educational and investment activities which are aimed at the positive stimulation of business and startup environment. At the beginning, StartupCamp meetings that had been held since 2010 were very popular. Enthusiasts, entrepreneurs, creative people, IT experts, investors and specialists from various fields used to meet here every month. They used to discuss and network in an informal and friendly environment. These meetings became greater considering the number of participants and the intensity of discussions, which led to the first official event called Startup Weekend Bratislava in 2011. Few months later, in November 2012, the first StartupAwards took place, the event that is called the Oscar for startups up to this date. As a result, the Slovak government sent eight teams for acceleration to the Silicon Valley.
Furthermore, in September 2012, the first co-working space with comprehensive educational program in the field of innovative business and startups – The Spot – was founded, followed by the centre Connect one month later. There are 11 co-working centres in Bratislava today, all of them organizing education for startup companies and potential founders.
The establishment of the first startup venture fund – Neulogy Ventures fund – was announced in 2013. The Slovak government became involved in the efforts to support IT SMEs by establishing the FIT fund (Fund of Innovation and Technologies).

Key institutions and personalities of the ecosystem
Since the early beginnings of the stable local startup environment in Bratislava region, the most important role has been played by corporations, their senior and middle management as well as successful entrepreneurs. The establishment of local startup and co-working centres led to the centralisation of the support based on the specialization of individual centres. The most significant personalities of the community include Matej Ftáčnik, Ivan Debnár (founders of the co-working centre The Spot), Ivan Štefunko, Michaela Jacová a Jaroslav Ľupták (Neulogy Ventures and StartupAwards), Michal Truban (Websupport), Michal Meško (Martinus.sk), Michal Pastier (Zaraguza Digital), and Rastislav Turek. These people take the active part in educational programs for startup companies and some of them even carry out the investment activities as well. Cooperation with companies represents the specific phenomenon of Bratislava ecosystem. Individual key partners were naturally divided among the most significant startup centres, where the most professional group of employees take part in educational activities focused on business development, marketing and sales strategies. The most significant partners include banks (Tatrabanka, ČSOB), IT giants – Slovak Telekom, Soitron, audit company KPMG and original co-working centres – The Spot, Connect, Impact HUB. Given the fact that the educational meetings are not so formal, the relationships among the company representatives, managing incubator teams and startup entrepreneurs are informal, which makes the foundation of strong and active partnerships much easier. Last but not least, specialized media focused on innovations, entrepreneurship and startups take part in formation and promotion of the startup community, the most

important being startitup.sk, startupers.sk and FORBES Slovensko. Owing also to the media, the interest in innovative business has increased.



Scheme 3 Relationships among the key partners of the ecosystem in Bratislava (size of the circles represents extent of their involvement in the local community)based on the interviews.

Environment and culture

The respondents attach highest importance to the so called „capital city syndrome" that is naturally associated with the fact that the capital city shall create the base for startups and 9 entrepreneurship in general. The fact that Bratislava is the capital of the Slovak Republic is associated with excellent transport and information infrastructure, interconnection with European metropolises such as Vienna, Budapest and Prague as well as the presence of the most significant Slovak companies and local headquarters of foreign companies. It naturally follows that the companies are involved in the investment activities into innovation.

The unique aspect regarding the growth of the number of startup companies in the Bratislava Region is the possibility for establishing one's own startup as the part of the "hipster" culture (Matej, co-working office co-founder).

Owing to this phenomenon, the Bratislava community is relatively wide considering the size as well as variety of focus areas of the projects.

On the other hand, the approach to support of startup projects, especially during their early stage, is influenced by some negative aspects – social network of Bratislava became closed to new members and projects. Owing to the size of the ecosystem and its commercialization, the support in Bratislava is fragmented and single parts are separated from each other, which is caused by the privilege approach. (Tomáš – Business developer at private accelerator)

The fact that starups have become a part of culture and lifestyle is normal. However, regarding the number of mentors and potential partners as well as the size of our community, it is still more and more difficult to keep a track of what is going on and who is who. When you come to a co-working centre, you will find people with headphones in their ears who do not want to be disturbed. (Jaro – venture capitalist)

The startup ecosystem shows the indicators of fragmented, broken or even competitive relations, common learning is not present or not in demand.

Bratislava is overloaded with startups and all the buzz aroubd them. Community meetings have changed into commercial mainstream events where the audience is still more apathetic. (Startup weekend Bratislava organiser)

Once, after an event I wanted to talk to the speaker who subsequently refused to talk to me – I was noone for him...this can happen only in Bratislava. (Michal – startupist)

The environment is highly commercial and there are only a few people who are willing to devote their free time to help others on their projects. The offer of information has become an issue of prestige. In order to get to quality sources is still more complicated not only for their full utilization, but also the commercial nature of support for starups. (Jaro – venture capitalist)

Challenges

According to the leading members of the startup community in Bratislava, greater interconnection of the existing ecosystem with the universities (especially those with technical and engineering study programs) and foreign specialists from the field of distribution and sales management, business development and expansion to new markets should represent the possible way to professionalization, quality improvement and success of projects in general. The relationships mentioned above have the potential to stimulate technical aspect of new projects, motivate students to make use of research and professional capacities of the universities and therefore increase the professional aspect of the fields that are often ignored. Startups currently represent a very popular topic throughout the whole Slovakia, which draws even the attention of projects of lower quality, non-educated team members with low willingness to accept the advice of mentors. Involvement of universities, decrease in media pressure and greater interconnection with foreign communities are considered to be the most important areas of the development of the ecosystem in the Bratislava Region.

Number and overview of the local statuses

There are several companies in Bratislava that have managed to reach the international success even with no support – ESET, Websupport, Sygic, Martinus.sk, Synopsi.tv or Nicereply.com. The founders of these companies used to act as motivators and mentors from the early beginnings of the comprehensive ecosystem, which ensured the higher level of professionalism considering mostly entering the market and sales. Each of the companies mentioned above has minimum of 1 million customers around the world. Development of software and B2B solutions using the scalable business model from the concept phase is the

new trend in the ecosystem of Bratislava startup projects. Nowadays, there are 35 – 40 startup projects with global ambitions in Bratislava and its surroundings.

5. CASE STUDY 2 – Košice

Overview

For the last eight years, Košice as the centre of Eastern Slovakia has drawn a large number of IT companies, such as T-systems, Ness, Global Logic, AT&T, Siemens and Eset. Presence of relevant universities and support activities aiming at the increase of interest in entrepreneurship in young people and university graduates has resulted in the greater interest in creation of new projects that can be classified in the group of star-ups. Following the efforts and cooperation of various institutions, companies and individuals, the environment for innovative business has been developing even in the Eastern Slovakia.

Location

Košice with the population of 240 000 people represents the centre of the Eastern Slovakia and it is the second largest town in the Slovak Republic that is spread on the territory of 242 000 m^2 by the borders with Hungary and Ukraine.

History and key activities

Startup projects and innovative business have been present in Košice for more than just the last few months. The community of innovative and creative people started to gather simultaneously with the emergence of StartupCamp meetings in Bratislave and after few months, the official civic association StartupCamp o.z. was established in 2011 in Košice as well. In the contrary to Bratislava, mostly enthusiasts and owners of small IT and programming companies who worked on their own projects with no connection with significant companies and investors of the region meet together in Košice. In the period of expansion of the companies such as T-Systems, RWE IT or Ness, these meetings focused on maintaining creativity in enthusiasts considering also the corporate environment of large companies with no significant support and conceptual education. The first official centre for support of startup projects – Eastcubator – was founded in 2012. However, this centre was used only for evening sessions with no possibility to work there permanently. Furthermore, there was no professional educational program set in Eastcubator. Owing to the cooperation with the members of Bratislava community, Startup Weekend Košice was held in 2012. In comparison with Bratislava, the interest in this event in Košice was much lower. During the organizing course of the event, there were efforts to establish a functional interconnection with entrepreneurs and companies in the Košice Region, yet with no active participation and involvement of the companies.

The community broke up in 2012/2013 due to relocation of successful projects to Prague and Bratislava. The activities and gathering of startup enthusiasts took a break for almost a year. Situation changed when the idea of incubator at the Technical University of Košice that was ought to be the part of university Science Park Technicon (project of three universities from Košice and Prešov) renewed. Student project AZU played an important role in this process. It included gathering of active students and educational programs regarding soft skills and project management, which aimed at creating the environment for active cooperation of students and companies of various fields during their studies at the university, which enabled students to gain experience for their further professional life. Following the decision of the government of the Slovak Republic, project AZU became a national development project in

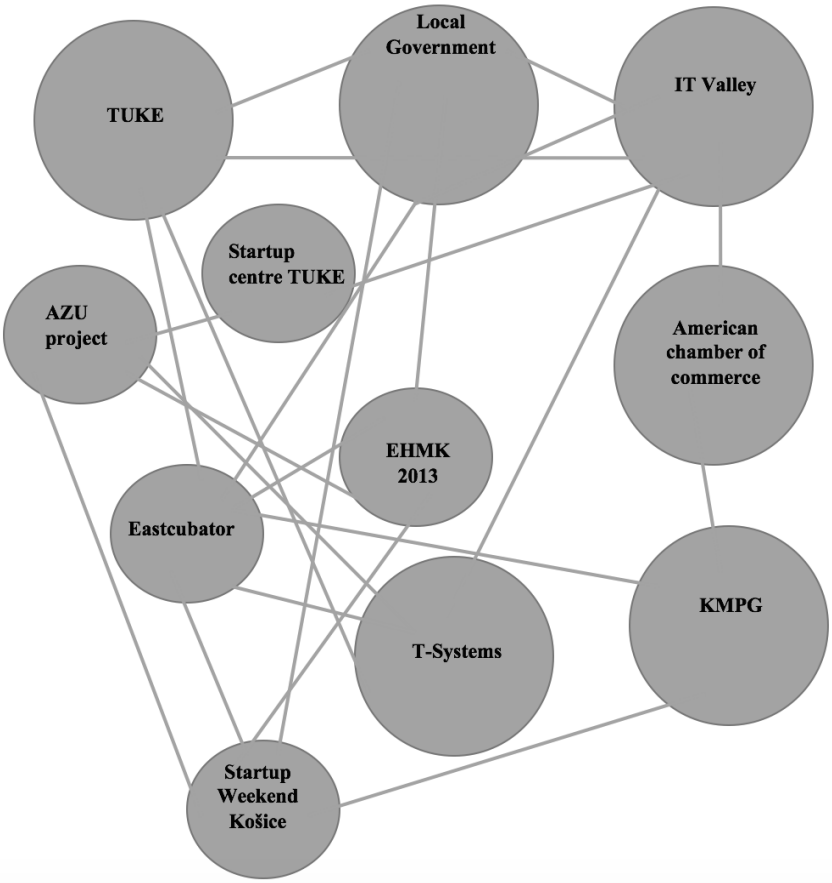
2013 and expanded its scope to universities into all regional county seats of the SR. Agenda for the year 2014 included the support of innovative and business projects of students, some of which were of commercial nature. Management of the project was covered by the Technical University of Košice. Founders of the project decided to take over the organization of Startup Weekend, which brought this event to Košice again. After Startup Weekend 2014, there were efforts to re-establish the startup centre as the successor of the original Eastcubator. This time, it was supposed to be interconnected with the companies of the region which should take part in education of yound entrepreneurs. By the end of 2014, two incubators were founded in Košice – one of them was established at the Technical University of Košice and the other one was founded as a result of the commercial activity of project AZU members. There are personal relations between the two centres and both of the managing teams have their origins here at TUKE. Formation of stable environment for startup projects as well as creation of close relations with the companies and efforts to involve the investors in the startup ecosystem in Košice are currently taking place. Startups are now experiencing the so called popularization phase here in the Eastern Slovakia.

Key institutions and personalities of the ecosystem

The idea of support for innovative business in the region of Košice was originally brought by Marek Kuzma (InnocentStore.com) and Jozef Kováč (7Segments), who join together a small group of enthusiasts and innovative people from their surrounding environment. This informal group took up the StartupCamp meetings held in Bratislava and together with Michal Maxián (former freelancer, now the founder of BatSuit) it made up the core of organisation team of Startup Weekend in Košice. When Jozef Kováč left for Bratislava in 2013, the fragile community in Košice was disrupted. In the meantime, the projects Technicom and Startup centre TUKE started to be planned. Considering these projects, Dr.h.c. prof. Ing. Anton Čižmár, CSc. (rector of TUKE) and doc. Ing. František Jakab, PhD. (leader of the project Technicom and founder of idea of Startup centre TUKE) played the most important role. Thanks to them, TUKE started a mutual relation with SAAB company that brought the know-how of the most successful Swedish incubator LEAD into Slovakia and national institutions FIT (Fund of innovations and Technologies) and SBA (Slovak Business agency), which are involved in the creation of comprehensive conceptual educational program. Project AZU took over various activities essential for the community of startups in Košice. Its members, Peter Vrábel and Marek Lavčák, in cooperation with the Technical University of Košice managed to bring Startup Weekend back into Košice and in cooperation with the town of Košice, they opened the new Eastcubator. The centre became a contact point for the community and companies such as KPMG, the managing partner of which takes, Kenneth Ryan, takes an active part in the educational program. They managed to start a mutual cooperation with companies such as T-Systems, Antik and GlobalLogic. Regular meetings with the startup community in Košice are held also by Neulogy venture capital fund.

The strengths of the Košice ecosystem are considered to be the presence of TUKE and IT companies united in the consortium called IT Valley. According to the statements of relevant members of the community in Košice, these institutions create a sufficient background for establishment of high-quality startups and spin off projects with the potential commerce use. The local self-government provided a great support for events like Startup Weekend. It was involved also in the opening of the new incubator Eastcubator that represents the centre of the startup community in Košice. Therefore, we can say that the strength of the ecosystem is represented by the synergetic relationship among the University, IT companies, self-government, members of the community and potential investors. The relationships within the

ecosystem are pretty informal with the tendency to form mutual cooperation among its members.



Scheme 4 Relationships among the key partners of the ecosystem in Košice (size of the circles represents extent of their involvement in the local community)

Environment and culture

Social capital as strength of Kosice is visible also for members of community. According to interview we can provide those statements as a proof.

„Košice is a small town where everyone knows everyone. If you need help with something, you usually know somebody who can help you or someone who knows the right people to help you. It does not matter whether you want to open a restaurant or found a startup, people hel each oter, they are friendly and sincere." (Marek – startupist – hardware developer)

Košice has a character of a village. People trade with services among each other and the availability of new contcts in the community which create strong relationships. There are a lot of skilful people and it is relatively easy to get to them. (Peter . entrepreneur – marketing)

What is peculiar about the startup ecosystem in Košice is the high number of hardware projects which are more risky and expensive than the software projects, mostly because of the scalability of their business plans and complex production and distribution process. One of the reasons why there is the imbalance of hardware and software projects may be the partial deformation of the environment. Large IT companies brought above-average wages to the

labour market in Košice which resulted in the lower interest in establishing one's own business.
Despite the involvement of IT companies in the support of startup projects, there is no active engagement of companies' managements in the educational processes, which is considered to be a great negative aspect of the startup environment in Košice. This results in inadequate integrity of business plans of the new projects, common failures in the field of resources and processes management as well as weak determination to get on the global markets. When compared to Bratislava, the fact that none of the new projects in Košice has reached the international success is also negative. Absence of local leaders and success stories cause the caution in implementation of startup projects in general.

Challenges
Predispositions to business activities are lower in the East of the country, which makes the expansion of startups and innovative business harder. This situation may be solved by education and promotion at secondary schools, building positive models and education in the field of business skills. Technical level of young entrepreneurs may be increased by the combination of education and practise during the university studies. This is the starting point for significant companies from various fields from which they may work with the community and thus improve the professional skills of young people. Up to this date, a lot of companies, mostly from the IT sector, are inactive, which slows down the increase of the standard level, quality and commercial potential of projects in the Košice Region. This may be solved by more open communication between the community and large companies. The Lack of positive cases and success stories in the region, or rather the inadequate popularization of successful people, has a negative impact on the situation, too. Some of the most interesting startup companies are looking for their place on the market, potential success and maintenance of the contact with the local ecosystem may serve as a significant motivating factor.

Number and overview of the local statuses
Lack of business and commercial approach to education of startups and individuals in Košice resulted in lower number of active projects. In spite of this fact, companies such as InnocentStore, Anovative, 7segments, or Adsulting succeeded and still produce innovative and scalable products. The company golden fish lighting that may have been the successor of the startup ecosystem in Košice with global success unfortunately ended its activities due to the lack of capital and displeasure of its founders to continue in their work.
Last months has brought several technically oriented projects that, owing to the support of university incubator, managed to be successful even in the significant international competitions. Companies such as CropTech and Petrinec Technology gain larger amounts of investments and work on product prototypes and strategic plan to emerge the foreign markets. Projects EFEOS, Dynamica Graphics and Chargebrella are still looking for application of their knowledge and skills on foreign markets. All of the projects mentioned here (except for EFEOS) are hardware orientated.
30 promising projects can be observed in Košice up to this date. However, only four of it has the ambitions to enter the international market.

6. Factors and cities

Factors of a suitable (technology) environment for startup projects has been highlighted on the example of the town of Pittsburgh. Both case studies of the Slovak cities of Bratislava and Košice confirm the presence of significant technology-oriented universities with the

predispositions to generate high-quality human capital in technology. An identified problem is low technology and knowledge transfer between the technical universities and co-located industries, living in two different wolds. . The interwies , however, confirm higher engagement of the Technical University of Košice d in the formation of the environment for startups by supporting young innovative people during studies. The majority of new projects in Košice has its roots at Technical University of Košice. On the other hand, the universities in Bratislava are not involved to the same extent as the University in Košice. Insufficient professional background in Bratislava is compensated by the corporate sector. On the contrary, companies in Košice still refuse to get more involved.

Considering the support by the government, Košice and Bratislava are at the same level since government institutions make no differences in regions regarding the systematic and methodological support for startups. They have different approaches regarding the support for formation of the community and its development. While the local self-administration in Bratislava plays no significant role, the support by the municipality and its management in is of great importance.

Considering the amount and positive impact of the social capital, Košice has much stronger, denser and active linkages, leading representatives of the community state that it is much easier to make new relationships and enter into new cooperation as well as search for new team members than in Bratislava while the ecosystem in Bratislava is becoming more dense and personal capacities are not able to cover all demands for support activities. However, the interest in the topic in general is not sufficient considering the public as well as the media, with the exception of specialized e-magazines.

The ecosystems in Bratislava and Košice have been also compared on the basis of the Boulder thesis. The first factor deals with the community led by entrepreneurs and points out to the huge differences between the two cities. Bratislava ecosystem has its own local heroes, role models and leaders with clear visions, set goals and success already reached, which serves as the motivation and increases the importance of local community leaders. In this sense, Košice seem to be less professional and the community is still looking for its role models, goals and leaders. We consider this aspect to be the greatest deficiency of Košice ecosystem. Although the porousness of borders among companies and the tendency to enter cooperation in Košice are on a higher level, the town is smaller and the communication and making new relations much easier, the community in Bratislava is much stronger and more developed despite of the fact that the two cities have the same approach to the capital and continuity of community meetings. This is confirmed also by the double number of projects and scope of global ambitions of the existing companies.

The factors of formation of ideal environment for the startups present in two cities of Bratislava and Košice can be presented. The following table,is focusing on professionalization of the community and reinforcement of the ecosystem mainly by the synergy of companies, universities, the government and successful entrepreneurs in the function of local leaders to be the most appropriate.

	Kosice	Bratislava
Origination of support activities	*2011*	*2010*

for startups		
Level of university involvement in local ecosystem	*Strong university engagement*	*Low university engagement*
Level of corporate involvement in local ecosystem	*Low corp. involvement*	*Strong corp. involvement*
Government involvement in local ecosystem	*Strong city engagement*	*Low city engagement*
Involvement of the other parties (fans, citizens, media)	*Not enough*	*Not enough*
Competitiveness versus cooperation	*More cooperative, common learning*	*Competitive, low willingness to cooperate*
Openness of the environment, inclusiveness,	*High, critical mass is still missing*	*High level of openness*
Porous boundaries between companies	*Porous boundaries*	*Thicker boundaries*
Leaders, long-term commitment	*Still not defined*	*Strictly followed and well defined*
Continual activities	*presented*	*presented*
City size	*Suitable for communication, generation of social capital*	*More on side of fragmentation of the activities*
Venture finance availability	*sufficient*	*sufficient*
Number of all local startups/those with international potential	*30/4*	*55/30*
Field of most of projects	*Hardware*	*Software*
Character of founder skills	*Professional (university education)*	*Non-professional (working experience)*
Number of places with professional meeting concept and content	*1-2*	*11*

7. Conclusion and discussion

The empirical studies support the importance of universities, key aspects for successful start of new company such as, support from higher education institutions, local corporate network or local government not only as a single institutions but also in the meaning of social capital and synergies originated in connections and networks between these parts of the system. Network of contacts, possibility to communicate and meet the right people and potential partners is very different in cities of different sizes. By this study, we wanted to show how the size of the ecosystem could influence its dynamics, process of education and also character of nascent projects in specific area. As we can see, both cities started their supportive activities for innovative companies almost at the same time, with only a few-month difference. The environment in Kosice has been created based on the impulse from Bratislava, therefore, there is a strong connection line between the two communities in both

personal and institutional way. During 2011 – 2013, the support in both cities was of absolutely different nature. In Bratislava, successful entrepreneurs, corporates and higher management became a part of system. Therefore, the co-working spaces with complex model of education have quite strong business background here.
However, each one of these centres now operates separately in relation to the other parts of the ecosystem. These centres have their own separate – often not interconnected – portfolios of their company partners who support the operation and the content of programs in the centres financially or in form of mentoring. Synergic effects and positive externalities are not caused by the closeness of individual parts of the ecosystem. In the environment with high level of dynamics of new project creation and great number of existing activities, is very difficult to start mutual cooperation in the fields of technical development and product design. Individual centres protect their know-how of education and despite of the informal nature of relationships, finding new partnerships is very complicated. On the other hand, the environment/ecosystem in Košice, which is based on the knowledge base of the Technical University of Košice, is more dynamical and flexible when creating new synergic partnerships owing to the lower number of projects and lower interest in entrepreneurship, which is characteristic of the region of eastern Slovakia. "Rural environment effect" creates the predispositions for greater interconnection of the members of the ecosystem who depend on each other in a positive way. High level of human capital which is present in the region of eastern Slovakia owing to the campaigns of IT companies for the return of quality people that together with the natural level of social capital in the Košice Region has a possitive effect on the formation and technical development of new projects. The positive effect of the smaller size of startup ecosystem in the East is proved by a great number of partnerships and strong interconnection of individual parts of the ecosystem.

References:

Gries, T., & Naudé, W. (2009). *Entrepreneurship and regional economic growth: towards a general theory of start-ups. Innovation*–The European Journal of Social Science Research, 22(3), 309-328.

Birley, S. (1986). *The role of networks in the entrepreneurial process*. Journal of business venturing, 1(1), 107-117.

Beise, M., & Stahl, H. (1999). *Public research and industrial innovations in Germany*. Research policy, 28(4), 397-422.

Florida, R. (2002). *The Rise of the Crative Class–and how it's transforming work, leisure, community and every day life*. New York.

Baum, D. *The Relationship Between Social Exclusion And Spatial Segregation In Urbanised Modern Societies*.Ecspress.

Wach, K. (2008). *Impact of the regional business environment on the development of small and medium-sized enterprises in Southern Poland*. InCracow University of Economics Conference Proceedings.

Davidsson, P., & Honig, B. (2003). The role of social and human capital among nascent entrepreneurs. Journal of business venturing, 18(3), 301-331.

Saxenian, A. (1985). *Silicon Valley and Route 128: regional prototypes or historic exceptions*. Urban Affairs Annual Reviews, 28, 81-105.

Tierney, John. (2014, December) *How to Create a Tech Startup Scene If You're Not in Silicon Valley*. The Atlantic. Retrieved from the http://www.theatlantic.com/business/archive/2014/12/how-to-create-a-tech-start-up-scene-if-youre-not-in-silicon-valley/384024

Graham, Paul. (2006, May) *How to be silicon valley*.. Paul Graham,. Retrieved from http://www. paulgraham. com/siliconvalley.

KPMG Slovensko spol. s r.o., (2015) *Startup Survey 2014*. Retrieved from http://www.kpmg.com/SK/sk/IssuesAndInsights/ArticlesPublications/Documents/Startup-survey-2014-SK.pdf (2015)

Blank, S., & Dorf, B. (2012). *The startup owner's manual*. K&S; Ranch.

Yining Wu Brian. (2013, May) *Startup Communities Crash Course – The Boulder Thesis*.Retrieved from http://www.startupcommunities.ca/2013/05/01/startup-communities-explained-the-boulder-thesis/

World Economic Forum (2015, April). *Global Information Technology Report - Network Readiness Index*. Retrieved from http://reports.weforum.org/global-information-technology-report-2015/network-readiness-index/

Florida, R. (2005). *Cities and the creative class*. Routledge.

.

Sokol, M. (2013). *Silicon Valley in Eastern Slovakia? Neoliberalism, Post-Socialism and the Knowledge Economy*. Europe-Asia Studies, 65(7), 1324-1343.