

Visegrad Startup Report

2016/2017

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Foreword

The idea of a regional publication benchmarking four Central and Eastern European neighbouring economies is based on the experience of Startup Poland, which in 2015 prepared an inaugural report of the Polish startup scene. The Polish Startup Report 2015 looked at local market dynamics and business trends among Polish startups.

The data gathered in 2015 from nearly 450 Polish startups grew in 2016 to over 540 completed surveys. Moreover, not only did the reports become the first intelligent source on the Polish digital economy among local policymakers and investors, but also brought other stakeholders' attention to our market.

In 2016, Startup Poland partnered with regional equivalent organisations to conduct a parallel regional 'V4 Startups Survey'. The surveys were conducted from July to September by the Aspen Institute Central Europe in Prague, Startup Poland in Warsaw, the Slovak Alliance for the Innovative Economy in Bratislava, and from February to April 2017 by Hungarian Startups and Global Traction in Hungary in Budapest. Almost 1000 surveys were collected in total.

Having separately examined four national ecosystems in a series of regional studies, the authors of this report have seized the opportunity created by the lack of a document which serves as a reference tool to companies and politicians attentively looking at the rapidly expanding Visegrad (V4) startup ecosystem.

With our analysis, we aim to facilitate investors' pursuit for innovative businesses in the whole V4 region, benefit policymakers and stakeholders directly involved in startup and innovation policy, and provide a coordinated support mechanism for startups originating in the V4 region.

Main findings

1. **The Visegrad group represents approximately one tenth of the EU economy**, with the average living standard per capita exceeding 70% of EU standard.
2. **The level of V4 access to broadband internet is exactly comparable to the EU average** and remains high both for households and entrepreneurs.
3. **Poland** leads in the latest Doing Business report, **Czech Republic** – in Global Innovation Index.
4. While most Visegrad startups' sales model is **B2B**, Czech startups sell eagerly to public sector institutions (**B2G**) and Slovak to individuals (**B2C**).
5. Startups surveyed in **Hungary** and **Poland** have the biggest confidence in raising funds with local and foreign venture capital funds.
6. Among surveyed V4 startups **crowdfunding** is most popular in **Slovakia**.
7. **Czech** surveyed startups are most active in patenting innovation.
8. Startups surveyed in **Czech Republic** and **Slovakia** are most export-oriented in V4.
9. **Poland** has at least four main startup hubs (Kraków, Poznań, Wrocław, Tri-City), while other Visegrad countries' ecosystems are primarily located in capital cities (Bratislava, Budapest, Prague).
10. **Czech** startups report the highest levels of R&D expenditure within the V4 group.

Introduction

Tech startups thrive where the founders can quickly access big markets, human capital, and venture financing, so that they can fully profit from investments in disruptive technologies and scalable business models. Does the Visegrad Group (V4) have the potential to satisfy these basic needs of tech entrepreneurs and foster the regional startup ecosystem?

If counted as a single nation state, the Visegrad Group is the fifth largest economy in Europe: Czech Republic, Hungary, Poland and Slovakia together have the population of 64 million people, a fifth of the US population. The centuries-long shared history as well as the most recent shared experience of the communist regime, its collapse, and the EU accession, have shaped similar mindsets and built trust within the region.

However, a Czech, Hungarian, Polish or Slovak startup does not naturally function in the larger, Visegrad Four, scene. The four does not stand for nothing: four currencies, four legislations, and four languages spoken, are the key barriers that hinder growth of a shared Visegrad startup ecosystem. Startup events are usually held in local languages, even though English is widely spoken among tech entrepreneurs.

The smaller Visegrad states more often give birth to startups with international ambitions. It simply does not make sense for Czech, Slovak or Hungarian startups to target their local populations (10 million or less). They would not be able to achieve substantial scale. But not so in Poland, where the size of local market (bigger than the rest of the states combined), for half of the startup founders, justifies building a specifically Polish startup and targeting only Polish clients.

What makes the Visegrad region stand out is the number of STEM graduates. The Visegrad states, together with Ukraine, each year produce more STEM graduates (ca. 285,000) than the

United States (ca. 270,000), according to the Unesco Institute for Statistics. The region's software developers top the rest of the world in international rankings. When it comes to human capital, especially tech and engineering skills, the region is highly competitive. And the openness of startups towards western markets helps develop business, sales and marketing skills, that for years have been present in scarcity.

The sources of startup financing in the region in some cases heavily rely on government funding, with Poland leading the use of EU funds to stimulate the ecosystem. Still, the venture capital activity is many steps behind the glorified Silicon Valley, and we can hardly expect a bubble. Local high net worth individuals only recently have started investing in startups, and not much funding available to startups comes from private pockets. The Visegrad Group needs initiatives that promote its startup deal flow in more developed startup scenes, attracting private capital and higher quality business skills.

The generation of today's techies, just starting on their path to entrepreneurship will give birth to important businesses of tomorrow. To help them succeed in the super competitive digital space, the Visegrad Four states need to aggressively promote the Visegrad technology brand, worldwide. This has to start with more cooperation between startup entrepreneurs, investors and business angels from all the four states and building the Visegrad identity. **The key to speed up that process is to enhance the exchange of entrepreneurial human capital between all the four countries.**



*Julia K Szopa,
CEO Startup Poland*

A handwritten signature in black ink, appearing to read 'Julia K Szopa'.

Visegrad Countries Economic Background

This chapter presents an analysis of the main economic factors that accompany innovative business growth in the Visegrad region (V4), in turn providing a background explanation on the conditions of local startup development. We focus primarily on identifying the main strengths and weaknesses of the entire region. Relying on our research experience, we paired fundamental macroeconomic indicators (Figure 1–10) with the results of two selected rankings: Doing Business and Global Innovation Index (Figure 11 and 12).

MAIN MACROECONOMIC INDICATORS

The population of V4 countries amounts to over 63 mln people – that is one in every 8 residents of the European Union. Nearly two-thirds of the V4 region's inhabitants are Polish, while, out of four countries, mostly Czechs live in cities.

The Visegrad group represents approximately one tenth of the EU economy. Poland is the main economy in the region, whose value twice exceeds the total

GDP of the remaining Visegrad countries.

The local growth rate champions in the group are Poland and Slovakia, while the Czech Republic and Hungary are developing at a rate comparable to the EU average. It is important to stress that growth dynamics in the V4 are relatively low, and the region, even though faster than the rest of the EU, is not achieving outstanding results.

The average living standard per capita is highest in the Czech Republic – the average Czech almost reached the living standard rate (nearly 90%) of an average EU citizen (in Slovakia 80%, in Poland and Hungary – less than 70%).

Poland has reached the highest individual consumption level in the V4 – the country's positive economic situation, for the most part, is accelerated by domestic demand. All Visegrad countries enjoy a positive trade balance, i.e. export values exceed the total value of imports.

The employment activity of V4 residents is reported to equal the EU average (approx. 70% of the workforce population is employed), except the Czech Republic where it is higher (approx. 80%).

Figure 1
V4 population (mln)

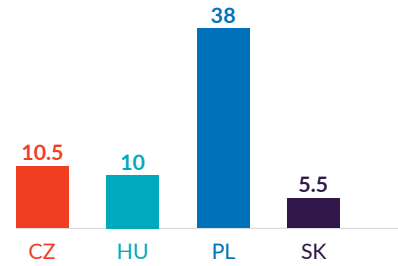


Figure 2
GDP level (bln EUR) and growth rate (%)

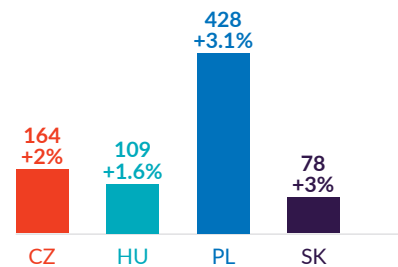


Figure 3
V4 residents' living standard with reference to the EU average

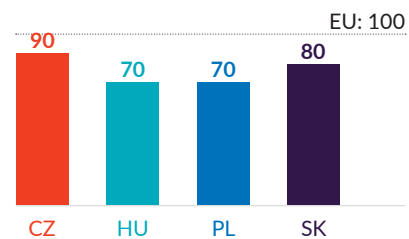
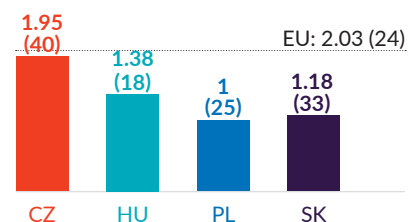


Figure 4
R&D spending (as % of GDP) and government spending share (as % of total; in brackets)



The unemployment rate is highest in Slovakia (8.4%) while at the same time the country's productivity rate takes pole position in the V4. Despite this, the entire Visegrad group lags behind the EU average in terms of productivity.



INNOVATION

Czechs report the highest levels of R&D expenditure within the V4 group, while Poles spend the least. We found an interesting distinction between the level of private and public R&D spending: while in Hungary private businesses invest five times the amount which is spent by government (which is relatively small), the Slovak market receives equal amounts of both private and public funds.

Public and non-public academic institutions in V4 countries annually grant an average of 85,000 master's degrees in so-called STEM faculties, approximately every fifth graduate in V4. It is worth noting that while the quality of education in the V4 is perceived as particularly high, and regional graduates are searched for by the most distinguished international firms and institutions, the alumni rate is simply insufficient.

Apart from the Czech Republic (which scored above the EU average), the rest of the region is lagging behind with the EU's top performers in regards to the number of R&D personnel included in the total workforce, a key indicator representing the real potential of innovation creation! It further directly translates into the number of patent applications in the V4, which in the studied region, is drastically lower than in the rest of the EU.



DIGITISATION

The level of V4 access to broadband internet is exactly comparable to the EU average and remains high both for households and enterprises.

Over 75% of Visegrad residents use the internet on a regular basis – only in Poland is it less than the average, at around 70%. Poland and Hungary are countries with the largest societal proportions not using the internet (every fifth person). Similarly, Poland recorded the lowest penetration rates of mobile technology.

While it is not popular in Czech Republic and Slovakia to search for employment online, Poles and

Figure 5
STEM graduates per year (in thousand students).
Eurostat data from 2013

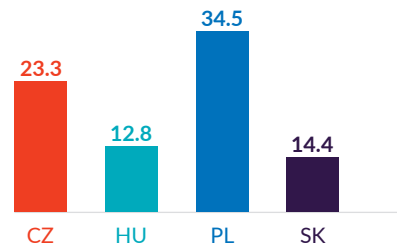


Figure 6
Number of patent applications to the European Patent Office (per million residents)

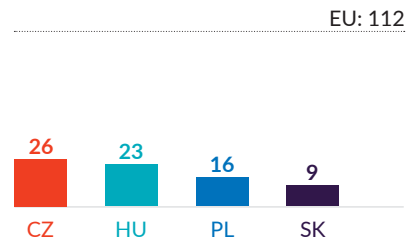


Figure 7
Individuals using mobile devices to access the internet on the move (%)

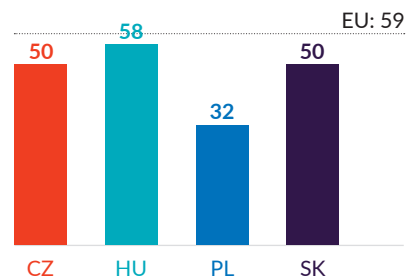
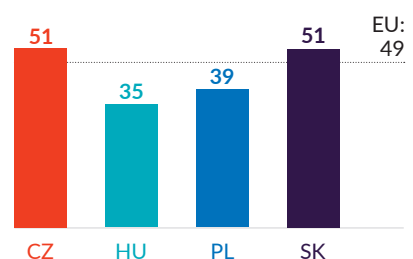


Figure 8
Individuals using the internet for internet banking (%)



78% of V4 households with broadband access

99% of V4 enterprises with broadband access

76% of V4 households with Individuals regularly using the internet

1 in 5 Poles or Hungarians have never used the internet

V4 strongest position in DB16 are : “registering property”, “getting credit” and “trading across borders”.

V4 weakest position in DB16 are : “dealing with construction permits”, “getting electricity” and “protecting minority investors”.

Hungarians are most frequent online banking customers.

Moreover, Polish and Hungarian customers are still relatively reluctant to shopping online: the share of companies’ income from e-commerce solutions is on an EU average level in Poland and Hungary, while in the Czech Republic and Slovakia it reaches only 30% of sales.

ECONOMIC RANKINGS

DOING BUSINESS

The Doing Business Report, published annually by the World Bank, is a renowned source of information on the ease of starting and developing a business in global economies. This study verifies the number of administrative procedures, their length, and cost that an entrepreneur has to face before having ‘checked’ 11 steps to opening a hypothetical business (from choosing a type of company, hiring first employees, getting credit, receiving construction permits, to closing a business activity). The DB Ranking enjoys a reputation of a credible and reliable source of information.

In the latest DB edition, out of all four researched countries, Poland reached the highest rank. After having studied the DB’s 11 respective indicators, we identified the areas where V4 region countries come out the strongest and the weakest.

Since 2010, the Czech Republic and Poland have significantly improved their position in the DB rankings. In the case of Poland, the achievement was attained due to having drastically shortened the time required to receive construction permits and ‘registering property’ as well as diminished the number of ‘taxes payments’ per year. In contrast, in Slovakia and Hungary progress was considerably slower, although in 2015 Hungary ranked higher owing to better conditions for ‘dealing with construction permits’, ‘getting electricity’, ‘getting credit’, ‘protecting minority investors’ and ‘trading across borders’.

GLOBAL INNOVATION INDEX

The second ranking, the Global Innovation Index, which is a widely known and a respectable knowledge source, is the result of a cooperation between Cornell University, INSEAD, and the World

Poland is a Visegrad leader in DB Ranking 2016

Czech Republic is a Visegrad leader in GII Ranking

Figure 9
Individuals using the internet to look for a job or to send a job application (%)

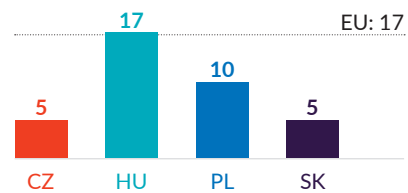


Figure 10
Share of enterprise turnover on e-commerce (%)

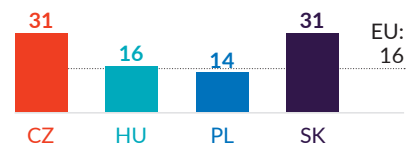


Figure 11
V4 countries’ ranks in DB Ranking 2016

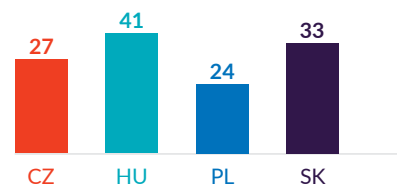
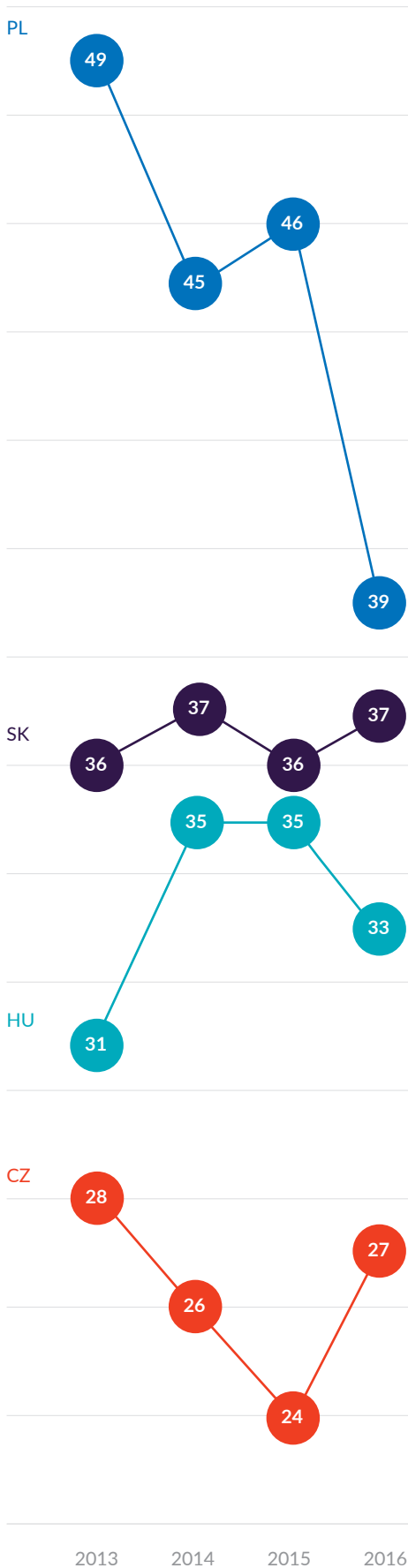


Figure 12
V4 countries' positions in GII 2013-2016



Intellectual Property Organization (WIPO).

A country's GII ranking position is taken from the average result from two indicator groups: 'input' and 'output'. The first group includes conditions which enable innovation activities (i.e. human capital, research and market sophistication), and 'output' conditions describe the results and effectiveness of those activities (i.e. knowledge and technology outputs).

In 2015, the Czech Republic managed to enter the prestigious Top 25 ranking of the Global Innovation Index. Sadly, it recently lost its position. Poland ranked worse among other V4 counterparts, yet in the studied period, it made a significant progress and managed to enter the top 40 in the ranking.

The common strength for the V4 region in the GII Ranking is the production and export of products and services of high-tech intensity, which can be interpreted as a result of various production plants being located in the V4 (mainly in the Czech Republic and Hungary), rather than a consequence of innovativeness and technology creation. Nevertheless, the 'creative outputs' and 'knowledge

& technology outputs' indicators are favourable for the studied region.

Among identified regional weaknesses, education-related indicators are the most alarming. The insufficient level of STEM type education graduates, regardless of the previously highlighted level of education, and their very low share in the total number of students are the most significant regional weaknesses.

The areas in which Visegrad countries encounter difficulty, according to the GII Ranking, is 'market and business sophistication', particularly in regards to 'joint venture and strategic alliance deals'. An in-depth analysis signals **a low market maturity and, similarly, a poor capital accumulation situation as a severe impediment to business innovation progress in the Visegrad region as a whole.** The crucially important venture capital and other investment markets financing innovative undertakings in V4, paired with the unsatisfactory number of carried out transactions and their international dimension, are the areas carrying most missed opportunities.

Sources: Eurostat, Doing Business 2016, Global Innovation Index 2013-2016, Central Offices of Statistics in V4 countries.

Visegrad Startup Ecosystems



COMMUNITY EVENTS

Startup Weekends are a globally recognised event which unlocks and activates startups' local potential. Startup Weekend events have been celebrated in the Visegrad region since 2011. Owing to these events, the Visegrad community and its leaders were able to create a strong network, a common startup business culture and unite in creating a symbiotic ecosystem (Figure 13).

Although globally recognised events are very popular among the entrepreneur community, simultaneously they represent an attractive alternative to various locally-targeted events which additionally accumulate regional ecosystems in expert knowledge on entrepreneurship mindset.

The most representative events for the local startup scene are, for instance, Startup Summit and World StartUp Cup in the Czech Republic. Similarly, an idea that first blossomed in Berlin, Startup Safary, has numerous enthusiasts in Budapest. A Hungarian edition, Startup Safary Budapest turns the capital into a two-day startup exhibition. Since 2007, the Polish startup scene has gathered in Gdańsk during Infoshare, an

acclaimed tech conference in May, while in June, Kraków becomes the ecosystem's focal point with Impact CEE, which brings business to the table and highlights innovation policy proposals. In parallel, Slovakia's biggest tech competition is Startup Awards, which is organised towards the end of the year. Since 2012, it has proficiently identified the best Slovak early-stage champions in tech and innovation across different economic sectors.

During the last couple of years these events have begun to attract politicians and government representatives supporting a locally developed digital agenda from the Visegrad region and beyond.

Local community and knowledge transfer are crucial factors in building a genuine startup culture. In Poland, such initiatives have been part of the ecosystem for many years – Aula Polska: around 200 events, 600+ speakers on stage and 800 recorded speeches given over the past 10 years; OpenReaktor in Warsaw: 90+ recorded speeches, 100+ meetings since 2011; Startup Stage in Kraków: 20 events, 100+ events since 2013, and Hive61 in Poznań: 36 meetups since 2013.

A new addition to the Polish ecosystem is a unique business-to-government event, "Startups at the

First Startup Weekend in the region took place in Warsaw, in May 2011

Palace" (two editions in September 2016 and March 2017), during which the 10 top Polish startups meet the Polish President, Polish or foreign investors, and traditional businesses, to pitch their projects and search for strategic partners at the Presidential Palace in Warsaw.



UNICORNS

V4-born unicorns are going from strength to strength.

Slovak unicorns are still to be born, yet ESET.com, an antivirus protection technology company, will reach unicorn valuation in a few years, while PixelFederation.com, a free-to-play games development company, and Sygic.com, a startup developing global automotive navigation systems, are on their way too.

A Polish game developer which was one of the first companies in Poland that understood the internet revolution, CD Projekt Red founded in 1994, reached 1 bln USD market valuation in 2016. Next Polish unicorn candidates are LiveChat Software (livechatinc.com), help desk and online chat software for e-commerce, Brand24.com, real time internet monitoring

Figure 13
Number of Startup Weekends 2011-2016



Source: Techstars



"Startups at the Palace. B2B Edition", March 2017



Google opened its new Google Campus location in Warsaw in 2015, the first such hub in the CEE region, third in Europe (Madrid, London), and fifth globally

technology, Growbots.com, all-in-one outbound sales platform, UXPin with design workflow tools, a software company Base CRM, and Booksy.net, specialised in beauty services appointments online.

One of the world's largest antivirus software developers originally from Prague, Avast.com acquired its local competitor AVG.com in 2016 and became the first **Czech** unicorn. Additional Czech success stories are Kiwi.com, an online travel agent, and Socialbakers.com, social media analytics developers, both unicorn candidates.

The **Hungarian** startup scene has seen the rise of three local market unicorns: Prezi.com, an online source of presentation tools (raised 57 million USD in 2014), Ustream.com, that provides a live interactive broadcast platform, and LogMeIn.com, a cloud-based remote connectivity tool.

LATEST V4 INVESTMENT ROUNDS

In 2017, a **Czech** company, Apiary.io sold to CISCO (price undisclosed, most likely between 50 – 100 million USD), and



TCPCloud.eu was acquired by Mirantis.com for about 40 million USD in 2016.

Hungarian born SignAll.us, an app translating sign language, raised 1.5 million EUR. In 2015, French car-sharing startup BlaBlaCar acquired Hungarian AutoHop, which helped expand the former's network to Hungary, Croatia, Romania, and Slovenia. The biggest Series A investments in 2015 went to ADASWorks (now Aimotive.com), an automotive and artificial intelligence startup, that closed a 2.5 million USD funding round and to Emarsys.com, a startup providing an all-in-one B2C marketing cloud which raised 33 million USD.

In early 2017, **Slovak** startup c2i.com, which builds intelligently-engineered carbon-fibre structures for next-generation cars and aircrafts, exited with LG Hausys which purchased a majority stake. Following this success, Patrick Hessel, a founder of c2i invested in Aeromobil, a key component supplier to c2i, which is developing a pioneering project of a flying car.

Polish Filmaster.pl sold in 2015 for over 1 mln USD to Samba TV which as a result earmarked the presence of the online television platform on the European market. An international media house,

Burda International, invested in a leading Polish fashion e-commerce platform, Showroom.pl, and purchased shares to promote their German equivalent, shwrm.de.

In 2016 both Polish beacon technology developers Estimote and Kontakt.io closed two respective financial rounds: a series A investment of USD 10.7 million, and series B round of 5 million USD. Later on, another Polish startup Brainly.com, an education technology innovator, received a 15 million USD investment round supporting their expansion strategy. A healthcare appointments booking platform, DocPlanner.com raised series C of USD 20 million in funding and merged with a Spanish competitor Doctoralia with a prospect of entering a South American patient market. The year ended with a series A financial round of USD 12 million flowing to Silvrair developing a Bluetooth powered smart lighting technology.

In 2017, a Polish industrial IoT startup, Elmodis, received 4.9 million USD of funding for developing a new technology that monitors industrial machinery performance in real time.

Most Important V4 Startup Events

Czech Republic – Startup Summit (since 2015, 1000+ participants), World StartUp Cup (since 2017, 500+ participants)

Hungary – Startup Safary Budapest (since 2016, 3000+ participants)

Poland – Infoshare (since 2014, 7000+ participants), Impact CEE (since 2016, 5000+ participants)

Slovakia – Startup Awards (since 2011, 1000+ participants)

Visegrad Startup Characteristics

This chapter discusses the characteristics of startups which participated in the 2016/2017 Visegrad Startup Survey led by Startup Poland. Even though the survey results in some countries do not represent the whole startup population, the data collected comprise an interesting starting point to more thorough and deeper research hypotheses in the future (Figure 14).

The research confirms that the average startup founder is a professional in his/her 30s, with substantial work experience, rather than a stereotypical fresh graduate. Especially in Poland and Czech Republic, this age group dominates among founders. Over two thirds have a bachelor's degree or higher, and a half (in Czech Republic) or a third (in Slovakia) have founded a startup in the past.

Slovakia has shown the biggest share of females among survey respondents, with 30%. Hungary, with only 11%, has the most 'masculine' startup scene within the V4 group. Still, compared with the European average, where only 5-15% of high-tech businesses is owned by women, the Visegrad countries stand out in favour of gender diversity (Figure 15)*.

The capitals are the biggest startup hubs, with the highest

*https://ec.europa.eu/growth/smes/promoting-entrepreneurship/we-work-for/women_en, consulted on 20 May 2017]

Polish and Czech founders are very similar: in their 30s, over 70% university graduates, one out of two has startup founding experience, in Poland one in four is female (only one in five in the Czech Republic)!

The significant prevalence of LLC, which allows for the distribution of equity and cooperation with investors, is a clear sign of the startup ecosystems maturing in all four countries

concentration of human and capital resources. Berlin, Paris and London are the biggest European startup hubs. The same pattern is visible in the Visegrad countries, where Prague, Budapest and Bratislava attract most of the local startups. In the Czech Republic, the second most active startup city is Brno, while in Poland, the biggest of all four countries, startup communities are highly active in three other metropolitan areas: Krakow, Poznan and Tricity.

Apart from a limited liability company, which is the most popular legal form of a startup among the respondents across V4 countries (70%), they register their businesses also as a joint stock company (most popular in Slovakia, 17%, and Hungary, 15%) or a sole proprietorship (18% in Poland).

a fifth in Hungary and Slovakia, have no employees at all. Over 50% of all surveyed startups in V4 are micro-enterprises that employ less than 10 employees. In Poland and the Czech Republic micro-businesses dominate the surveyed population even more and represent 75% and 66% respectively. However, 10% of surveyed startups employ over 20 people and 50% are planning to recruit within months, or already have hired more employees.

BUSINESS PROFILE

70% of survey respondents have reached the stage of intensive product or market growth. Furthermore, Poland and the Czech Republic have demonstrated more startups at the stage of full business maturity than either Hungary or Slovakia.

A third of surveyed startups in Poland, the Czech Republic, and

BUSINESS AND CORPORATE CLIENTS – STARTUPS' MOST IMPORTANT PARTNERS

We asked startups to describe their customer structure. They indicated more than one customer category as their target: Czechs and Slovaks do business with three types of clients, and Poles and Hungarians on average more than two. A general conclusion is that our surveyed startups concentrate on multiple customer groups, for instance, developing multi-sided business models i.e. B2C and B2B at once. Nonetheless, business remains the main customer for startups, in particular big companies, including corporations (40-50% of startups selected this type of client).

More than 50% of surveyed startups are micro-enterprises

Figure 14
Visegrad Startup Population by country

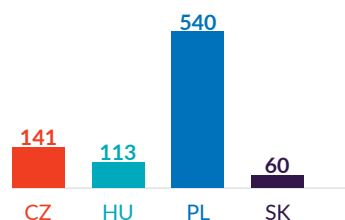


Figure 15
Female founders among surveyed startups (% of total)

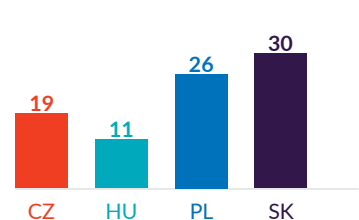
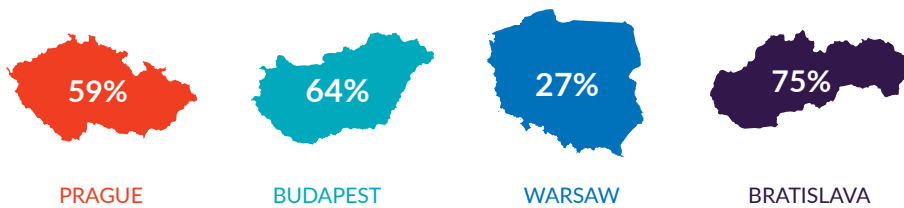


Figure 16
Startups concentration across the biggest startup hubs in V4 (% of respondents)



Interestingly, the survey revealed that public institutions represent an important customer type, in particular, for startups in the Czech Republic and in Slovakia, yet less frequently in Poland, and in Hungary barely at all. Additionally, the survey results showed that in Poland B2G relations (26%) might intensify in the near future, as 40% of Polish startups declare their will to participate for the first time in a public procurement procedure within the next six months.

FINANCING

Research data from Slovakia, the Czech Republic and Poland confirm that 70–80% startups reinvest their income, meaning that they are financed from savings. Simultaneously, part of them reach out for external financing. Only 6.5% of Czech startups and 15% of those from Slovakia, 22% of Polish and 25% Hungarian tech companies used local venture capital funds. In each surveyed country, approximately 15% of startups secure financing from business angels. While the level of public funds is the lowest among Czech startups (8%), this proportion is relatively

higher for Polish entities (24%). Very few startups in Hungary (2%) in Czech Republic (3%) and Slovakia (9%) use scientific grants. As many as 11% of startup projects are funded by crowdfunding in Slovakia, the highest score for the V4 region.

INNOVATION

One in three startups in the Czech Republic and Slovakia and one in four in Poland and Hungary cooperate with a university. In parallel, approximately 10–15% surveyed startups consult their product development with an R&D institution (academic or commercial). Interestingly, most of these consultations, in particular with the world of academia, is clearly of an informal character, and are neither registered in the administrative records of startups, nor by universities.

Every fourth surveyed startup in Slovakia and every third in Czech Republic registered a patent for its technological invention or registered trademark. In Poland, the research studied data uniquely in regards to startups' patenting activity, which translates to 17% of startups.

EXPORT

This area of company activity confirms the general rule that countries of smaller domestic demand are more prone to exporting their goods and services. Startups from the Czech Republic and Slovakia are more globally responsive (75–80% respondents) than their Hungarian or Polish counterparts (65% and nearly 50% respectively). (Figure 17).

Most interestingly, all V4 countries demonstrate a pattern which indicates that the exporters are dominated by two distinctive groups: one which is dominated by startups selling only a small part of their products or services (less than 30% of sales), and the second group which sees the export market as its main source of revenue (over 80% of sales).

Very few startups consider Asia as their top export market (only 3% in Poland and Hungary). Their first choices are the EU and US markets. The Czech Republic is the first market where Slovaks decide on opening a branch of their company abroad.

The average startup founder is a professional in his/her 30s, with substantial work experience, rather than a stereotypical fresh graduate

Crowdfunding is most popular in Slovakia

Figure 17
Share of exporters among surveyed V4 startups (%)

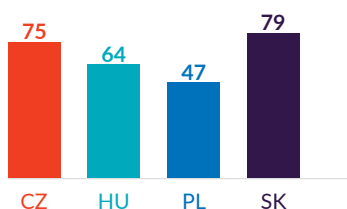
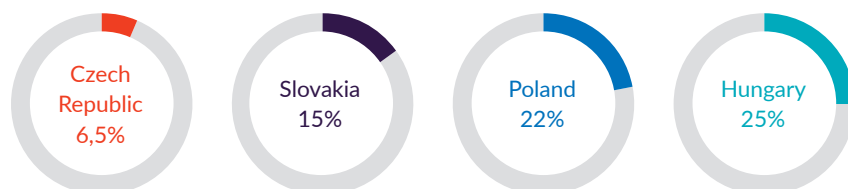


Figure 18
Share of surveyed startups (%) financed by local venture capital funds



Expert comments



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Slovak startups' strengths

We have asked ourselves why startups and innovative firms are important for the economy. Some might argue that innovative companies create just a small part of the whole economy and their economic, cultural and social impact is not as significant as of other larger and more established companies.

However, we need to look at it from various angles. First, the positive social and cultural impact they have on creativity and broadening the scope of interest of a wider group of the society, from students to young people, who are looking at role models of successful entrepreneurs who "made it" on a global scale. Entrepreneurship allows students to experiment and participate in various events where they learn valuable skills. Secondly, when startups are successful and manage to scale their operations globally, they are creating economic and social value for the city, region and the country. The flagship companies of Slovakia, such as ESET, Sygic or Pixel Federation are well-known across the globe and share a positive image of our small country.

Based on the data from the V4 Startup Survey, Slovak startups are one of the most export-oriented in the region, 79% of them sell abroad. Slovak market often serves as a test market and our central position in the EU allows us to provide goods and services to other members states or the US. B2C market is the most popular among the V4 countries, which also leads to Slovak startups experimenting with crowdfunding when developing their products.



Financial sources in perspective

The Hungarian VC scene has gone through a transformation in the past 7 years since the first Jeremie funds appeared. Back then many funds had a zero-sum investment mentality in which their investment success was more determined by the terms achieved in the term sheet negotiations than the success of the venture itself. Thankfully, as more investors and investment programs appeared on the scene this investment view has changed, largely due to the appearance of some entrepreneurs-turned-investors. The success of the venture became more and more important, the role of founders and company management became paramount. In parallel, since about 2014 a new investor class, the professional angel investors, has begun to appear and has brought a significant industry expertise and acumen to bear.

All this created a huge change in the norms of investing. **Today it is commonplace that investors take minority position, think about the 'next round' and want to leave room in the capitalization table for the new 'Series A' investor in the later stage of the venture.** Most investors today feel better off with a smaller 'piece of the pie' knowing that the entrepreneur has to be motivated to work hard on the venture, otherwise a 'bigger slice of the pie' is worth a lot less.



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Why VC funds first?

The abundance of financing from EU resources facilitated the birth of early-stage financing in Hungary. However, both capital funds and entrepreneurs had a steep learning curve ahead of them.

Many capital funds tried to minimise risk by having rather conservative term-sheets that often contained clauses that were contradicting international best practices at the time, that also hindered future financing from foreign VCs. On the entrepreneur side many projects without relevant experience and clear long-term vision were seeking funding, only to find that investors were looking for well-established business models, not just innovative solutions.

Nowadays, there is a structural change happening. **Investors are more likely to embrace the risk involved in financing startups, and entrepreneurs are preparing for capitalisation and international expansion from the beginning.** The most promising startups manage even to bring international investors onboard in their first round of financing.



Czech AI startups vs academia

Czech startups boast the highest number of patents and trademarks (35%) among its Visegrad peers, yet the potential of academic entrepreneurship is still not fully tapped. **According to a 2016 study by IDEA Knowledge Transfer through Academic Entrepreneurship in the Czech Republic, 16% of academics with docent or professor titles at major public universities are active as business people.** Entrepreneurship as a way to secure additional income is popular, especially among natural and technical scientists, but due to rigid procedures, the study says, academic startups are rare. This is supported by our findings: only 14% of respondents claim to be a university or a research spin-off. Nevertheless, almost one third of respondents declared some sort of informal collaboration with a university or commercial research centres, which gives hope for an upward trend in technology transfer between the academic to commercial spheres.

Moreover, there are instances of intensive R&D cooperation between universities and companies, which can set an example for all academics. **This is happening, for instance, in the field of artificial intelligence, where the Czech Republic is becoming one of the major drivers.** AI research cooperation with commercial actors is taking place at several universities, including the Czech Technical University in Prague and the Brno University of Technology. The key to success in most of these cases was not so much public or policy support, but the entrepreneurial mindset of highly skilled faculty members, who either establish companies themselves or individually seek out cooperation with big commercial players. This allows not only for technology transfer, but gives them access to state-of-the-art equipment and engagement in global projects coordinated by companies such as Facebook, IBM, Toyota or Red Hat. This in turn enhances the prestige of Czech research centres at universities, generates even more cooperation with the industry, and in a way “teaches” them how to create additional sources of income while securing intellectual property rights and retaining excellent researchers at the faculty.

Summary

Czech Republic

Strengths

- + The highest quality of life
- + Strong urbanisation
- + High professional activity
- + The highest R&D investment activity
- + High ratio of R&D professionals among all employees
- + Strong e-commerce
- + A leader of Global Innovation Index
- + High rank in Knowledge and Technology Outputs according to the Global Innovation Index
- + High export activity
- + Most active in patenting or registering trademarks

Weaknesses

- Few Startup Weekends
- Low VC investment as funding source
- Low public-sector financing

Hungary

Strengths

- + R&D investments dominated by the private sector
- + The highest mobile penetration
- + High rank in Knowledge and Technology Outputs according to the Global Innovation Index
- + A globally known unicorn, Prezi.com
- + Most often hire new employees
- + High activity of local VCs

Weaknesses

- Slow economic growth
- High digital divide
- The lowest rank in Doing Business 2016
- Few Startup Weekends
- B2G sales model least popular

Poland

Strengths

- + Big country, high human and economic potential
- + High domestic consumption
- + Top software engineers in the world
- + A leader in Doing Business 2016
- + The most Startup Weekends organised
- + Google Campus in Warsaw
- + The highest V4 startups survey reach
- + Four startup hubs
- + High EU financing

Weaknesses

- The lowest R&D investment
- Low patent activity
- High digital divide
- The lowest mobile penetration
- The lowest rank in the Global Innovation Index

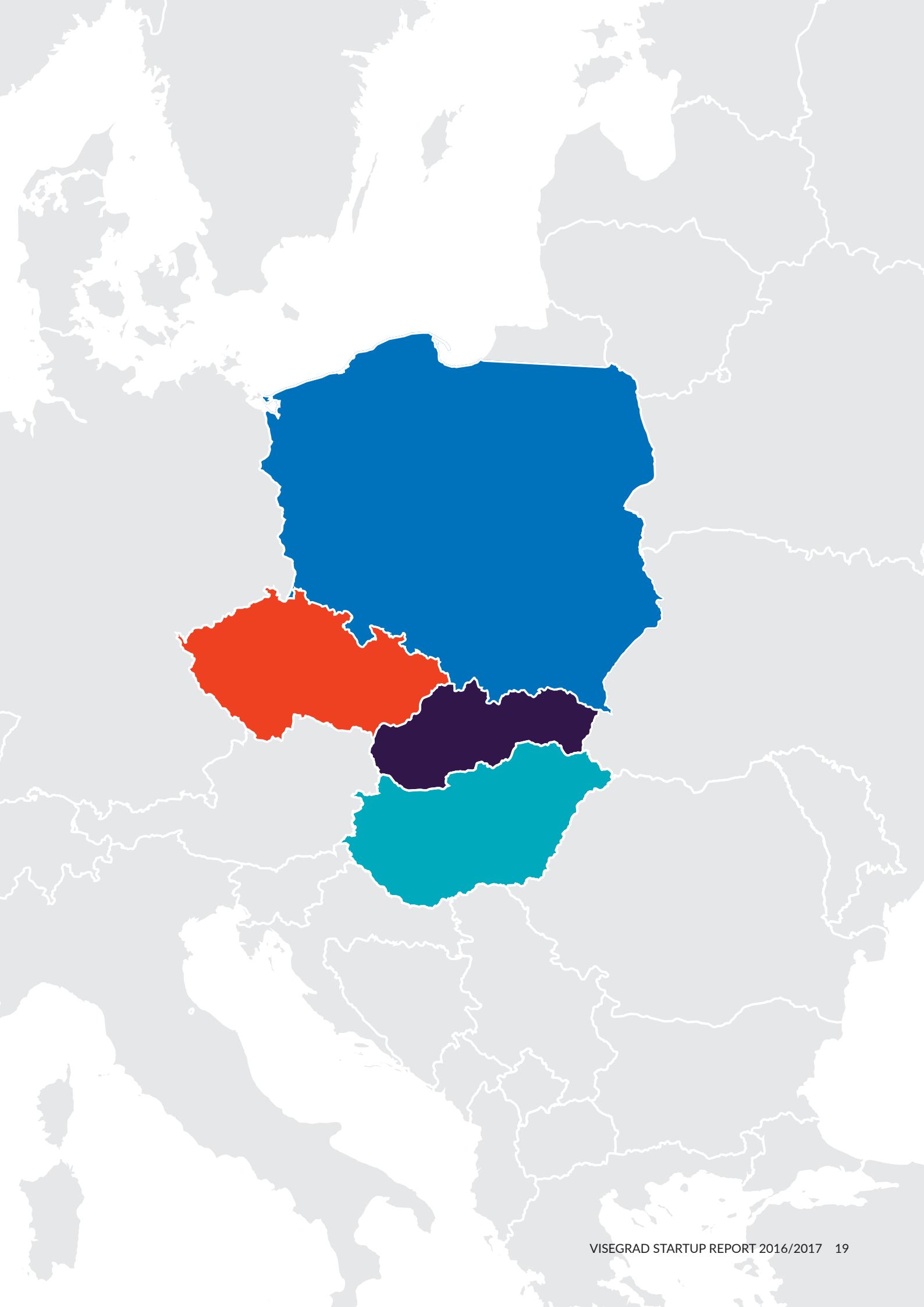
Slovakia

Strengths

- + High economic growth
- + The highest efficiency of labour
- + Strong e-commerce market
- + High export activity
- + Biggest share of female founders among surveyed startups
- + Crowdfunding most popular among V4 respondents

Weaknesses

- The highest rate of unemployment



About the authors

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Startup Poland represents a community of innovative entrepreneurs and is the voice of Polish startups. Its aim is to build awareness of the potential of startups among policymakers, politicians and local government representatives. It focuses on identifying and eliminating barriers to the development of innovative companies in Poland and on supporting legislative efforts to build a startup ecosystem in Poland.



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